

CUSTOMER PRODUCT TRAINING

CATALOGUE 2018



CONTENT

Course number	Course	Page
7.26.040	EL-FLOW [®] Select	3
7.26.041	EL-FLOW [®] Prestige	4
7.26.042	MASS-STREAM [™]	5
7.26.043	DERIVED PRODUCT SERIES	6
7.26.044	CORI-FLOW [™]	7
7.26.045	LIQUI-FLOW [™]	8
7.26.046	Control valves	9
7.26.047	Digital Communication and Fieldbus Interfaces	10
7.26.048	Readout systems / Power Supply	11
7.26.049	Vapour Delivery Systems	12
7.26.050	Customized Manifold Solutions	13
7.26.051	Gas Calibration	14
Contact		
Contact details and subscription		15



EL-FLOW[®] Select

Mass Flow Meters and Controllers

Training objectives

In this course you will gain knowledge about the principles of mass flow measurement and control for gasses based on thermal measurement technology. You will get insight in the construction, operation principles and typical applications of the Bronkhorst EL-FLOW[®] Select product series. In a practical setting you will get the opportunity to operate an EL-FLOW Select instrument yourself. (This course does not cover the new EL-FLOW Prestige series. For info, see the dedicated EL-FLOW Prestige course.)

Audience

This training course is dedicated for attendees who are interested in the field of low flow fluidics handling technology.

Level

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

Prerequisites

No specific prerequisites required

Content

In this course the following topics will be discussed:

- > Introduction
- > Product differentiation
- > Construction principles
- > Model numbering
- > Models and ranges
- > Operating principles
- > Features and benefits
- > Examples of applications
- > Installation and start-up
- > Bronkhorst user software like FlowDDE, FlowView, FlowPlot
- > Hands-on



Duration

3 hours

Location

Bronkhorst Training Centre,
Ruurlo, The Netherlands

Date

Ask your local Sales Representative for available dates

Attendees

1-4 persons

Executive trainer(s)

Bronkhorst Specialists

Certificate

A certificate of participation will be supplied

Modulnr: 7.26.040



EL-FLOW[®] Prestige

Next generation Mass Flow Meters and Controllers

Training objectives

In this course you will gain knowledge about the principles of mass flow measurement and control for gasses based on thermal measurement technology. You will get insight in the construction, operation principles and typical application advantages of the Bronkhorst EL-FLOW[®] Prestige product series. In a practical setting you will get the opportunity to operate an EL-FLOW Prestige instrument yourself.

Audience

This training course is dedicated for attendees who are interested in the field of low flow fluidics handling technology.

Level

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

Prerequisites

No specific prerequisites required

Content

In this course the following topics will be discussed:

- > Introduction
- > Product differentiation
- > Construction principles
- > Model numbering
- > Models and ranges
- > Operating principles
- > Features and benefits
- > Examples of applications
- > Installation and start-up
- > Bronkhorst user software like FlowDDE, FlowView, FlowPlot
- > Hands-on



Duration

3 hours

Location

Bronkhorst Training Centre,
Ruurlo, The Netherlands

Date

Ask your local Sales Representative for available dates

Attendees

1-4 persons

Executive trainer(s)

Bronkhorst Specialists

Certificate

A certificate of participation will be supplied

Modulnr: 7.26.041



Mass-Stream™

Mass Flow Meters and Controllers

Training objectives

In this course you will gain knowledge about the principles of mass flow measurement and control for gasses based on thermal direct through-flow measurement technology. You will get insight in the construction, operation principles and typical applications of the Bronkhorst Mass-Stream™ product series. In a practical setting you will get the opportunity to operate a Mass-Stream instrument yourself.

Audience

This training course is dedicated for attendees who are interested in the field of low flow fluidics handling technology.

