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Instrumentation

Air Test Systems

Helium Test Systems

Hydraulic Test Systems

Functional Test Systems

Integrated Assembly & Test

InterTech Development Company

7401 N. Linder Avenue, Skokie, IL 60077, USA

T: 1.847.679.3377

W: intertechdevelopment.com

E-mail: sales@intertechdevelopment.com

ISO 9001 Registered
ISO 17025 Accredited

Worldwide Support:

InterTech Europe

19 rue Clement Michut 69100 Villeurbanne

T: (33)437.434.116

W: intertecheurope.com

E-mail: intertechinfo@intertecheurope.com

InterTech Shanghai Technical Center

Part D, No.3 Building, No.81 MeiYue Road,

China (Shanghai) Pilot Free Trade Zone

T: (021) 5868 2102

E: sales@intertechdevelopment.com

InterTech India

C31, Fort Indraprastha, 45, Kalakshetra Road,

Thiruvanmiyur, Chennai-600 041, India

Mob: +91-99403-20718

E-mail: ajay@intertechdevelopment.com

Can We Speed Up Large Volume Part Leak Testing by Eliminating Filler Blocks?

Yes!

The Challenge

Oil pans require leak testing—a production step historically slowed by the relative large volume of each part. Traditionally, filler blocks are incorporated into the test process in order to reduce the test volume making the leak test cycle more accurate and relatively faster. Loading and unloading filler blocks do add time to the production process. But without filler blocks, the stabilization phase of testing proceeds too slowly and with too much error.

InterTech Development Company's engineers asked—is there an alternative??

The InterTech Solution

InterTech Development Company engineers developed a leak test system where oil pans are tested to a 10 sccm limit, at a pressure of 100kPa (14.5psig) within 19 seconds.

This fast production rate is achieved without filler blocks.

InterTech's fast oil pan leak test system includes:

Superior test accuracy and at faster speeds using the superior InterTech M1075 Mass Flow Leak Detector to control the test cycle.

Unlike generic test instruments, InterTech's mass flow leak testers use patented sensors that are tuned to perform optimally and most

sensitively within the test parameters required for testing these large volume oil pans.

InterTech patented Ex-Heat® Technology

InterTech's Ex-Heat® process reduces stabilization time—the slowest part of the leak test—on large open test volumes. The Ex-Heat® process reduces stabilization time and variation by extracting the warm unstable air from the test part and replaces it with stable air, at the correct test pressure, that is ready to be measured for the leak rate value.

Test Process and Solution

Each 15 liter volume oil pan can be tested at a rate of 50 seconds/part, contingent on operator speed for loading (estimated 3 seconds) and unloading (estimated 3 seconds) of each part. The leak test portion of the production cycle requires only 31 seconds.

The test sequence is as follows:

1. The operator loads the part, fixtures are activated, oil pan is pressurized and test sequence begins
2. Test aborts if the supply pressure is not within the minimum and maximum limits after the fill period.
3. If the measured leakage is above the accept limit after the stabilization period, the REJECT light illuminates until the operator presses the RESET button.
4. If the leakage is below the accept limit, the test pressure will vent and the ACCEPT light illuminates.
5. Upon successful completion of the leak test, part clamps return to their home position, door opens automatically, and operator removes part.

Additional Features

- M1075 displays the test cycle in real time—BENEFIT: Rapid and easy adjustment of testing by operator, increasing production rates.
- Automated R&R mode —BENEFIT: scheduled machine qualification and audit traceability, improving production line efficiencies.
- EtherNet/IP Capability in test instruments or any other OEM-preferred controls and data display —BENEFIT: Easy integration of test instruments into existing plant infrastructure for data handling and analysis.

