

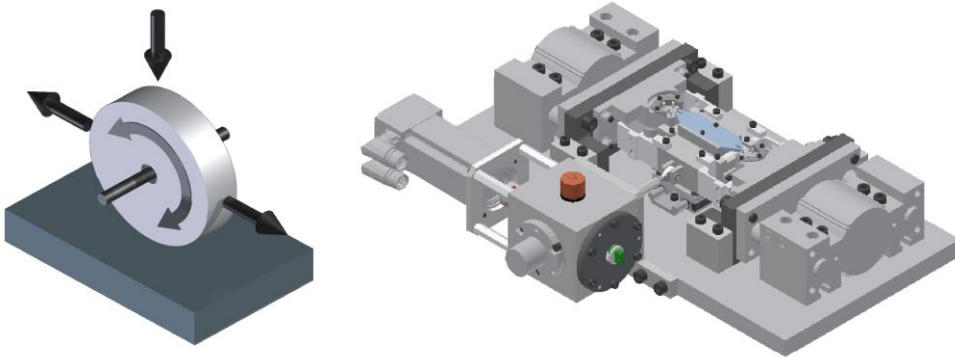
Tribology Update – ISSUE 48 – September 2026

WORLD TRIBOLOGY CONGRESS

This month, James and George will be attending the World Tribology Congress in Rio de Janeiro, Brazil, where we are looking forward to catching up with old friends as well as forging many new ones. We will also be exhibiting and can be found at Booth 8. If you wish to set up a meeting with us, you can do so by [emailing us](#).

