

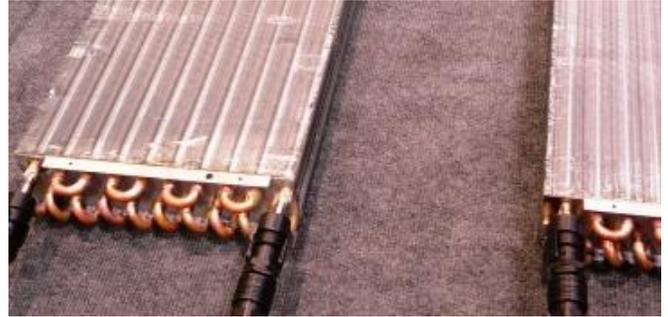
VTech e-news

Leak Detection Essentials

#15

The Importance of Vacuum in Leak Detection

In leak detection applications using a tracer gas media (e.g. helium or hydrogen/nitrogen mix) it is very important to evacuate the unit under test (i.e. coil) prior to tracer gas filling, using a small Venturi vacuum generator or vacuum pump. Skipping this vital step may slow the process of **Diffusion**, thereby limiting the sensitivity of the test. For more about Diffusion in leak detection [click here](#) to read a technical paper in pdf.



Precision Gas Filling

While vacuum is an essential part of the tracer gas leak detection process, precision gas filling with proper equipment is also invaluable. The test pressure as well as flow rate should be controlled to accurately and evenly distribute the gas inside the test unit. This is essential for maximizing the sensitivity of the leak detector. Otherwise, the theoretical sensitivity of the instrument (e.g. a helium sniffer with 1×10^{-6} mbar l/s theoretical sensitivity) may be lowered by inconsistent conditions, making it possible for a leak to go undetected, especially when trying to detect very small leaks as in refrigeration applications (i.e. 0.1oz/year of refrigerant). **VTech manufactures solutions for this requirement, as below:**



The [VTech 75 Multifunction Leak Detection System](#) combines evacuation, with a Venturi vacuum generator or optional vacuum pump, and precision tracer gas filling for manual sniffing leak detectors in either an integrated Hydrogen Detector or Standalone Helium Tester. The system also includes a preliminary pressure decay leak test, to prevent gross leaks from wasting valuable time--and tracer gas, in the fine leak detection process.



If Pressure Decay is not required or if it is handled by an existing system, then the [VTech Gas Fill Plus](#) can be used to evacuate and fill the gas only, and utilize a customer-supplied leak detector such as this bench-type configuration with the Gas Fill Plus working alongside the Hydrogen sniffing unit.

As show at left, this VTech Gas Fill Plus model comes equipped with a Rotary vane vacuum pump to perform the necessary evacuation. A simpler model with a Venturi device is also available.

Customer Highlight

Training Day

While VTech's equipment is designed to be easy to use, training is an important aspect of product support. During installation we also provide supervision and training so that all those involved with the machine, from different levels and departments, are "on the same page" before we leave.

The initial training session will get the customer started, but inevitably things change; personnel or responsibility alternations can leave a company suddenly thin on expertise and familiarity with the installed systems. While manuals are okay, nothing compares to hands-on training, not only on the systems themselves, but on some of the principles and science behind the technology.

Recently, one of our customers set up an equipment inspection, repair and training visit. The equipment was originally purchased and installed several years ago, but personnel changes as well as increased demand of the systems, created the need for subsequent training in operational and maintenance procedures. We can even aid in helping customers create their own standard procedures for personnel to follow. Following the visit, our customer had these comments:

"The training was even more necessary than we had initially understood. We got a lot of value out of the visit. Following the session, we feel like we are back on top of the leak testing process. We're working now on putting together operation and maintenance work instructions."



Questions Lead to Answers

When a potential customer contacts us with a refrigerant charging or leak detection application we typically provide them with a brief but thorough questionnaire that allows us determine the best equipment configuration to meet their particular needs. We feel this is the best way to begin working on a project: rather than a one-size fits all approach, we tailor each customer solution to the customer's needs, meeting expectations from the start. Have a project in mind? Want to take our questionnaire? Please contact Gordon Purkis at (404) 432-1629 or g.purkis@vtechonline.com and let's get to work!