

# DATASHEET APPLICATION NOTE A006-ANL04 - GAS CHROMATOGRAPHY

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APPLICATION NOTE A006

## Flow control in Gas Chromatography

### Using compact gas flow controllers

Reliable, sensitive, and selective high-resolution measurements within a reasonable time frame are among the expectations of a Gas Chromatography user. Being aware of the analytical market prospect, Bronkhorst has been developing innovative solutions throughout the years to meet quality requests of gas chromatography/GC manufacturers.

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



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### Application requirements

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
  - Stable gas flow control
  - Simple integration
  - Pre-tested 'Plug and Play' units
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## Process solution

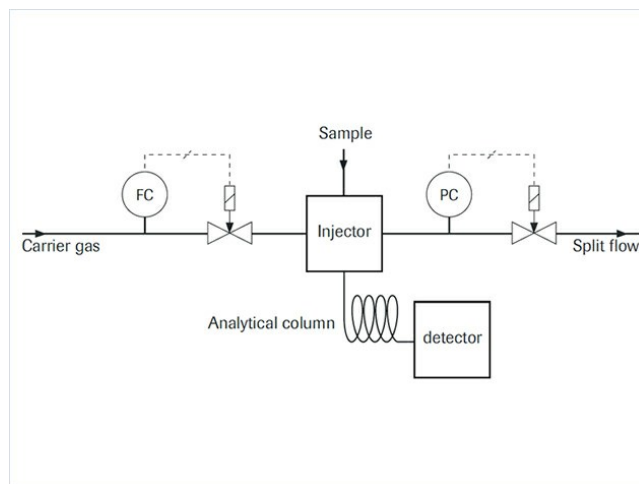
Gas chromatography is a widely used analytical technique which allows the qualitative and quantitative characterization of a sample. Such sample is injected through a sample injector in a stream of carrier gas. The gas stream is controlled using a high accuracy mass flow controller (IQ<sup>±</sup> FLOW 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.

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.

## Highlighted product

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Flow scheme



## Recommended Products



**IQ+FLOW IQF-100C MFM**

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



**IQ+FLOW IQP-500C**

Min. pressure 0,01...0,5 bar  
Max. pressure 0,2...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**

Min. flow 0...500 mln/min  
Max. flow 0...20 lln/min  
Pressure rating 16 bar(g)  
Multi-parameter (P+T output options)  
Fast response (TCS technology)



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