DATASHEET APPLICATION NOTE A006 - GAS CHROMATOGRAPHY

APPLICATION NOTE A006

Flow control in Gas Chromatography

Using compact gas flow controllers

Reliable, sensitive, and selective high-resolution measurements using ***compact measuring instruments*** are among the expectations of a Gas Chromatography user. Being aware of these requirements, Bronkhorst has developed compact (MEMS based) flow solutions to meet the needs of gas chromatography manufacturers.

The Bronkhorst flow controllers have a compact design, offering *stable gas flow control*, *good reproducibility* and *simple integration* in your process. These flow controllers are a good fit for Gas Chromatography users.



Flow requirements for gas chromatography

Most integrators need space saving solutions involving instruments with analogue or digital (bus) communication. Furthermore, customized compact modules, pre-tested for plug and play integration are required. Reliable instruments, able to guarantee low cost of ownership, are preferred.

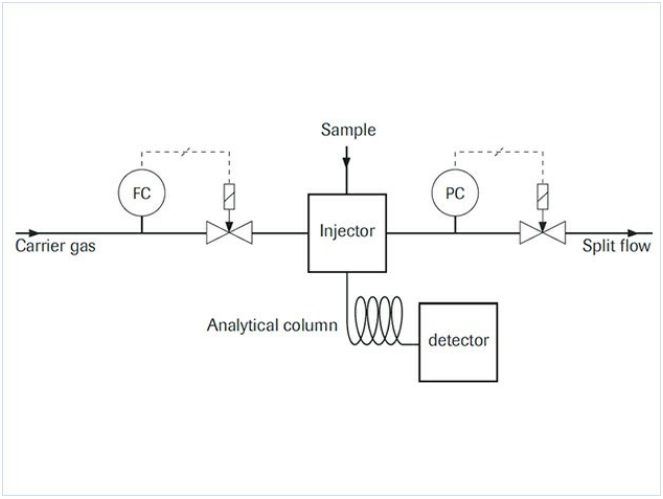
Important topics

- Compact flow controllers
- Stable gas flow control
- Simple integration
- Pre-tested 'Plug and Play' units

Flow solution for gas chromatography

Gas chromatography is a widely used analytical technique which allows the qualitative and quantitative characterization of a sample. Such sample is injected through a sample injector in a stream of carrier gas. The gas stream is controlled using a very accurate mass flow controller (IQ+ FLOW series). The sample to analyse will go through the stationary heated column where its components elute at different times. Analytes are then detected by a specific type of detector. Each component of the sample will generate a different peak, enabling sample's constituents identification. The attained peaks also permit a quantitative analysis through the calculation of the peaks areas.

Chemical plants frequently use these analysers to check process parameters in real time, thereby requiring faster run times. Such a requirement is hard to achieve, because it is difficult to reach a good balance between faster cycles while keeping acceptable levels of separation.



Flow scheme

MEMS-based gas flow controller

Analysis becomes much faster if a higher flow rate is used, but by doing so the separation between analytes will be less efficient, therefore increasing flow rates may compromise the analyser's sensitivity.

Our IQ+FLOW series, are MEMS-based flow controllers and very compact in design. And therefore an ideal fit for gas chromatography users



Related blog articles



SMALLER FLOW SOLUTIONS ARE THE TREND

April 25, 2023

Small flow meters & compact pressure controllers fit the trend of footprint reduction. Read more how this affects our flow solutions.



TOP 3 BLOGS ABOUT FLOW METERS AND CONTROLLERS IN ANALYTICAL APPLICATIONS

October 13, 2020

In this top 3 blogs we share our involvement in three different analytical applications; Trace Elemental Analysis (TEA), environmental analysis (ICP) and gas chromatography.



MASS SPECTROMETRY AND MASS [illegible] A CLOSER [illegible] THEM

May 23, 2017

Mass Spectrometry or shortly, as chemists like to use abbreviations, MS. Mass Spectrometry comes in many forms and is often coupled to Gas Chromatography and Liquid Chromatography.

Recommended Products



IQ+FLOW IQF-100C MFM

- Min. flow 0...10 mln/min
  Max. flow 0...5 ln/min
- Pressure rating 10 bar
- Ultra compact
- MEMS technology



MANI-FLOW

- Compact assembly ensures space efficiency
- Economical solution, low cost of ownership
- Combination of functions on one manifold



**FLEXI-FLOW COMPACT FF-C1X /
FF-AXXX / FF-SXXX**

- Flow 0…500 mln/min up to 0…20 ln/min
- Accuracy ±0,5% Rd + ±0,1% FS
- Multi-parameter (P+T output options)
- Fast response (TCS technology)

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Bronkhorst High-Tech designs and manufactures innovative instruments and subsystems for low-flow measurement and control for use in laboratories, machinery and industry. Driven by a strong sense of sustainability and with many years of experience, we offer an extensive range of (mass) flow meters and controllers for gases and liquids, based on thermal, Coriolis and ultrasonic measuring principles. Our global sales and service network provides local support in more than 40 countries. Discover Bronkhorst®!