GAS CONTROL NEWS

QUALITY – RELIABILITY – SAFETY

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The Quest for a Better Leak Test

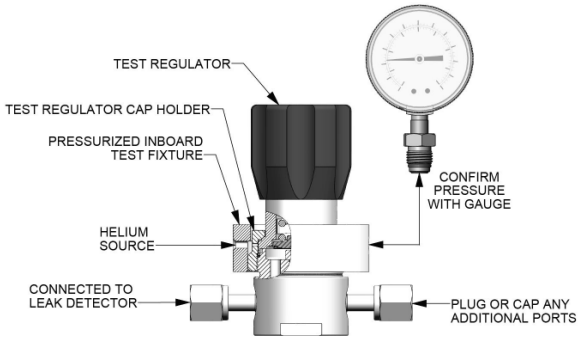
The 'Holy Grail' of a UHP gas system is a leak testing method with high sensitivity that is user friendly. The quest is for a leak test method that achieves the leak detection ability of outboard helium (He) bell jar testing that can be used in production and can be applied to gas piping systems. Product Note PN 442, Interpreting Leak Rates, https://aptech-online.com/wp-content/uploads/2019/06/PN-442-Interpreting-Leak-Rates.pdf explains that a gas systems leak integrity is only as good as one's ability to test. The PN explains the merits and limitations of the various test methods utilized today.

AP Tech is pleased to announce yet another innovation – Pressurized Inboard™ (PI) He leak testing. Our engineering team has devised a patent pending hybrid He leak test method which combines the advantages of inboard He testing with outboard He sniffer probe testing to achieve an entirely new level of production leak testing.

PI is an inboard He leak test that is enhanced by pressurizing the He externally to a joint, such as diaphragm to body seal. The pressurizing of He increases pressure differential to the leak detector which helps push He molecules through a leak path. Rather than spraying He in the atmosphere around a device under test (DUT) and vacuum pulling the He through a leak path, He is applied externally at 100 psig (7 bar) to push the He through a leak path – this is over seven times the pressure differential of a conventional inboard He leak test. PI provides the advantages of outboard He testing without saturating the device with He and without the limitation of background level of He in the atmosphere.

Product Note PN 448 https://aptech-online.com/wp-content/uploads/2021/01/PN-448-Pressurized-Inboard-Helium-He-Leak-Testing-003.pdf explains PI testing and compares PI to other leak test methods. It is recommended that PN 442 be read prior to reading PN 448 as it will provide an overview of leak test methods utilized in PN 448.

AP Tech will phase this exciting innovation into production at some point in the future. A product alert will be issued to formally announce our intentions. ❖



Schematic of PI Test

Pressurized Inboard™ is a trademark of AP Tech

Coming to Terms with Terms

It is common with industries, professions and companies to utilize words which have specific meanings that may not be mainstream – i.e. jargon. AP Tech and the UHP gas handling world in general are guilty of words and terms which are defined uniquely by our company or the industry. Some words may have conflicting or multiple meanings, which further complicates understanding.

A compilation of terms is now available: Product Note PN 447, Gas Delivery Component Terms https://aptech-online.com/wp-content/uploads/2021/01/PN-447-Gas-Delivery-Component-Terms.pdf. The PN includes many of the common terms used today and words that may have meanings unique to AP Tech. It is intended as a quick reference and as a gateway to further information on the topic, such as product notes.

PN 447 is posted to the Tech Briefs section of the web site and is a downloadable PDF. ❖

Precursor of Valves to Come

Valves for delivery of precursor chemicals face several unique challenges. Canister valves generally deliver chemicals at elevated temperatures and at vacuum. The valves are often rebuilt when the canister is refilled. Springless diaphragm valves have been the industry standard for this niche application for many years. Limitations of the traditional valve designs prompted our engineers to pursue a better solution – thus the AP 44 series is born.

The AP 44 is the first of a new family of valves. The AP 44 attaches the seat to the diaphragm which in turn is attached to the valve's actuating mechanism. The approach assures consistent valve opening and enables easy rebuilding of the valve – replace the diaphragm assembly only. The seat design utilizes a minimum of material and has a PFA seat capable of operating at 200° C designated H2 option. The AP 44 series is a 1.5 inch bodied valve with a Cv of 1.1 and a pressure rating of 125 psig (9 bar). It is available pneumatically actuated normally closed (NC) and two manual versions with open/closed indication and lock out / tag out (LOTO). The data sheet is posted to the web site. https://aptech-online.com/wp-content/uploads/2017/11/AP44CL33626DECEMBER2020.pdf.

A smaller valve with a 1.125 inch footprint and the same design concept is in development that will be a drop in replacement for existing sized valves.

The AP 44 series is in the process of being released to production with availability within three to four months from today. ❖

Valves in photo have H2 option

COVID 19 Update

For the duration of the pandemic, our home page will maintain a link to the most current updates. The posted documents are updated only when there is something new to report. The current posting (link) notes our status today. Sadly, little has changed in recent months. We are optimistic that we will have better news to report as the vaccine becomes more readily available and more people are vaccinated. The Holiday surge in cases seems to be subsiding, however, as we have already learned things can change at any time. ❖