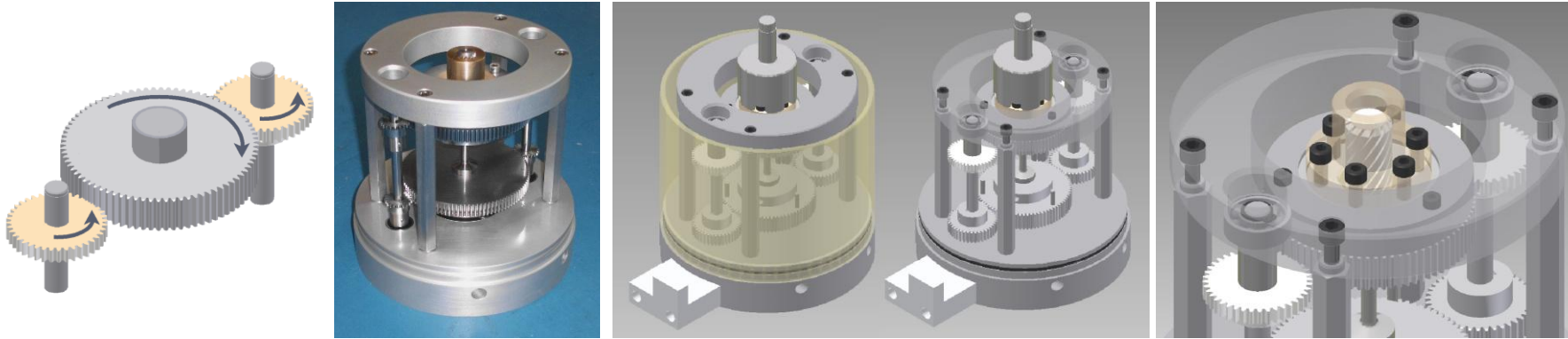
WORK IN PROGRESS – DEVELOPMENT

TE 55 Micro-Pitting/Bearing Fretting Rig – Design Modifications



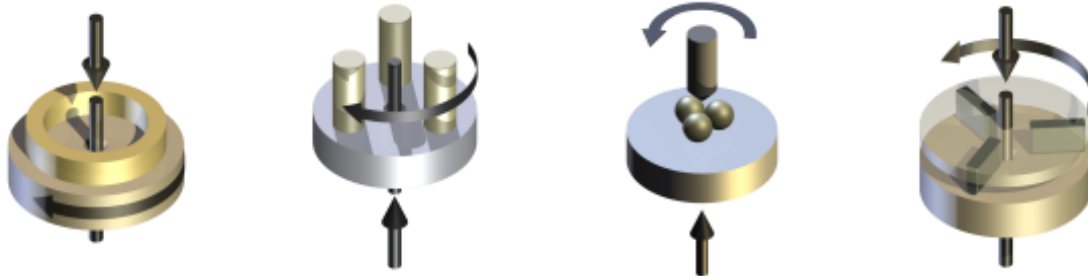
We have replaced the simple crank mechanism with a servo-motor driven scotch yoke drive and modified the moving specimen carriage to allow more efficient, non-contact heating of the fluid baths.

ST-TW Back-to-back Polymer Gear Test Adapter

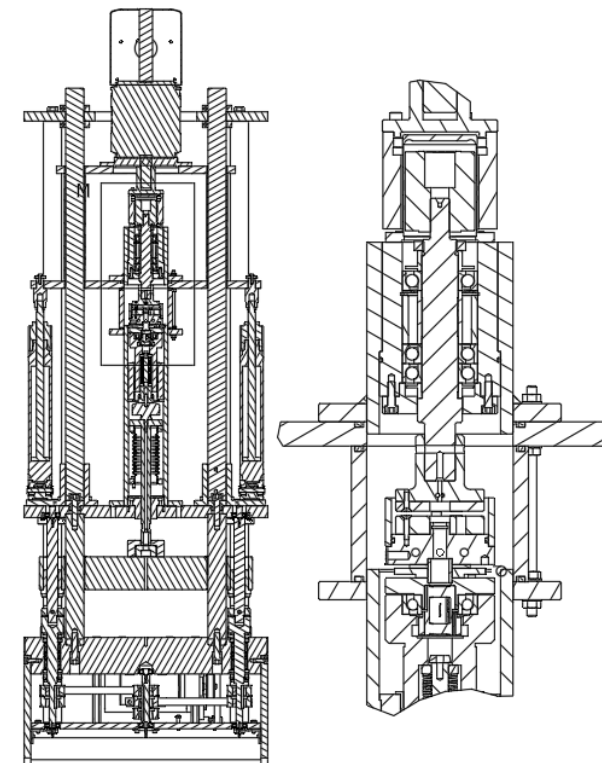


We have modified an earlier back-to-back gear adapter, originally design for tests on greases under ultra-high vacuum, for endurance testing polymer gears, using the ST-TW Thrust Washer test rig. Circulating torque is applied by an axial force acting on a high-helix leadscrew and nut arrangement, allowing the torque to be controlled in real-time.

