

Falcon Applications

Fuel Handling Components

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Automotive Fuel Components Leak Tested with the Falcon System

- **Fast Response with Leak Location**
- **Short Cycle Times for Total Leak Rate**
- **No Effect from Changes in Part Temperature**
- **Immediate Feedback to Brazing or Welding Process**
- **Automatic Record of Leak Location**

There are many advantages to testing fuel components or other brazed or welded parts utilizing the Falcon Leak Test System.

The Falcon Leak Test System offers a new technology not previously available. This technology detects low leak rates. It is not affected by part temperature variations. It ignores variations in background helium. And it identifies the area of the leak location. It accomplishes this task with a simple system that operates at atmospheric pressure without a vacuum chamber or chamber vacuum pumps.

The system utilizes a series of patent-pending Intelense sensors that are strategically placed



around the brazed or welded joints, seams, and other possible leak locations. After the part is placed in the test fixture and sealed, it is evacuated and then pressurized with helium. The sensors detect the presence and magnitude of helium leaks in their proximity. Each sensor resolves leak rates to 1×10^{-5} scc/s. Each Intelense sensor incorporates an on-board microprocessor that initiates data processing and talks through the Sentry Process Control Software (PCS) communication network to the Falcon controller. Ignoring residual part temperatures or varying helium backgrounds, the Falcon System determines the leak location and total part leak rate. At the end of the test, the Falcon operator screen displays the leak rate and a depiction of the leak location on a 3-D image of the part. This immediate feedback and



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documentation of leak location provides the timely information needed to take corrective action to improve the part's manufacturing process and throughput.

The Falcon Leak Test System overcomes the challenges posed when testing with pressure decay or mass flow systems.

1. Ideally it is desirable to leak test brazed or welded fuel handling components immediately after the brazing or welding process. This timely test monitors and gages the process. The brazing or welding process adds heat to the part. If the part is tested immediately after this process, the cooling effect of the normalizing temperature will cause a variable pressure loss in a pressure decay system or variable flow in a mass flow system.
2. Most pressure decay and mass flow systems can compensate for consistent changes in temperature, but any inconsistency results in non-repeatability or potential false accepts or rejects.

Because the Falcon System operates with a tracer gas and does not depend on the Ideal Gas Law, its performance is not affected by part volume or temperature variations during the test cycle.

The Falcon Leak Test System from Cincinnati Test Systems, Inc. simultaneously determines leak location and total leak rate, providing real-time process control. The breakthrough Falcon Leak Test System delivers unmatched performance, communication and control benefits that significantly enhance leak detection efficiency and effectiveness as well as

eliminating the need for costly, additional leak tests.

The Falcon Leak Test System provides a cost effective solution that bridges the gap between traditional pressure decay technology and helium vacuum mass spectrometry. The Falcon System's advanced on-screen graphics display provides precise visual recognition of the leak location and accurately identifies the leak rate for the operator. It also communicates the information to the designated factory communication network, ensuring the quick resolution of manufacturing deficiencies to minimize downtime and scrap production.

If there is an application you would like to discuss with us, please call Cincinnati Test Systems at 513 367 6699