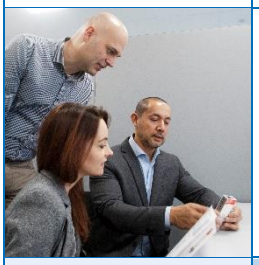
CUSTOMER CALIBRATION TRAINING

CATALOGUE 2020



Bronkhorst®

CONTENT

Instrument knowledge

Training objectives
In this course you will gain knowledge about the principles of mass flow measurement and control for gases and/or liquids based on thermal and/or Coriolis measurement technology. You will get insight in the construction, operation principles and typical applications of the Bronkhorst product series.

Audience
This training course is intended for anyone using or calibrating measurement instruments, for calibration coordinators, or for those responsible for maintaining quality.

Level
Attendees are supposed to be experienced or educated on vocational or bachelor level in the field of engineering.

Prerequisites
No specific prerequisites required

Product series
- EL-FLOW (7.26.040)
- LOW-DP-FLOW (7.26.043)
- EX-FLOW (7.26.043)
- MASS-STREAM (7.26.042)
- MASS-VIEW (7.26.075)
- LIQUI-FLOW (7.26.045)
- CORI-FLOW (7.26.044)
- EL-FLOW Prestige (7.26.041)

Duration
2 hours (per product series)

Location
Bronkhorst Training Centre, Ruurlo, The Netherlands

Date
Ask your local Sales Representative for available dates

Content
In this course the following topics will be presented:

- Introduction
- Product differentiation
- Construction principles
- Model numbering
- Models and ranges
- Operating principles
- Features and benefits
- Installation and start-up

Attendees
2-8 persons

Executive trainer(s)
Bronkhorst specialists

Certificate
A certificate of participation will be supplied

Module number: Various, see under product series

Introduction to calibration

Training objectives
In this course you will gain knowledge about the principles of a mass flow meter calibration. You will get insight in the construction and the operation principles of the Bronkhorst Gas Calibration equipment. The calibration methods and conversion models used at Bronkhorst will be explained.

Audience
This training course is intended for anyone using or calibrating measurement instruments, for calibration coordinators, or for those responsible for maintaining quality.

Level
Attendees are supposed to be experienced or educated on vocational or bachelor level in the field of engineering.

Prerequisites
Module instrument knowledge

Duration
2 hours

Location
Bronkhorst Training Centre, Ruurlo, The Netherlands

Date
Ask your local Sales Representative for available dates

Content
In this course the following topics will be presented:

- Definitions
- Calibration methods
- Calibration references
- Traceable and accredited calibration
- Accuracy
- Conversion factors
- Linearisation methods

Attendees
2-8 persons

Executive trainer(s)
Bronkhorst specialists

Certificate
A certificate of participation will be supplied

Module number: 7.26.029

As Found calibration using Portable Calibrator

Training objectives
In this course you will gain knowledge about the handling of the Portable Calibrator and how to perform As Found calibration of an instrument.

Audience
This training course is intended for anyone using or calibrating measurement instruments, for calibration coordinators, or for those responsible for maintaining quality.

Level
Attendees are supposed to be experienced or educated on vocational or bachelor level in the field of engineering.

Prerequisites
Module instrument knowledge
Module 7.26.029: introduction to calibration

Duration
4 hours

Location
Bronkhorst Training Centre, Ruurlo, The Netherlands

Date
Ask your local Sales Representative for available dates

Content
In this course the following topics will be presented:

- Introduction
- System hardware set-up
- Mechanical and electrical Hook-up
- Environmental conditions
- Position DUT <> Portable Calibrator
- Operating E-8000 (or E-7000) Readout and Control module

- Explanation of the following software tools: FlowDDE, FlowView and FlowPlot
- Explanation calibration software
- Flow stability criteria
- Measuring calibration points
- Calibration certificate
- Accuracy
- Evaluate; Pass / Fail

Attendees
2-8 persons

Executive trainer(s)
Bronkhorst specialists

Certificate
A certificate of participation will be supplied

Module number: 7.26.030

As Found calibration using Piston Prover

Training objectives
In this course you will gain knowledge about the handling of the FLOW-BUS Piston Prover and how to perform As Found calibration of an instrument.

Audience
This training course is intended for anyone using or calibrating measurement instruments, for calibration coordinators, or for those responsible for maintaining quality.

Level
Attendees are supposed to be experienced or educated on vocational or bachelor level in the field of engineering.

