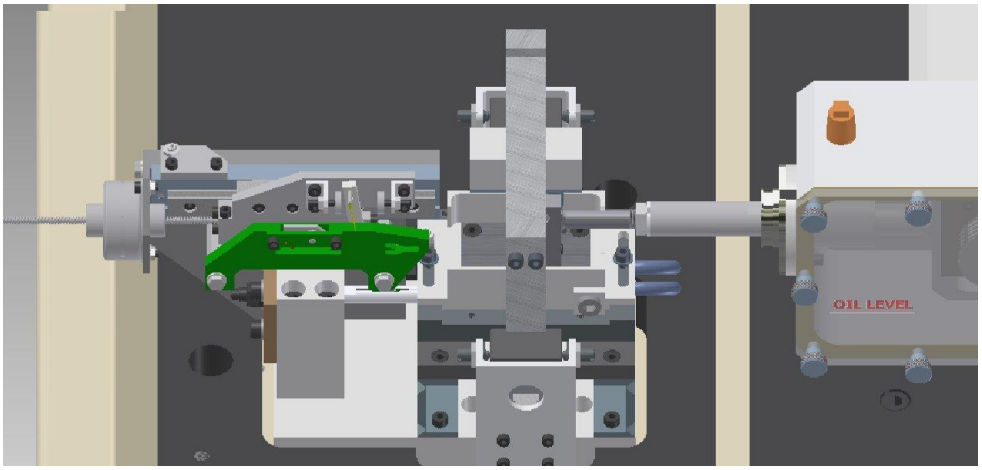
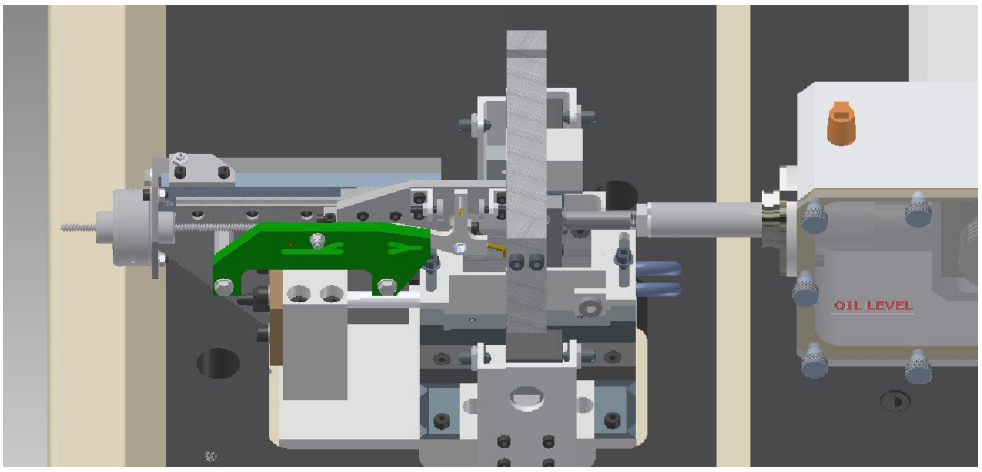
TRIBOLOGY UPDATE: *ISSUE 33 –May 2017*

This is the latest issue of our **Tribology Update** newsletter. The last year has been exceptionally busy for us, so we have a lot to report. For further information, we can be contacted by e-mail at ***info@phoenix-tribology.com***.

WORK IN PROGRESS – PRODUCT DEVELOPMENT:

