DKN Access Networks & Consulting

Valve Spectrometer

AI Overview

Valves in spectrometry control sample flow, prevent contamination, and maintain vacuum conditions, ensuring accurate and reliable measurements.Role of Valves in SpectrometryValves are critical components in spectrometry systems, including mass spectrometers and atomic spectroscopy instruments. They regulate the flow of liquids or gases, isolate sensitive samples, and maintain the high vacuum required for accurate mass analysis . Proper valve operation ensures that samples are delivered efficiently, prevents contamination, and stabilizes the instrument's performance.Types of ValvesIsolation Valves: Prevent contamination by separating the sample from the actuator and control surfaces. They use diaphragms, bellows, or flapper seals to maintain purity and are easy to clean for reuse .Pinch Valves: Control flow in flexible tubing by compressing the tube, allowing free flow when open and hermetic separation when closed .Proportional Valves: Solenoid-driven valves that adjust flow precisely in response to electrical signals, ideal for low flow rates in gas chromatography or mass spectrometry .Diverter/Inject Valves: Used to switch sample flow between waste and the spectrometer, protecting the source from non-analyte components and optimizing sample delivery .Vacuum Valves: Tailor-made for mass spectrometry to maintain high vacuum, control conductance, and resist outgassing, ensuring stable operation under low-pressure conditions .Advanced Valve SystemsManufacturers like Agilent offer Advanced Valve Systems (AVS) for atomic spectroscopy, which automate sample delivery, autodilution, and washout. These systems improve throughput, reduce human error, and enhance data quality. Examples include AVS 4 for MP-AES, AVS 6/7 for ICP-OES, and AVS MS for ICP-MS .Best PracticesUse diverter valves to direct early solvent fronts or late hydrophobic components to waste, preventing contamination of the mass spectrometer .Ensure proportional valves are calibrated for precise flow control, especially for low flow rat...

Article Content

Mass Spectrometry

Our family of vacuum isolation valves includes bellows and ball valves, manual, pneumatic and electro-pneumatic actuated valves in heated or unheated angle and inline configurations, safety shut off

ICP-MS Switching Valves for AVS MS & ISIS | Agilent

The Agilent switching valve supplies (AVS MS or ISIS) for 7700, 7800, 7900, 8800, 8900 ICP-MS ensures your laboratory productivity. Find switching valve parts, including sample loops for high

About Valco Valves

Standard test methods ensure valve performance at listed specifications. An optional method utilizes a helium mass spectrometer. Standard materials are

Divert/inject valve configurations

You can configure (plumb) the divert/inject valve as a loop injector (for flow injection analysis) or as a divert valve. The divert valve can switch the solvent front, gradient endpoint, or any portion of the LC

What are the suggested time intervals when using a diverter valve?

Efficient use of diverter valve will keep the mass spectrometer source and ion optics from unnecessary and excessive contamination. This article provides guidance on how to set an

Advanced Valve System (AVS) 6/7

The Agilent Advanced Valve System for ICP-OES (AVS 6/7) reduces cost-per-analysis and more than doubles the productivity of your Agilent ICP-OES. The 7

Employing a switching valve to automate external ...

Employing a switching valve to automate external standard calibration in inductively coupled plasma optical emission spectrometry

Gas and Liquid Sampling Valve Supplies for GC | Agilent

Learn more about Agilent''s range of gas and liquid sampling valves supplies here.

Evaluation of on-line solid-phase extraction capillary electrophoresis ...

Evaluation of on-line solid-phase extraction capillary electrophoresis–mass spectrometry with a nanoliter valve for the analysis of peptide biomarkers

AVS MS, ICP-MS Switching Valve | Agilent

For labs that routinely run high numbers of samples, the Agilent Advanced Valve System for ICP-MS (AVS MS) dramatically increases the productivity of the

Integrated Sample Introduction System ISIS for 7700,

Adding the Integrated Sample Introduction System (ISIS) to the 7700 and 8800 ICP-MS dramatically increases sample throughput and reduces maintenance

Switching valves

You can connect the Orbitrap Astral mass spectrometer up to two external switching valves. Suitable switching valves (Rheodyne™ MX Series II™) are available from Thermo Fisher Scientific.

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Our EXTREL™ MAX300-AIR™ Environmental and Ambient Air Monitoring Mass Spectrometer is an industrial gas analyzer optimized for environmental and ambient air monitoring and regulatory

A miniature lab-on-valve atomic fluorescence spectrometer integrating

A miniaturized atomic fluorescence spectrometer (AFS) incorporating a dielectric barrier discharge (DBD) atomizer was developed in a lab-on-valve (LOV) configuration. The entire system

Employing a switching valve to automate external standard ...

The traditional external standard calibration method (EC) is automated and simplified using a four-port switching valve (SV4) and a multi-signal approach that enables the generation of

What Is Helium Leak Detection | HVS

A spectrometer to detect the mass of helium A vacuum system to maintain the pressure in the spectrometer A mechanical pump to evacuate the part to be tested Valves which enable the various

Mass Spectrometry & Gas Analysis

To learn more about how a VAT vacuum valve solution can help with specific mass spectrometry and gas analysis valve tasks, please select a specific product below.

Air Free NMR Tubes

We use air free NMR tubes to analyze samples containing Grignard reagents, and nickel-, phosphorus-, and lithium-containing reagents, but should be used for any potentially air sensitive compound.

Valves Used In Chromatography & Spectrometry Analysis

Review of valves used in three types of analytical systems, as well as an explanation of their role in ensuring the highest levels of performance & productivity

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In-situ formation of deep eutectic supramolecule based extraction method coupled to valve switching ion chromatography mass spectrometry for the determination of aminoglycosides in

Two-dimensional Capillary-based Electrophoretic Separation Coupled

Capillary Isoelectric Focusing - Capillary Zone Electrophoresis - Mass Spectrometry Applying a Mechanical Valve Jens Hühner, Kevin Jooß, Michael Lämmerhofer, Christian Neusüß 42th

Mass Spectrometers for Gas Analysis

Hiden Analytical offers a versatile range of gas analysis systems, designed for real-time, precise detection of multiple gas and vapour species, with dynamic measurement capabilities from ppb levels

Xevo TQ Absolute XR Triple Quadrupole Mass Spectrometer

Achieve precise results with Xevo TQ Absolute XR, Waters'' smallest, most sensitive tandem quadrupole mass spectrometer for tackling tough compounds. Read more!

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