

The Oil & Gas and Petrochemical Market

# Mass flow and pressure measurement and control



**Bronkhorst®**

## > Features and Benefits

- minimum gas flow rate to 0.7 ml<sub>n</sub>/min
- maximum gas flow rate to 11,000 m<sup>3</sup><sub>n</sub>/h
- pressure rating to 700 bar
- sensor temperature rating to 70°C
- optional protection for ATEX zone 1 or 2
- high accuracy, excellent repeatability
- integral alarm and totalizer functions
- analog and digital (bus) communication
- sophisticated software tools



## > Application Examples

### High Accuracy Measurement of Ultra-Low Gas Flow

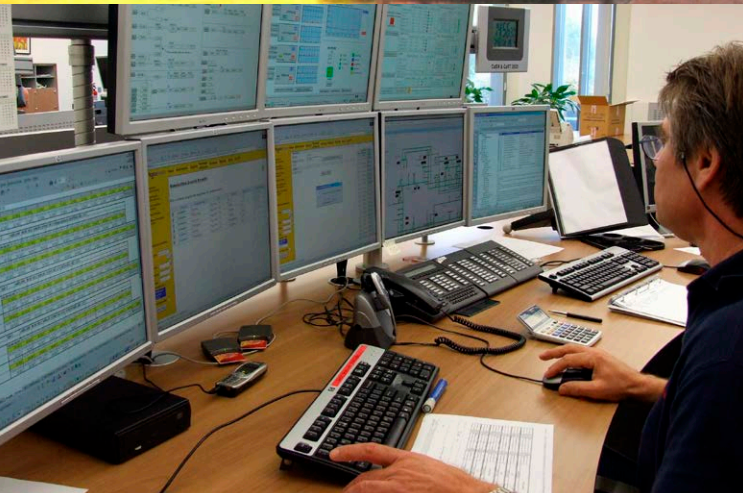
Gas seepage into secondary containment or the passing of flow across valve seats is often simply manifolded to flare with the two-fold hit of increased cost and loss of revenue. Highly accurate measurement, by a tamper-proof instrument, of ultralow flow, independent of the fluid properties, allows this resource to be directed back into the revenue stream.

### On-Board Laboratory Gas Control Within Exploration Formation Analysis and Engineering Monitoring

The plethora of analytical instruments on-board the modern exploration rig require gases to operate and controlled flows for periodic calibration. As experts within the analytical market Bronkhorst® has innumerable solutions to meet the exact needs of every application from a 21st Century replacement for the VA (or Rota) Meter to plug-and-play packaged solutions incorporating filters, shut-off valves, diverter valves, pressure measurement/control and mixing chambers.

Bronkhorst High-Tech B.V., established in 1981, has become today's European market leader for thermal mass flow meters and controllers. The instruments are used in a wide variety of applications in many different markets. The extensive product range of instruments for gas and liquid flow measurement and control can be used for monitoring or dosing of just a few microlitres up to thousands of m<sup>3</sup> per hour.

[www.bronkhorst.com](http://www.bronkhorst.com)





Bronkhorst® is specialized in compact Coriolis Mass Flow Meters and Controllers for low flow rates and suitable for all kinds of applications in industrial, chemical and laboratory environments. In combination with gear pumps or shut-off valves, compact liquid mass flow dosing systems can be offered, as alternative to gravimetric or volumetric filling and dosing methods.

[www.bronkhorst.com/coriolis](http://www.bronkhorst.com/coriolis)



## > Application Examples

### Bespoke Solutions

In addition to the vast array of standard products Bronkhorst® is renowned for its innovation, engineering excellence and business partnering approach to providing unique solutions to unusual requests. General examples include the measurement of out-gassing from core samples, remote operated tracer gas injection for pipeline characterization, a portable moisture generation system with tolerance to ppt levels for moisture probe calibration plus many more applications involving direct pump control, scripted flow profiling and higher pressures. Bronkhorst® welcomes the opportunity to share knowledge to develop novel solutions in open partnership.

### High Performance Chemical Dosage

Modern day performance chemicals are highly engineered, highly sophisticated and are often a high operating cost. The correct dosage rate is therefore crucial for fine optimisation with both underdosing and over-dosing impacting the bottom line. The treatment of produced oil, gas and water with such agents as demulsifiers, wax/corrosion/scale inhibitors, biocides, scavengers and polishers is critical for on-going operations. Equally, the Research and Development of new additives is enhanced by the measurement and control of ultralow flow rate continuous processes with an accurate, repeatable and reproducible solution.

## > Features and Benefits

- minimum flow rate less than 0.1 g/h
- maximum flow rate to thousands kg/h
- high pressure capability
- high temperature capability
- IECEx/ATEX II 2 G Ex d e IIB T6 Gb
- extremely stable zero
- high accuracy and repeatability
- on-board precision dosing control
- turn-down of 2000:1
- temperature and density outputs



# About Bronkhorst®



With over 35 years of experience of manufacturing critical process flow control instrumentation for demanding markets Bronkhorst® has developed into the European Market Leader for Thermal Mass Flow Metering / Control, Low and Ultra-Low Flow Coriolis Metering / Control and Electronic Pressure Control. In parallel, a global network of service and support centres have been established to ensure minimal down-time 24 hours per day, 7 days per week, 365 days per year. The Company is proud of its heritage as an independent, privately owned concern and remains true to its fundamental ethos of technically superior products backed by operational excellence to ensure focus on the needs of each and every customer.

## › Worldwide Support

Bronkhorst® recognizes that the Oil & Gas Industry is a high risk, high operating cost market and that any down-time is both expensive and unacceptable. We have therefore developed a global network of service and support facilities with highly trained engineers ready to be of assistance. In addition, we have a Round-the-Clock Support Line (+31 859 021 866) manned by experts within the field of our Thermal, Coriolis and Pressure Control Devices. In line with our collaborative approach to our customers we are also able to discuss tailor-made Service and Support Solutions designed specifically for your needs that can include such topics as training, instrument replacement agreements and instant service and repair.