Prerequisites
Module instrument knowledge
Module 7.26.029: introduction to calibration

Duration
6 hours

Location
Bronkhorst Training Centre, Ruurlo, The Netherlands

Date
Ask your local Sales Representative for available dates

Content
In this course the following topics will be presented:

- Introduction
- System hardware set-up
- Mechanical and electrical hook-up
- Installation: environmental conditions, positioning, pressure supply, mercury (re-)placement, cleaning
- Manual operation of the calibration system using E-7000 Readout and Control module

- Explanation of the following software tools: FlowDDE, FlowView and FlowPlot
- Explanation calibration software
- Flow stability criteria
- Measuring calibration points
- Calibration certificate
- Accuracy
- Evaluate; Pass / Fail

Attendees
2-8 persons

Executive trainer(s)
Bronkhorst specialists

Certificate
A certificate of participation will be supplied

Module number: 7.26.031

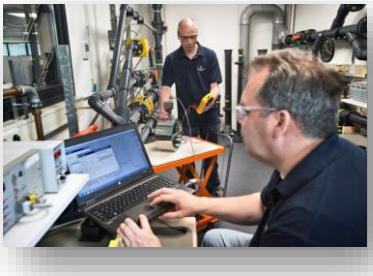
As Found calibration using Rotary Meter

Training objectives
In this course you will gain knowledge about the handling of the FLOW-BUS Rotary Meter and how to perform As Found calibration of an instrument.

Audience
This training course is intended for anyone using or calibrating measurement instruments, for calibration coordinators, or for those responsible for maintaining quality.

Level
Attendees are supposed to be experienced or educated on vocational or bachelor level in the field of engineering.

Prerequisites
Module instrument knowledge
Module 7.26.029: introduction to calibration



Duration
4 hours

Location
Bronkhorst Training Centre, Ruurlo, The Netherlands

Date
Ask your local Sales Representative for available dates

Content
In this course the following topics will be presented:

- Introduction
- System hardware set-up
- Mechanical and electrical hook-up
- Environmental conditions
- Manual operation of the calibration system using E-7000 Readout and Control module
- Explanation of the following software tools: FlowDDE, FlowView and FlowPlot
- Explanation calibration software
- Flow stability criteria
- Measuring calibration points
- Calibration certificate
- Accuracy
- Evaluate; Pass / Fail

Attendees
2-8 persons

Executive trainer(s)
Bronkhorst specialists

Certificate
A certificate of participation will be supplied

Module number: 7.26.032

As Found calibration using liquid reference meter

Training objectives
In this course you will gain knowledge about the handling of the liquid reference meter and how to perform As Found calibration of an instrument.

Audience
This training course is intended for anyone using or calibrating measurement instruments, for calibration coordinators, or for those responsible for maintaining quality.

Level
Attendees are supposed to be experienced or educated on vocational or bachelor level in the field of engineering.

Prerequisites
Module instrument knowledge
Module 7.26.029: introduction to calibration

Duration
4 hours

Location
Bronkhorst Training Centre, Ruurlo, The Netherlands

Date
Ask your local Sales Representative for available dates

Content
In this course the following topics will be presented:

- Introduction
- System hardware set-up
- Mechanical and electrical hook-up
- Environmental conditions
- Fill system with calibration fluid
- Purging to remove gas from liquid
- Zeroing of liquid reference meters

- Explanation of the following software tools: FlowDDE, FlowView and FlowPlot
- Explanation calibration software
- Flow stability criteria
- Measuring calibration points
- Calibration certificate
- Accuracy
- Evaluate; Pass / Fail

Attendees
2-8 persons

Executive trainer(s)
Bronkhorst specialists

Certificate
A certificate of participation will be supplied

Module number: 7.26.033

Adjustment: Look Up Table

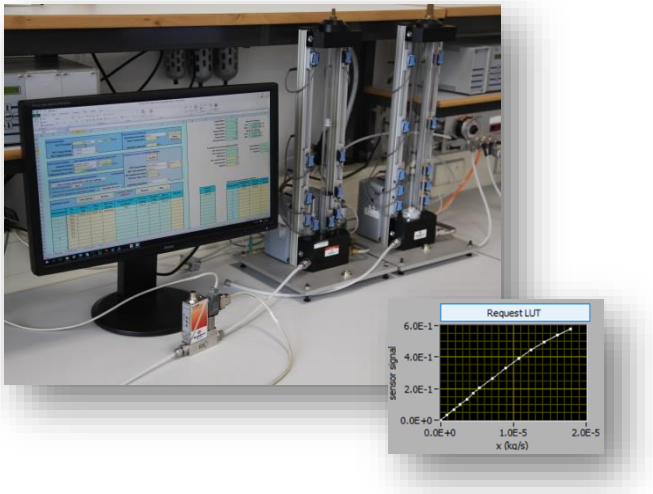
Training objectives
In this course you will gain knowledge about the adjustment of digital instruments by storing calibration points in a Look Up Table using FLUICAL calibration software.