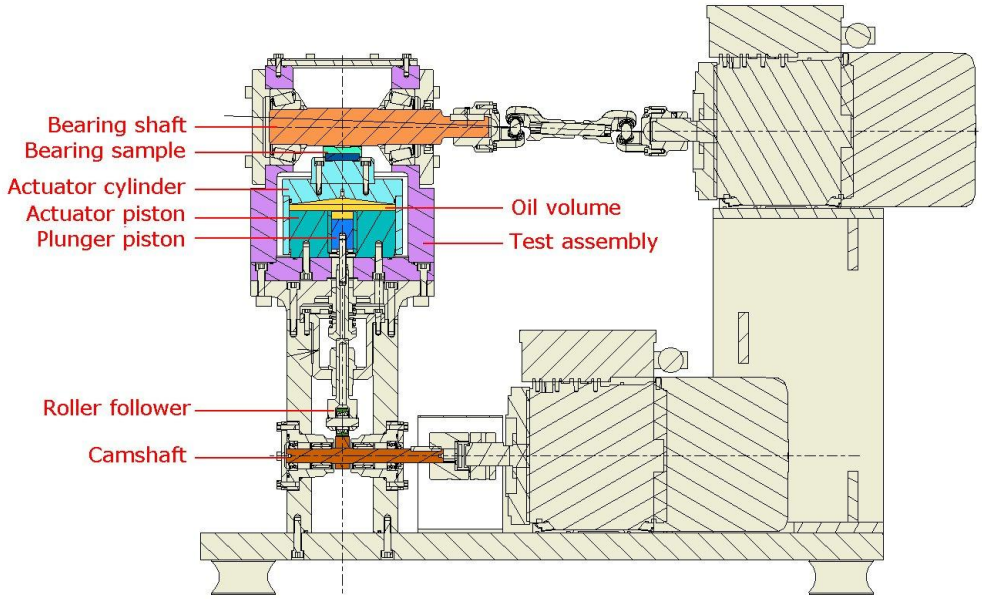
TE 77 Surface Profile Project





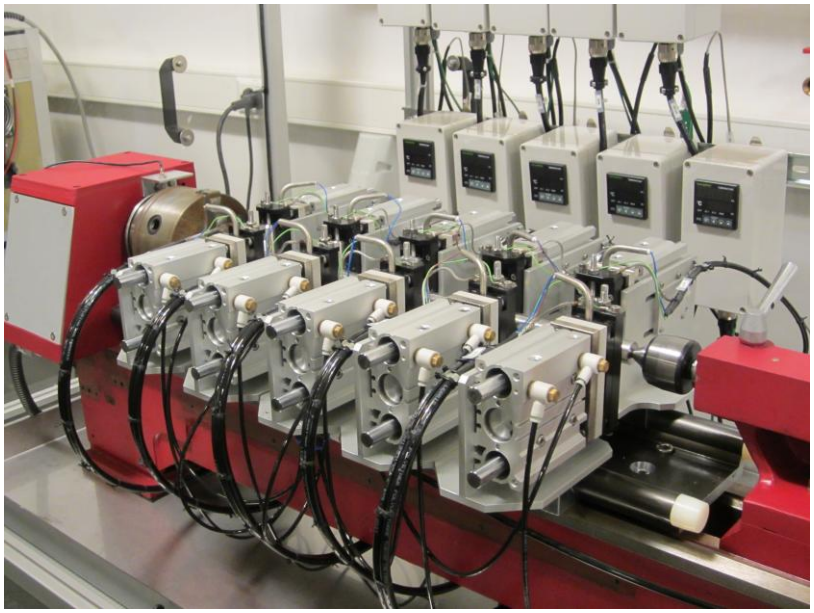
Our prototype tactile surface profilometry system incorporated an x-y slide assembly and a two axis motion controller. This represented a major component of cost and complexity. We are now working on a new design, using a single electric linear actuator to generate the motion, with the stylus lift/lower function generated by means of a simple cam track.

