

# Mass Flow & Pressure Meters/ Controllers for Gas and Liquid

- **More than 30 year experience in developing and manufacturing high quality mass flow meters/controllers.**
- **Market Leader in low flow measurement & control**
- **Customers in more than 70 countries on all continents**
- **20 fully equipped Global Service Offices**



**Bronkhorst®**  
**Performance for Life**

Innovation - Experience - Responsibility

# Bronkhorst<sup>®</sup>, Performance for Life

**Bronkhorst<sup>®</sup> develops and manufactures Thermal and Coriolis instruments for measuring and dosing the flow of gases and liquids. Based on our experience, innovation and sense of responsibility, a relationship with Bronkhorst<sup>®</sup> assures Performance for Life.**

## > Experience

By making precision our profession, we have been viewed as experts within laboratories, machine-building and many other industries for more than 30 years. We are the market leader in Europe and one of the top 5 companies in our field globally.

## > Innovation

At Bronkhorst<sup>®</sup> we continually take a market-driven approach in developing and improving products. This results in both standard products and customer specific solutions which find their way into a wide variety of high-performance applications in numerous sectors.

## > Responsibility

We consider ourselves responsible for the level of quality we deliver, the people we work with and the world in which we operate. Because that sense of responsibility is deeply rooted in our DNA, our customers, suppliers, employees and the whole of society can always rely on Bronkhorst<sup>®</sup>. Today, tomorrow, for life!

## > Facts and Figures

- ◆ Over 30 years experience in Mass Flow & Pressure
- ◆ More than 600.000 instruments in the field
- ◆ 285 employees at headquarters; 400 worldwide
- ◆ Representation in more than 30 countries; 10 branch offices
- ◆ Cleanroom facilities with Class 100 flow benches
- ◆ 20% of employees active in R&D and development
- ◆ ISO 9001 and ISO 14001 certified
- ◆ Bronkhorst Calibration Center, ISO/IEC 17025:2005
- ◆ Round-the-Clock technical support

## > Business Units



# Gas



Mass Flow Meters and Controllers for gas applications with an electronic housing suitable for laboratory conditions, industrial environments or hazardous areas. Bronkhorst® instruments for gases are truly unique in their capability to control flow ranges between 0...0,7 ml<sub>n</sub>/min and 0...11.000 m<sup>3</sup><sub>n</sub>/h with pressure rating ranging between vacuum and 700 bar. The operation of mass flow instruments is based on the proven mass flow measurement principle (by-pass or thru flow). For small gas flow rates we can also apply the Coriolis principle. For OEM customers Bronkhorst provides customized solutions on compact, multifunctional manifolds.

At our internet shop for flow measurement and control devices we offer instruments not requiring a customer specific advice or quotation. Cost-efficient and delivery within two working days.

[www.massflow-online.com](http://www.massflow-online.com)

## > Features

- ◆ fast and accurate measuring signal
- ◆ analog and digital (fieldbus) communication
- ◆ insensitive to mounting position
- ◆ customer specific designs available on request
- ◆ IP65 housing with optional ATEX Zone 2 approval
- ◆ pressure ranges up to 700 bar
- ◆ optional ATEX approved for Zone 1

## > Flow ranges (based on air)

smallest 0...0,7 ml<sub>n</sub>/min, highest 0...11.000 m<sup>3</sup><sub>n</sub>/h

# Liquid



Mass Flow Meters and Controllers for liquids in ranges between 0...75 mg/h and 0...600 kg/h (water equivalent). Our thermal mass flow meters only require a small differential pressure. Despite utilizing direct measurement (i.e. without a by-pass) the temperature rise of the fluid is minimal; only approx. 1...5 °C. This greatly limits the danger of evaporation or degradation of the fluid. The thermal Mass Flow Meters can be close-coupled to a Bronkhorst® control valve for pulsation-free control.

For flow ranges from 0...5 g/h up to 0...600 kg/h Bronkhorst® designed a series of mass flow metering instruments based on the advanced Coriolis principle. These instruments feature unsurpassed performance, even with changing operation conditions in pressure, temperature, density, conductivity and viscosity. Our Coriolis mass flow meters are offered with or without integral control valve or pump, with both analog and digital communication.

## > Features

- ◆ fast and accurate measuring signal
- ◆ analog and digital (fieldbus) communication
- ◆ insensitive to mounting position
- ◆ optional IP65 housing and ATEX Zone 2 approval
- ◆ world's smallest low flow Coriolis instruments
- ◆ magnetic, vortex and ultrasonic liquid flow meters available at our webshop [www.massflow-online.com](http://www.massflow-online.com)

## > Flow ranges (based on water)

smallest 0...75 mg/h, highest 0...600 kg/h

# Pressure

Bronkhorst's electronic pressure meters and controllers for liquids and gases have a well-proven compact thru-flow design. A differential pressure transmitter can also be supplied in the range of 0...15 bar. The pressure controller performs with high accuracy and repeatability and should be specified for forward pressure control or backward pressure control.

## > Features

- ◆ analog and digital (fieldbus) communication
- ◆ metal sealed versions available
- ◆ optional IP65 housing and ATEX Zone 2 approval

## > Pressure ranges

smallest 0...100 mbar,  
highest 0...400 bar



# Vapour

The CEM-System (Controlled Evaporation and Mixing) is an innovative Liquid Delivery System that can replace traditional Bubbler Systems. It consists of a liquid flow controller, an MFC for carrier gas and a temperature controlled mixing and evaporation device.

## > Features

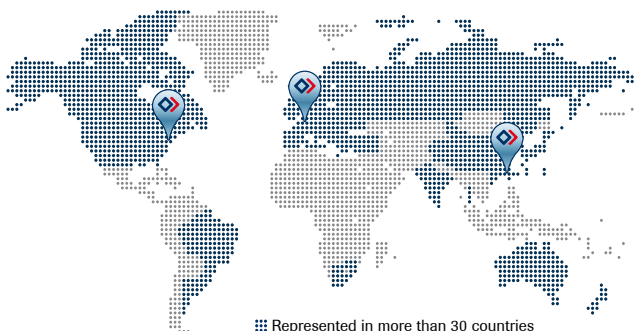
- ◆ very stable vapour flow
- ◆ accurately controlled gas/liquid mixture (mass flow)
- ◆ fast response
- ◆ handles water, solvents, liquid mixtures



## > Vapour ranges

The system is suitable for mixing liquid flows of 0,25...1200 g/h resulting in saturated vapor flows of 50 mln/min to 100 lln/min.

# Made in Holland – Global Support



## > Bronkhorst subsidiaries

Europe : Netherlands, France, Germany, Switzerland  
and United Kingdom

North America : United States

Asia : China, Japan, Korea, Taiwan

## > Headquarters

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## > World Wide Support

No matter the time zone, our experts within the Support Group are available to answer your request immediately or ensure appropriate further action. Our experts are reachable at:

Round the clock support line, 24 hours a day, 7 days a week  
**+31 859 02 1866** and **[support@bronkhorst.com](mailto:support@bronkhorst.com)**

Bronkhorst distributor