



High Accuracy Non-A/C Powered Leak Tester and Volume Calibrator



TECHNOLOGY SUMMARY

This novel invention relates to a portable, pneumatically-controlled instrument capable of generating a vacuum (less than 10 Torr), calibrating volumes, and performing quantitative leak tests, all without the use of A/C power. This means testing will not be disrupted when working in sensitive or hazardous environments (e.g., flammable or poisonous gases, lightning storms). No warm-up time is required for testing, with highly accurate results being generated within minutes.

BENEFITS

No A/C power required
Improved safety when working with flammable materials and continuous testing even in hazardous conditions

Fully pneumatically controlled
Does not require an operator to actuate process valves

Small size
Can easily be taken into the field

INTELLECTUAL PROPERTY

SD# 10710
US PATENT PENDING

POTENTIAL MARKET APPLICATIONS

Semiconductor Industry

The ability to detect leaks of highly flammable gases (such as hydrogen) is crucial to employee safety as well as project success. This novel technology would allow for gas leak detection in semiconductor processes without introducing electricity into the environment.

Solar Power Generation

This technology could potentially provide a much safer method of pumping hydrogen into Stirling Engines which could then be used to generate electricity.

Space Industry

Reducing the level of moisture present within a payload is critical to mission success as water can lead to moisture contamination which is often detrimental to experimental data. The absence of A/C power also eliminates issues with electrostatic discharge (ESD) which often has a fatal effect on on-board electronics.

TECHNOLOGY READINESS LEVEL

Sandia estimates this technology at approximately TRL 6. A prototype of this technology has been developed and tested at Sandia.

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Sandia National Laboratories

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