Pulse Actuator & Journal Bearing Fatigue Rig

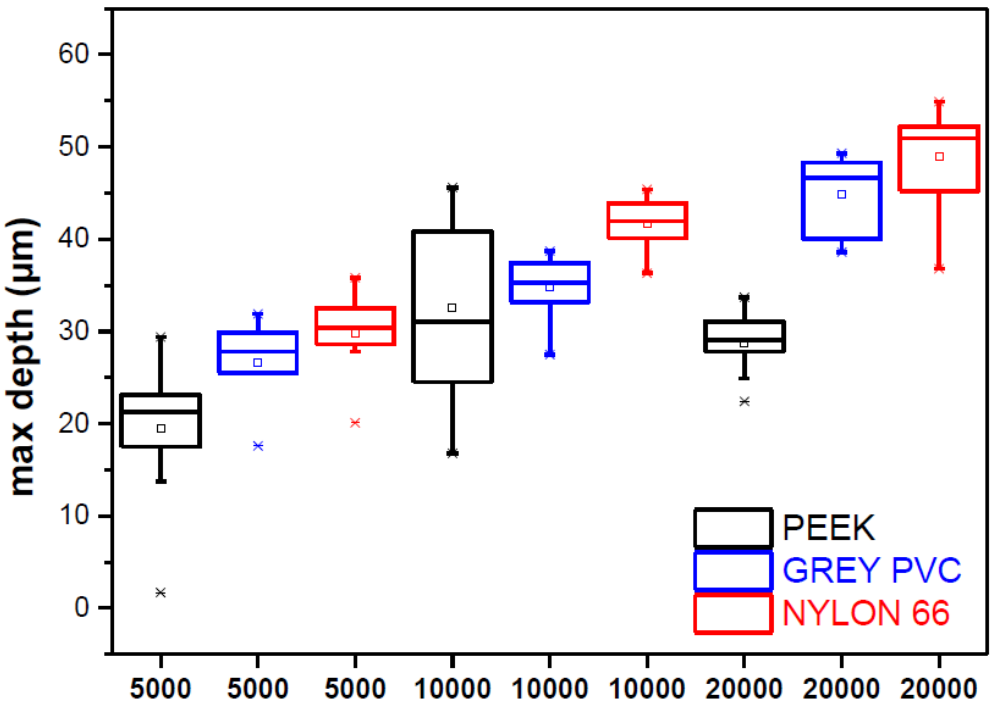


We are in the process of scaling up our prototype pulse actuator design to increase the dynamic load and to incorporate a partial journal bearing test assembly. Our aim is to investigate whether we can produce representative bearing surface fatigue, correlating with that generated in a full journal bearing, with a reduced area, partial journal bearing.

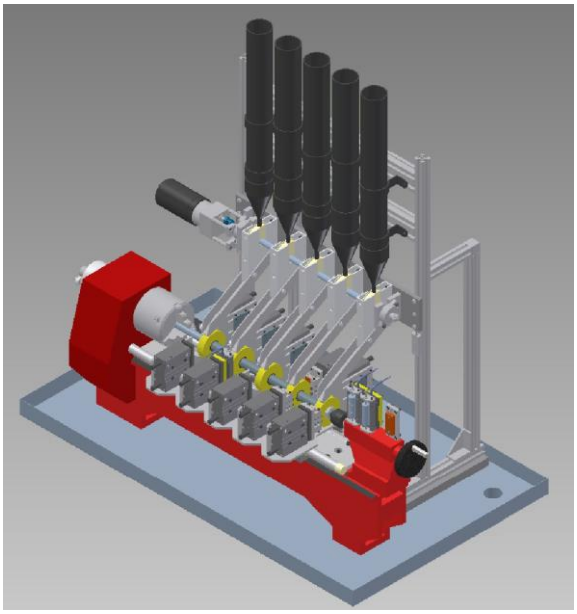
Wear Data Project Rig



Our first unit for "productionising" the generation of wear data has now been installed at Falex Tribology NV and is generating data.



Wear rates and wear of materials are still the main tribology issue in many industrial cases, and as testing has shown, wear of a production materials can show significant variations. In order to recognise trends in anti-wear properties, a lot of statistical data is required and the 10 station machine allows generation of that data, cost effectively. For more information please contact Dirk Drees at Falex Tribology NV.

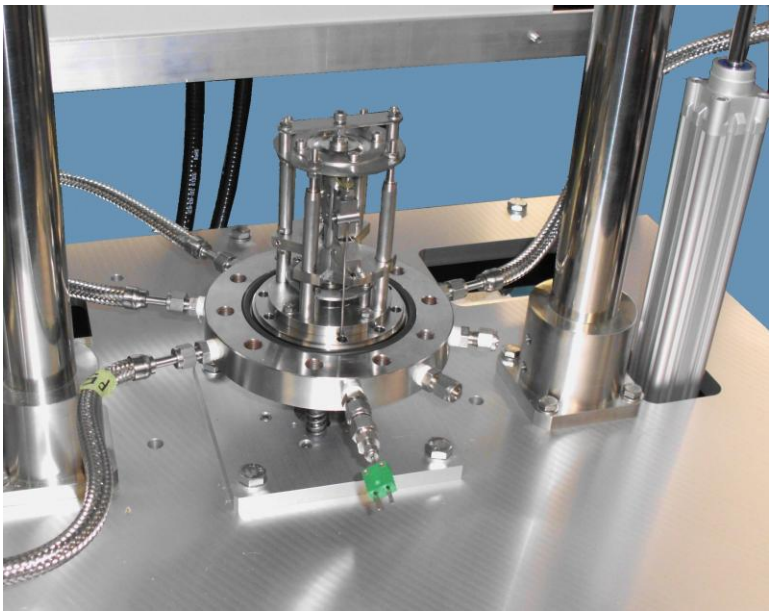


We are in the process of manufacturing a five-station abrasive feed system for running dry and wet rubber wheel abrasion tests, using low cost, commercially available rubber rollers.