TE 58 High Pressure Rotary Tribometer - Design Upgrade

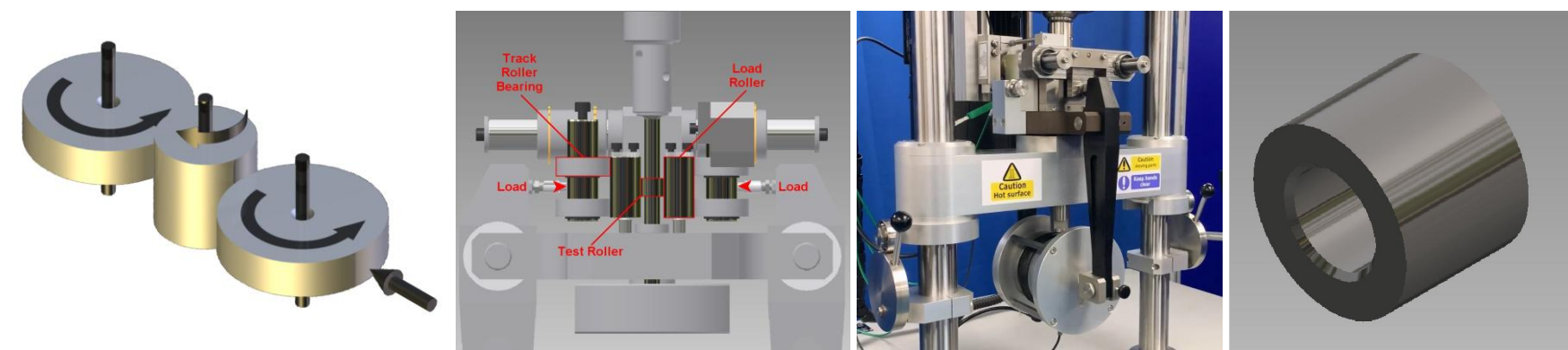


Technical Specifications	Original	Revised
Maximum Torque:	10 Nm	6 Nm - 0 - 1500 rpm
Maximum Load:	5000 N	1200 N
Maximum Pressure:	15 MPa (150 bar)	2.5 MPa (25 bar)
Maximum Speed:	2000 rpm	1500 rpm
Maximum Temperature:	120°C	120°C



The performance specification for the original TE 58 was beyond what was required for most applications, making it expensive and not commercially viable. By reducing the maximum load capacity and the maximum operating pressure, while maintaining much of the original design concept, we have been able to reduce the cost by 30%, while achieving a functionally more user friendly and useful design.

TE 92 Radially Loaded Two Cylinder on Rod RCF Adapter



We have designed new tooling for the TE 92/PV Pin on Vee Block/Block on Ring Adapter to allow rolling contact fatigue tests to be run with a two-roller on rod line contact test geometry. The rollers are 20 mm diameter and the rod sample is a 15 mm diameter cylindrical tube with a maximum length of 12 mm. The TE 92/PV generates a maximum load of 20 kN, giving:

Steel Roller on Steel Rod Sample:

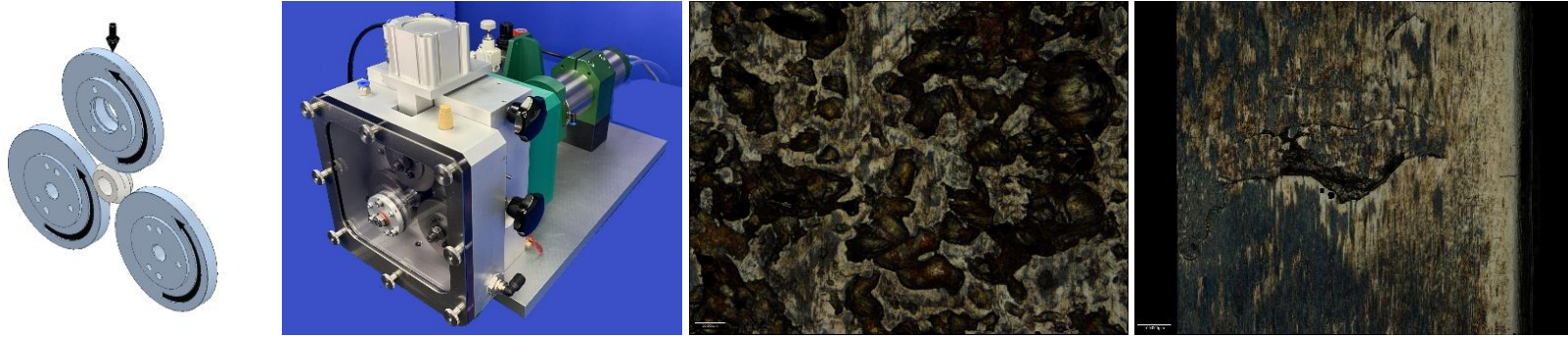
Contact Width:	12 mm	Contact Pressure:	3.79	GPa
Contact Width:	10 mm	Contact Pressure:	4.16	GPa
Contact Width:	8 mm	Contact Pressure:	4.65	GPa

Silicon Nitride Roller on Steel Specimen Rod:

Contact Width:	12 mm	Contact Pressure:	4.11	GPa
Contact Width:	10 mm	Contact Pressure:	4.50	GPa
Contact Width:	8 mm	Contact Pressure:	5.03	GPa

