Emerging Technologies

APPLICATION BRIEF

AUTOMATED COMPRESSOR PUMP TEST SYSTEM

Brief Description:

Emerging Technologies was called upon to develop a multi-product custom pump test system for the functional test of fractional horsepower compressor pumps.

This system included many features seen before in Emerging Technologies' test systems. Pressure, vacuum, volts, watts, amps and duration are automatically tested against the configurable test sequence and specification. This specific test system is capable of testing a wide range of AC and DC voltage product. Additionally, the system monitors and records key specification points. Some compressor applications require the capability to start against pressure. As the test system monitors the DUT pressure, the test program cuts power at the specified PSIG for a pass/fail result. This test verifies the DUT can start against pressure without the need to exhaust all existing pressure in the system. Test results are stored locally on the system PC hard drive. A test report for each unit tested is added to an easy to read file allowing the manufacturer and/or customer to review each individual DUT's results post test. The database of results is required to identify trends and fluctuations in manufacturing quality.

The design included development of a documentation package, custom written LabVIEW test application, and joint customer validation period.

The final system was constructed into an easy to maneuver cabinet with a butcher block top, allowing ample work space for the DUT as well as the operator.

Customer Benefit:

The customer is able to verify quality of the DUT quicker and in turn, increase throughput. Many of the test system functions are automated requiring reduced effort from the operator. This system re-used portions of the software deployed on a previous tester for the same customer, meaning quicker turnaround time, familiarity with the UI, as well as a lower overall cost.

Special Features:

- Configurable System Hardware & Configuration Files.
- Configurable Parts Database.
- Operator Friendly Design.
- Manual Override Mode for DUT
- Instructive Operator Prompts and Troubleshooter

Key Components Used:

- National Instruments DAQ Hardware.
- LabVIEW based custom Test Application.
- Programmable AC Power Source
- Programmable DC Power Source
- High Accuracy Flow and Pressure Sensors

Emerging Technologies, LLC. Responsibilities:

- Functional Specification Generation
- ✓ Design / Engineering
- ✓ Fabrication
- ✓ Programming – Software
- Programming – Firmware
- Circuit & PCB Design
- On-Site Commissioning
- ✓ Post Commissioning Support
- Other

Technologies:

- Embedded Computers
- Microcontrollers
- ✓ Visual Software
- ✓ Control Software
- ✓ Data Acquisition
- ✓ Computer Based Control
- ✓ Communications
- System Integration
- Other

Customer Category:

- ✓ OEM
- Contract MFG
- Custom Equipment
- Utility
- R&D