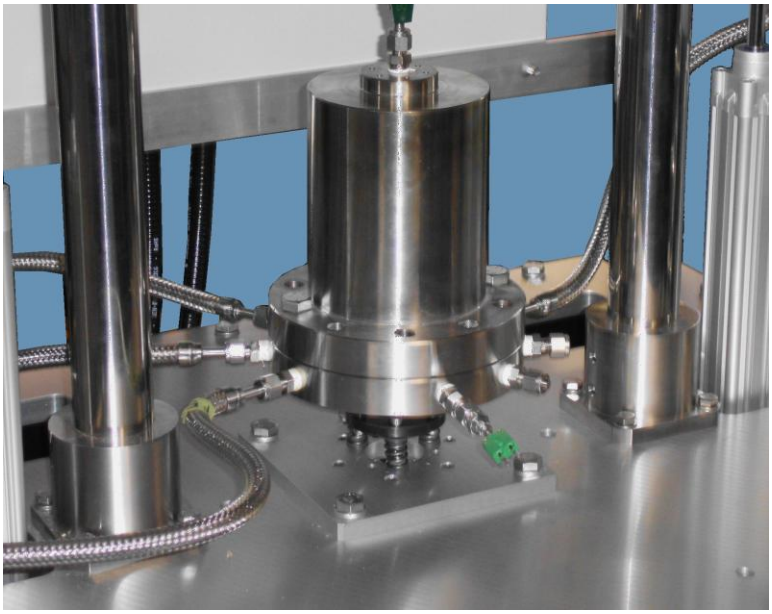
WORK IN PROGRESS – IN PRODUCTION:

Autoclave Harmonic Fretting Rig

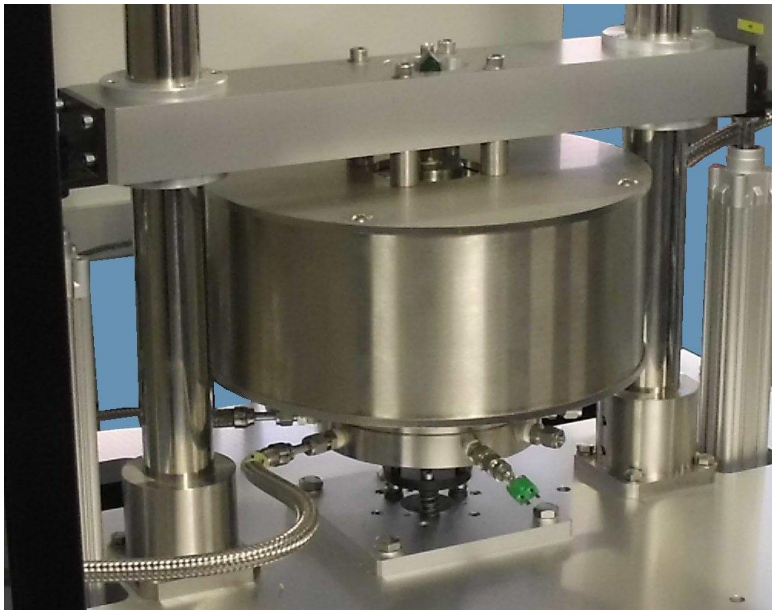
We are in the final stages of testing the autoclave fretting rig. This has been a long and quite demanding development project.