COMPLETED PROJECTS – DEVELOPMENT

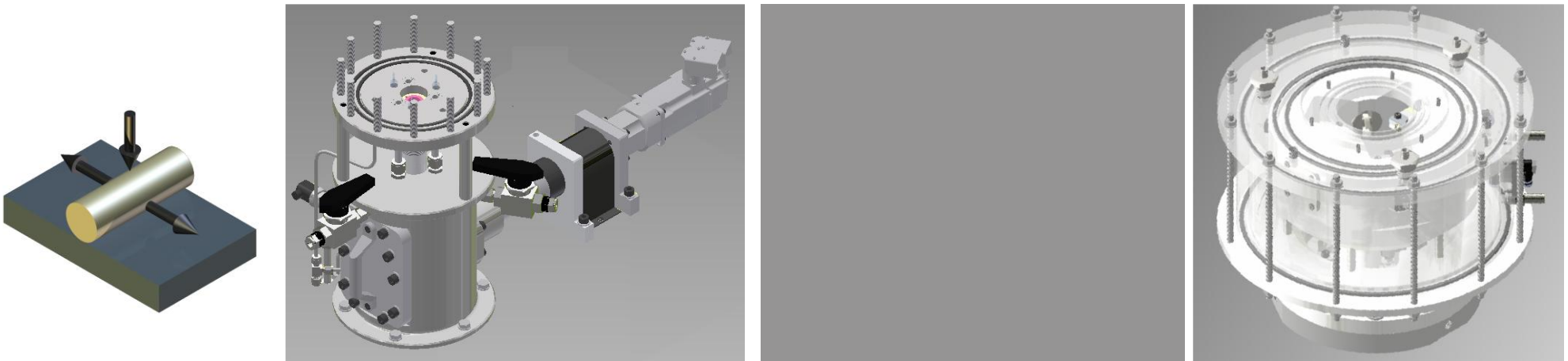
ST-PR Standard Test - Pitting Rig - Three Disc on Roller



We continue generating useful data with ST-PR and have recently run tests under inert gas, resulting in the suppression of oxide wear debris formation. We have also run tests to evaluate the potential use of electrostatic sensors for detection of micro-pitting.

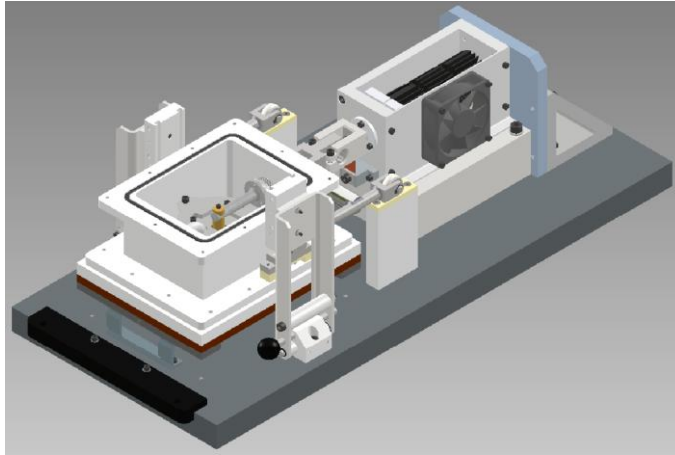
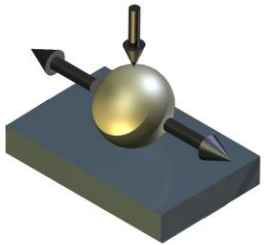
WORK IN PROGRESS – PRODUCTION

TE 60 High Pressure Hydrogen Tribometer - Low Pressure/High Temperature



The TE 60 now has two interchangeable test chambers, the original high pressure assembly and the new low pressure, high temperature, assembly.