Audience
This training course is intended for anyone using or calibrating measurement instruments, for calibration coordinators, or for those responsible for maintaining quality.

Level
Attendees are supposed to be experienced or educated on vocational or bachelor level in the field of engineering.

Prerequisites
Module instrument knowledge
Module 7.26.029: introduction to calibration
Module As Found calibration

Instrument types
The “Look Up Table” adjustment method is applicable for the following instrument types:
- EL-FLOW Select
- IN-FLOW (EL-FLOW IP65 execution)
- FLOW-SMS Select
- EL-FLOW Base *
- EL-FLOW Classic *



Duration
4 hours

Location
Bronkhorst Training Centre, Ruurlo, The Netherlands

Date
Ask your local Sales Representative for available dates

Content
In this course the following topics will be presented and practised:

- Introduction
- Adjust zero using auto-zero (0%)
- Adjust span using calculate full scale (100%)
- Measure sensor curve
- Store real flow (y) and sensor signal (x) in Look Up Table
- As Left calibration
- Additional curves *

** Note: Additional curves not available on all product series*

Attendees
2-8 persons

Executive trainer(s)
Bronkhorst specialists

Certificate
A certificate of participation will be supplied

Module number: 7.26.034

Adjustment: Look Up Table, FLUICAL Prestige

Training objectives
In this course you will gain knowledge about the adjustment of EL-FLOW Prestige instruments by storing calibration points in a Look Up Table using FLUICAL II Customer calibration software.

Audience
This training course is intended for anyone using or calibrating measurement instruments, for calibration coordinators, or for those responsible for maintaining quality.

Level
Attendees are supposed to be experienced or educated on vocational or bachelor level in the field of engineering.

Prerequisites
Module instrument knowledge
Module 7.26.029: introduction to calibration
Module As Found calibration

Instrument types
The “Look Up Table, FLUICAL Prestige” adjustment method is applicable for the following instrument types:
- EL-FLOW Prestige

Duration
4 hours

Location
Bronkhorst Training Centre, Ruurlo, The Netherlands

Date
Ask your local Sales Representative for available dates

Content
In this course the following topics will be presented and practised:

- Introduction
- Explanation FLUICAL II Customer calibration software
- Adjust zero with auto-zero (0%)
- Adjust span with X-factor (100%)
- Measure sensor curve
- Store real flow (y) and sensor signal (x) in Look Up Table
- As Left calibration
- Additional curves

Attendees
2-8 persons

Executive trainer(s)
Bronkhorst specialists

Certificate
A certificate of participation will be supplied

Module number: 7.26.039

Adjustment: Polynomial function

Training objectives
In this course you will gain knowledge about the adjustment of digital instruments by measuring calibration points to obtain a polynomial function using FLUICAL calibration software.

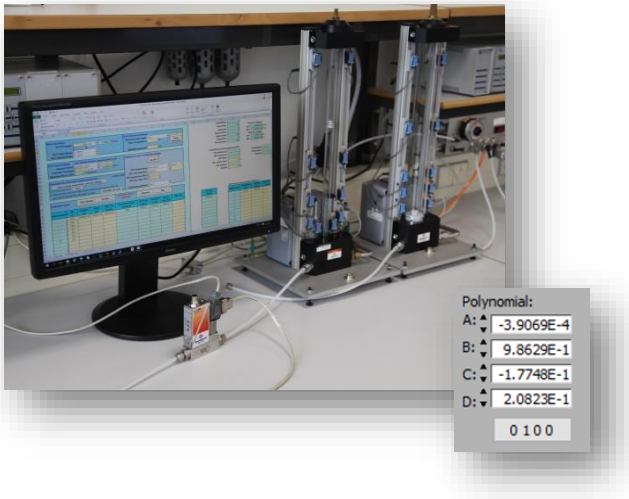
Audience
This training course is intended for anyone using or calibrating measurement instruments, for calibration coordinators, or for those responsible for maintaining quality.

Level
Attendees are supposed to be experienced or educated on vocational or bachelor level in the field of engineering.