Fretting test assembly



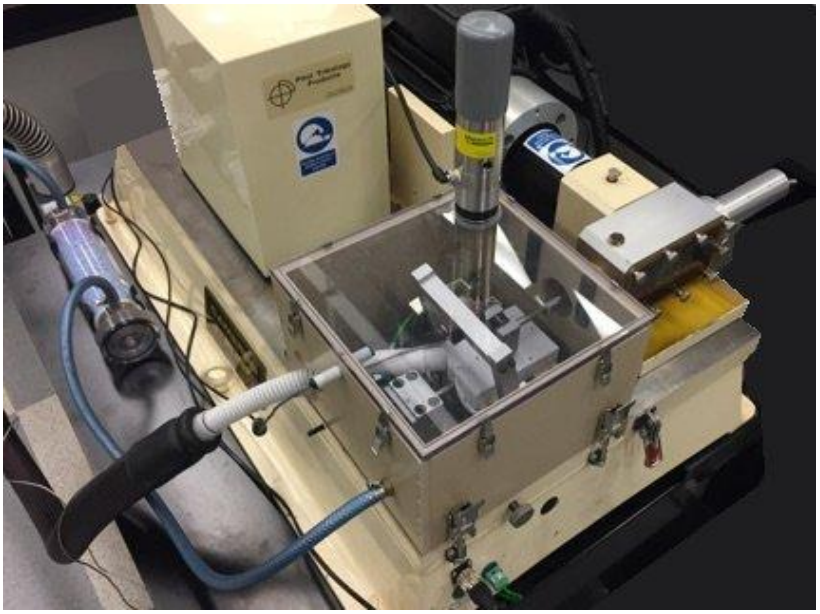
Autoclave lid fitted



Heating mantle lowered ready for test

WORK COMPLETED:

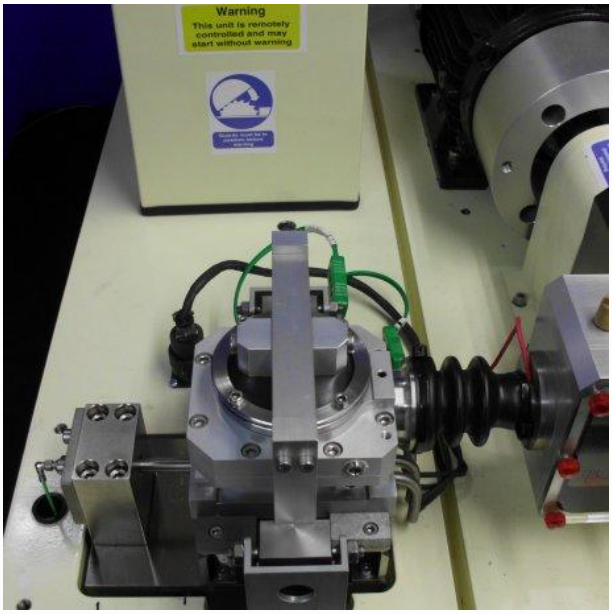
TE 77 Cooler

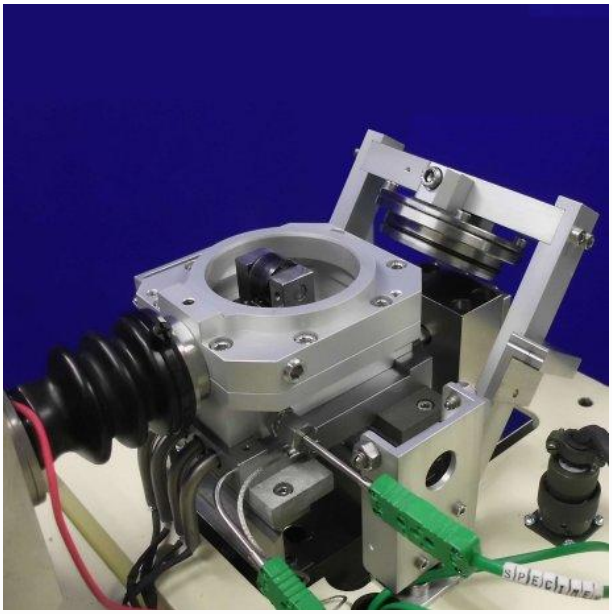


We have designed a new chiller pad and cooling system. The pad replaces the standard fixed specimen heater block assembly. A laboratory refrigeration unit delivers pressurised refrigerant direct to an expansion probe, embedded in the pad, removing the requirement for an intermediate heat transfer fluid.

This arrangement allows temperatures from ambient to -50°C to be achieved. To avoid ice formation, a test enclosure is included, fed with cool and dry air, delivered via a vortex cooler and a desiccant tube. A compressed air supply is required.

TE 77 Gas Enclosure





We have designed a new gas enclosure, which fits in place of the standard heater bath and encloses the fixed and moving specimens. The reciprocating specimen carrier is sealed by a rubber bellows fitted between the reciprocating drive assembly and the chamber. Load is applied through a flexible membrane in the top of the chamber. Specimen temperatures in the chamber are limited to 200°C.

RS 485 Pump

We now have a low cost, USB controlled, peristaltic pump system that allows us to put together multi-channel pump packages. These pumps are much cheaper than more sophisticated laboratory systems.

OTHER NEWS:

Cambridge Tribology Course 2017

The 25th Cambridge Tribology Course will take place from Monday 11th to Wednesday 13th September 2017.

George Plint and David Harris

Phoenix Tribology Ltd