Fretting in Liquid Lead



Combining elements of the [TE 44](#) and [TE 50](#), the new fretting in liquid lead test rig includes reference electrodes and a potentiostat. [Contact us for further information.](#)

COMPLETED PROJECTS – PRODUCTION

Fluid Conditioning Reactor Unit



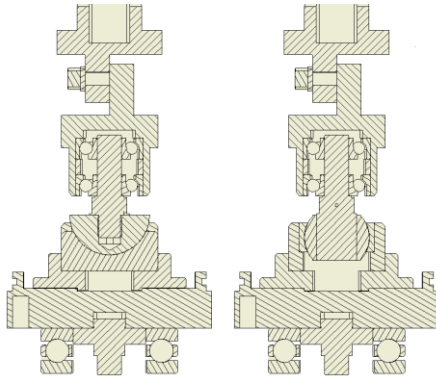
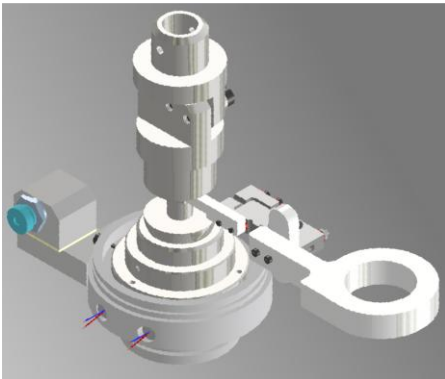
We have designed a more advanced oil conditioning module for subjecting lubricant samples to a variety of different gases, including hydrogen and ammonia. [Contact us for further information.](#)

TE 110 Indexing Roller on Drum Machine



The new indexing roller on drum machine has been completed and installed at Southwest Research Institute in the USA.

TE 92/SA/5 Orbital Spherical Bearing Adapter



We have modified the design to allow spherical rod end bearings to be tested as well as hip joint components.

OTHER NEWS

STLE Fellowship

In May 2026 we were honoured to see George Plint join the illustrious ranks of those who have been awarded a fellowship to STLE- the Society of Tribologists and Lubrication Engineers. George's award was bestowed by outgoing STLE president, Kevin Delaney, during the Presidents Luncheon at the 80th STLE Annual Meeting in New Orleans.



STLE fellowship is reserved for those who have an outstanding commitment to the fields of Tribology and Lubrication, and shows George's dedication to pushing the boundaries of tribology over the last 40+ years.

Guidance Notes

We continue to add to our on-line library of [Guidance Notes](#), with the following recently added:

- Challenge of Generating and Measuring Wear
- Detecting Rolling Contact Fatigue
- Frequency Response, Filtering & Sampling Rate
- Friction Noise Signal
- Friction Power Intensity & Energy Pulse
- Grease Lubricated Gears

- Hard Ball on Soft Flat Contact Pressure Change
- Overlap Parameter
- Running-in of Rolling Contacts
- Specimen Configuration Advantages & Disadvantages
- Specimen Pairs & Wear
- Test Fault Investigation
- Thermally Independent Minimal Energy Pulse Machines
- Thermally Self-regulating Continuous Energy Pulse Machines
- Thermally Self-regulating Cyclic Energy Pulse Machines
- Three Ball on Rod Calculations
- Two Roller Machine Test Design

Conferences and Exhibitions

In May we attended the 80th STLE Annual Meeting, this year in New Orleans.



This year we were proud to sponsor a travel grant as part of STLEs Next-Gen fund, allowing a PhD student from the University of Leeds to attend their first STLE conference. James also gave four talks on various work we have been doing this year:

- Development of novel test adaptors for brake and other hydraulic fluids,
- Development of a low-cost in-situ imaging system,
- Development of axially and radially loaded bearing adaptors for rotary tribometers,
- Further work on novel fuel degraded lubricants, incorporating testing in a simulated journal bearing contact.

More information on all these is available in our previous [Tribology Update](#), or by [getting in touch with us](#).

On November 6th we will be at the Institute of Physics Tribology and the Journey to Net Zero 2026, held at the IOP headquarters in London. Find out more and register here: [IOP- Tribology and the Journey to Net Zero](#)

Plus, more to be announced. Be sure to check our LinkedIn page for the latest updates.

History

We have added an updated [history](#) to the web site, which we hope you will find both interesting and entertaining.

Follow us on LinkedIn

Make sure to follow our [LinkedIn](#) page for all the latest updates about our equipment, conferences and more.

George Plint, Cyrille Favede, and James Morley

Phoenix Tribology Ltd