Prerequisites
Module instrument knowledge
Module 7.26.029: introduction to calibration
Module As Found calibration

Instrument types
The “Polynomial function” adjustment method is applicable for the following instrument types:

- EL-FLOW digital
- FLOW-SMS
- LOW-ΔP-FLOW digital
- IN-FLOW (digital)



Duration
4 hours

Location
Bronkhorst Training Centre, Ruurlo, The Netherlands

Date
Ask your local Sales Representative for available dates

Content
In this course the following topics will be presented and practised:

- Introduction
- Adjust zero with auto-zero (0%)
- Adjust span with Full Scale factor (100%)
- Measure sensor curve
- Calculate and store polynomial constants A-D
- As Left calibration
- Additional curves

Attendees
2-8 persons

Executive trainer(s)
Bronkhorst specialists

Certificate
A certificate of participation will be supplied

Module number: 7.26.035

Adjustment: Tuning potentiometers

Training objectives
In this course you will gain knowledge about the adjustment of analog instruments by tuning potentiometers using FLUICAL calibration software.

Audience
This training course is intended for anyone using or calibrating measurement instruments, for calibration coordinators, or for those responsible for maintaining quality.

Level
Attendees are supposed to be experienced or educated on vocational or bachelor level in the field of engineering.

Prerequisites
Module instrument knowledge
Module 7.26.029: introduction to calibration
Module As Found calibration

Instrument types
The “potentiometers” adjustment method is applicable for the following instrument types:

- EL-FLOW analog
- LOW-ΔP-FLOW analog
- IN-FLOW (analog)
- EX-FLOW
- MASS-STREAM D-5000 *
- MANI-FLOW analog *

Duration
4 hours

Location
Bronkhorst Training Centre, Ruurlo, The Netherlands

Date
Ask your local Sales Representative for available dates

Content
In this course the following topics will be presented and practised:

- Introduction
- Adjust zero with “L” (Low) potentiometer (0%)
- Adjust span with “H” (High) potentiometer (100%)
- Adjust linearisation with “M” (Middle) potentiometer (50%) *
- Verify at 0%, 50%* and 100%, if necessary re-adjust potentiometers
- As Left calibration

** Note: “M” (Middle) potentiometer not available on all product series*

Attendees
2-8 persons

Executive trainer(s)
Bronkhorst specialists

Certificate
A certificate of participation will be supplied

Module number: 7.26.036

Adjustment: Span adjust (CTA gas flow)

Training objectives
In this course you will gain knowledge about the adjustment of digital instruments by tuning the span of the instrument using FLUICAL calibration software.

Audience
This training course is intended for anyone using or calibrating measurement instruments, for calibration coordinators, or for those responsible for maintaining quality.

Level
Attendees are supposed to be experienced or educated on vocational or bachelor level in the field of engineering.

Prerequisites
Module instrument knowledge
Module 7.26.029: introduction to calibration
Module As Found calibration

Instrument types
The “Span adjust” adjustment method is applicable for the following instrument types:
- MASS-STREAM
- MASS-VIEW

Duration
4 hours

Location
Bronkhorst Training Centre, Ruurlo, The Netherlands

Date
Ask your local Sales Representative for available dates

Content
In this course the following topics will be presented and practised:

- Introduction
- Adjust zero (0%)
- Adjust span (100%)
- As Left calibration

Attendees
2-8 persons

Executive trainer(s)
Bronkhorst specialists

Certificate
A certificate of participation will be supplied

Module number: 7.26.037

Adjustment: Span adjust (liquid flow)

Training objectives
In this course you will gain knowledge about the adjustment of digital instruments by tuning the span of the instrument using FLUICAL calibration software.

Audience
This training course is intended for anyone using or calibrating measurement instruments, for calibration coordinators, or for those responsible for maintaining quality.

Level
Attendees are supposed to be experienced or educated on vocational or bachelor level in the field of engineering.

Prerequisites
Module instrument knowledge
Module 7.26.029: introduction to calibration
Module As Found calibration

Instrument types
The “Span adjust” adjustment method is applicable for the following instrument types:
- mini CORI-FLOW
- CORI-FLOW
- LIQUI-FLOW

Duration
4 hours

Location
Bronkhorst Training Centre, Ruurlo, The Netherlands

Date
Ask your local Sales Representative for available dates

Content
In this course the following topics will be presented and practised:

- Introduction
- Adjust zero (0%)
- Adjust span (100%)
- As Left calibration

Attendees
2-8 persons

Executive trainer(s)
Bronkhorst specialists

Certificate
A certificate of participation will be supplied

Module number: 7.26.038

Contact

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Subscription

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