Categories

Tribology Testing

OVERVIEW

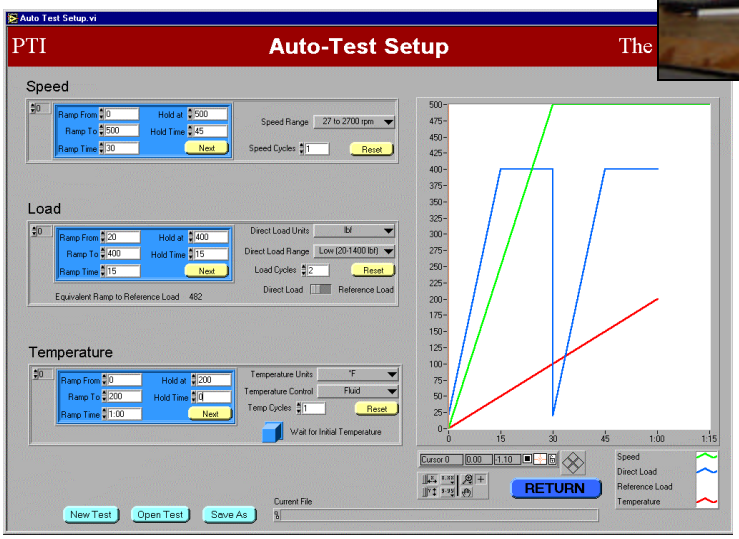
DMC developed the software for a tribological testing machine to include control, data acquisition and analysis capabilities for the testing of hydraulic fluids.

CUSTOMER BENEFITS

- High measurement accuracy on all tests
- Test files can be viewed graphically
- Data, both real-time and archive, can be analyzed while a test is running
- PC Based system allows connectivity to other Windows® applications

Above: tribology testing platform

Below: test setup operator interface screen



HARDWARE/SOFTWARE

- National Instruments LabVIEW®
- National Instruments PC-MIO-16XE-10 multipurpose I/O board
- CyberResearch® 24 digital I/O board
- 5B series signal conditioning modules
- Compumotor® DC servo motor with BEI encoder feedback

SYSTEM DESCRIPTION

Axle-type specimens are gripped in a rotating jaw where they are exposed to varying loads through "V" blocks. The specimens can either be run dry, or with lubrication. As the test is run, data is recorded including temperatures (specimen and fluid), load, speed, torque, and wear. Using this data, the friction, wear and extreme pressure properties of fluids can be evaluated. The system uses LabVIEW to control load and speed through PID loops. Temperature is controlled by cascading PID control of the heater element with the specimen or fluid PID loop. The software allows manual operation, as well as defining and running auto-test profiles. In addition, data analysis on current and old tests (including trending and variable comparisons) can be done while a test is running.

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