



VACUUMULATION™ BATTERY LEAK TEST SYSTEM



VTI's patent-pending Vacuumulation™ method is a hybrid-technique between traditional hard vacuum mass spectrometer leak detection and atmospheric accumulation leak detection. A unit under test is placed in a vacuum chamber and a vacuum of 10-100 Torr is achieved. The Leak Test System then "vacuumulates" the tracer gas to be measured by the leak detector.

The Vacuumulation™ Leak Test System can lower the cost of a traditional hard vacuum mass spectrometer leak detection system by 20-25% and can provide a 10-100 times shorter TAKT time than traditional atmospheric accumulation leak detection.

An example of VTI's proprietary Vacuumulation™ Leak Test System is shown above. The Vacuumulation™ Leak Test System is leak testing batteries that are Charged-in-Chamber (CIC) with 2 psia helium to a leak rate of 1×10^{-4} atm-cc/s helium. The CIC process is critical to the success of this testing as the unit under test cannot withstand larger differential pressures.

Unlike standard hard vacuum leak test chambers, this leak detection system is evacuated only to a vacuum of approximately 10 Torr. Helium is then accumulated inside the system to allow sufficient signal to detect the 1×10^{-4} atm-cc/s leak from the test part. The two-chamber system shown above delivers one tested part per minute.

This type of leak detection system is best suited for testing units with leak rate specifications of 1×10^{-4} atm-cc/s of helium or greater, relatively small volume, and relatively long TAKT times.

Accumulation Leak Testing methods have been traditionally used on very small products, but the use of Vacuumulation™ has allowed the size of the product to increase.

Bar codes are used for cycle initiation, unit identification, and tracking of test results.

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