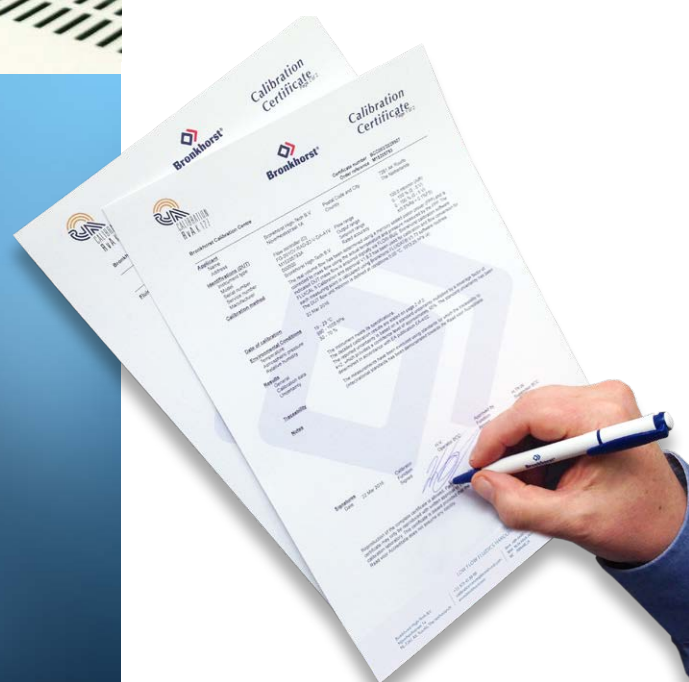


BRONKHORST® CALIBRATION CENTRE



ISO/IEC 17025:2005
ACCREDITED LABORATORY
FOR THE CALIBRATION OF GAS FLOW,
LIQUID FLOW AND PRESSURE





BRONKHORST CALIBRATION CENTRE

Bronkhorst is specialised in the development, production and maintenance of total solutions in low-flow fluidics handling technology. For our measuring and control instruments, we strive for the maximum quality, highest accuracy and minimal measurement uncertainties of our gas flow, liquid flow and pressure calibrations.

All Bronkhorst mass flow and pressure meters and controllers undergo standard testing and calibration after assembly by our production department. This guarantees our instruments are always traceable to international standards. At our climate-controlled, state-of-the-art ISO 17025 accredited Calibration Centre, we even go one step further. Here, our specially trained staff perform ISO 17025 accredited calibrations with a proven measurement uncertainty (Calibration and Measurement Capability (CMC)) approaching that of VSL, the Dutch National Metrology Institute (NMI).



Benefits of working with Bronkhorst Calibration Centre

- ◆ Actual gas calibrations
- ◆ High level of calibration and measurement capabilities
- ◆ Customer convenience: "one-stop service" for purchasing flow measuring instruments with accredited calibration
- ◆ Short delivery time
- ◆ Cost effective service
- ◆ Qualified staff with a "quality-first" approach and an eye for customers needs
- ◆ Gas flow calibrations for other brands possible

WHY ISO 17025?

The Bronkhorst Calibration Centre (BCC) has been accredited as ISO 17025 compliant by the Dutch Accreditation Council (RvA), providing international recognition of its technical competency and qualification. All of our calibration standards are calibrated by VSL or other ISO 17025 certified labs.

Our BCC team employs validated methods for calibration and the registration of processes, procedures and results. Reliability, traceability and independence are key to the calibration process and are increasingly demanded by our customers in various fields where certifications are crucial, from the medical sector to aviation. Our ISO 17025 accredited calibrations provide customers with a valued service. But here at Bronkhorst we are always working to improve our processes to ensure consistent high quality.

CALIBRATION SCOPE

Gas MASS flow range (Air)	Gas VOLUME flow range (Air)	Gas MASS flow range (N ₂ , Ar, CO ₂ , He, H ₂) other gases on request	Gas VOLUME flow range (N ₂ , Ar, CO ₂ , He, H ₂) other gases on request	CMC ¹⁾ (k=2)
(at 21 ± 2°C and 50 ± 20% RH)	(at 21 ± 2°C and 50 ± 20% RH)	(at 21 ± 2°C and 50 ± 20% RH)	(at 21 ± 2°C and 50 ± 20% RH)	(in % of Reading)
0.15 ml _n /min - 0.35 ml _n /min ²⁾ 0.35 ml _n /min - 0.66 ml _n /min ²⁾	0.16 ml/min - 0.38 ml/min ²⁾ 0.38 ml/min - 0.71 ml/min ²⁾	0.15 ml _n /min - 0.35 ml _n /min ⁴⁾ 0.35 ml _n /min - 0.66 ml _n /min ⁴⁾	0.16 ml/min - 0.38 ml/min ⁴⁾ 0.38 ml/min - 0.71 ml/min ⁴⁾	0.55% 0.45%
0.66 ml _n /min - 3.30 ml _n /min ²⁾	0.71 ml/min - 3.50 ml/min ²⁾	0.66 ml _n /min - 3.30 ml _n /min ⁴⁾	0.71 ml/min - 3.50 ml/min ⁴⁾	0.40%
3.30 ml _n /min - 15.5 ml _n /min ²⁾	3.50 ml/min - 16.6 ml/min ²⁾	3.30 ml _n /min - 15.5 ml _n /min ⁴⁾	3.50 ml/min - 16.6 ml/min ⁴⁾	0.30%
15.5 ml _n /min - 21.0 l _n /min ²⁾	16.6 ml/min - 22.5 l/min ²⁾	15.5 ml _n /min - 21.0 l _n /min ⁴⁾	16.6 ml/min - 22.5 l/min ⁴⁾	0.25%
21.0 l _n /min - 6,202 l _n /min ³⁾	22.5 l/min - 6,645 l/min ³⁾	-	-	0.25%

Liquid MASS flow	CMC ¹⁾
(Demineralised water, at 1...9 bar a)	(k=2)
(at 21 ± 2°C and 50 ± 20% RH)	(% of Reading)
1-2 g/h	0.65%
2-10 g/h	0.35%
10-30,000 g/h	0.10%

Pressure	CMC ¹⁾
(Test fluid N ₂)	(k=2)
(at 21 ± 2°C and 50 ± 20% RH)	(% of Reading)
0,025-0,8 bara	40 Pa
0,8-150 bara ⁵⁾	0.05%
0-150 barg ⁵⁾	0.05%

¹⁾ Calibration and Measurement Capability: Demonstrated measurement uncertainty, with coverage probability of 95% in a given measurement point or measurement range.

²⁾ at 1...8 bar a

³⁾ at 1...7 bar a

⁴⁾ at 1...10 bar a

⁵⁾ higher pressures on request

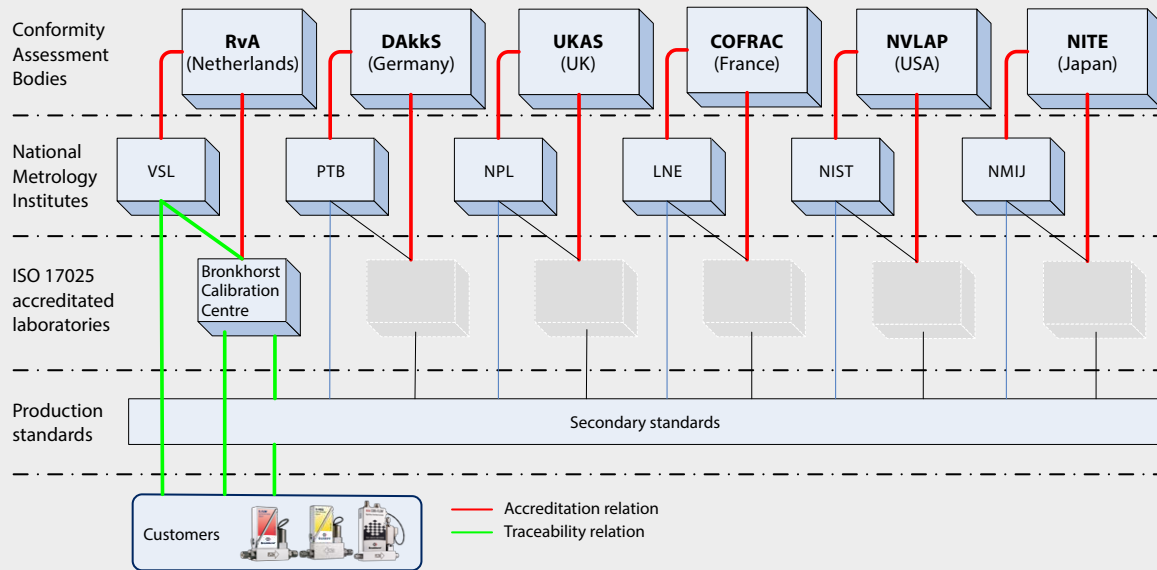
GAS, LIQUID AND PRESSURE

Over the last 35 years, Bronkhorst has become an expert in the calibration of gas flow meters and controllers for low flow ranges. We also offer calibrations for our pressure meters and controllers, and are unique in offering liquid calibration of our Coriolis flow meters and controllers for ultra low flow rates.

The Bronkhorst Calibration Centre offers gas flow calibrations in the range of 0.15 ml_n/min to 6,200 l_n/min for both new and existing Bronkhorst mass flow meters, controllers and calibration equipment. As well as Bronkhorst instruments, our lab can calibrate meters and controllers made by other brands, both for mass flows and volume flows. Bronkhorst also performs pressure calibrations from 0 to 150 bar (higher on request) for its EL-PRESS pressure meters and controllers. In addition, Bronkhorst has developed an advanced calibration system for our liquid flow meters for ultra low flow ranges. With this system Bronkhorst can offer mini CORI-FLOW™ (Coriolis) flow meters and controllers in flow ranges of 1 g/h to 30 kg/h with ISO 17025 accredited calibration.



ACCREDITATION AND TRACEABILITY RELATIONS



IN-FIELD CALIBRATION AND VERIFICATION

To facilitate on-site calibration and verification of gas flow and pressure meters and controllers, Bronkhorst has developed its own series of portable calibration instruments. FLUICAL Portable Calibrators are lightweight and adjustable to fit customer's needs.

The accuracy of these instruments is traceable to national and international standards. The Bronkhorst Calibration Centre can also offer ISO 17025 accredited calibrations for its FLUICAL Portable Calibrator. With its exceptional flexibility and extensive range, this solution lets customers perform advanced (re)calibrations with various gases on the go.



BRONKHORST®

Bronkhorst® offers the most extensive product range of thermal and Coriolis mass flow meters and controllers on the market. Numerous styles of both standard and bespoke instruments can be offered for applications in laboratory, industrial and hazardous areas. The measuring range for these instruments can be selected between 0-1 ml_n/min and 0-10000 m³_n/h for gases and 0-75 mg/h up to 0-600 kg/h for liquids. Bronkhorst® is a truly world-wide organisation with its Headquarters being located in the town of Ruurlo (Netherlands) and with an extensive global network of subsidiaries, distributors, licensees and service centres.

Bronkhorst High-Tech B.V.

Nijverheidsstraat 1a
 NL-7261 AK Ruurlo
 The Netherlands
T +31(0)573 45 88 00
I www.bronkhorst.com
E info@bronkhorst.com