Level

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

Prerequisites

No specific prerequisites required

Content

In this course the following topics will be discussed:

- > Introduction
- > Product differentiation
- > Construction principles
- > Model numbering
- > Models and ranges
- > Operating principles
- > Features and benefits
- > Examples of applications
- > Installation and start-up
- > Bronkhorst user software like FlowDDE, FlowView, FlowPlot
- > Hands-on



Duration

3 hours

Location

Bronkhorst Training Centre,
Ruurlo, The Netherlands

Date

Ask your local Sales Representative for available dates

Attendees

1-4 persons

Executive trainer(s)

Bronkhorst Specialists

Certificate

A certificate of participation will be supplied

Modulenr: 7.26.042



Derived Product Series

IN-FLOW / LOW- Δ P-FLOW / EX-FLOW / METAL SEALED / EL-PRESS / IN-PRESS

Training objectives

In this course the content will specifically be adopted to your individual interest. Based on your request you will gain knowledge about the principles of mass flow and pressure measurement and control for gasses. You will get insight in the construction, operation principles and typical applications of the different Bronkhorst mass flow and pressure measurement and control product series. In a practical setting you will get the opportunity to handle and operate an instrument yourself.

Audience

This training course is dedicated for attendees who are interested in the field of low flow fluidics handling technology.

Level

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

Prerequisites

No specific prerequisites required

Content

In this course the following topics will be discussed:

- Introduction
- Models and ranges available (specific to be selected by attendees):
 - IN-FLOW
 - LOW- Δ P-FLOW
 - EX-FLOW
 - METAL SEALED
 - EL-PRESS
 - IN-PRESS
- Construction principles
- Model numbering
- Operating principles
- Features and benefits
- Examples of applications
- Installation and start-up
- Hands-on



Duration

3 hours

Location

Bronkhorst Training Centre,
Ruurlo, The Netherlands

Date

Ask your local Sales Representative for available dates

Attendees

1-4 persons

Executive trainer(s)

Bronkhorst Specialists

Certificate

A certificate of participation will be supplied

Modulennr: 7.26.043



CORI-FLOW™

Mass Flow Meters and Controllers

Training objectives

In this course you will gain knowledge about the principles of mass flow measurement and control for liquids and gasses based on the coriolis measurement technology. You will get insight in the construction, operation principles and typical applications of the Bronkhorst CORI-FLOW™ product series including the advanced CORI-FILL dosing application. In a practical setting you will get the opportunity to operate a CORI-FLOW™ instrument and CORI-FILL application yourself.

Audience

This training course is dedicated for attendees who are interested in the field of low flow fluidics handling technology.

Level

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

Prerequisites

No specific prerequisites required

Content

In this course the following topics will be discussed:

- > Introduction
- > Construction principles
- > Model numbering
- > Models and ranges:
 - > CORI-FLOW™
 - > mini CORI-FLOW™
 - > Pumps
- > Operating principles
- > Features and benefits
- > Examples of applications
- > CORI-FILL advanced dosing technology
- > Installation and start-up
- > Hands-on



Duration

3 hours

Location

Bronkhorst Training Centre,
Ruurlo, The Netherlands

Date

Ask your local Sales Representative for available dates

Attendees

1-4 persons

Executive trainer(s)

Bronkhorst Specialists

Certificate

A certificate of participation will be supplied

Modulnr: 7.26.044



LIQUI-FLOW™

Mass Flow Meters and Controllers

Training objectives

In this course you will gain knowledge about the principles of mass flow measurement and control for liquids based on thermal measurement technology. You will get insight in the construction, operation principles and typical applications of the Bronkhorst μ -FLOW™ and LIQUI-FLOW™ product series. In a practical setting you will get the opportunity to operate a μ -FLOW™ or LIQUI-FLOW™ instrument yourself.

Audience

This training course is dedicated for attendees who are interested in the field of low flow fluidics handling technology.

Level

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

Prerequisites

No specific prerequisites required

Content

In this course the following topics will be discussed:

- > Introduction
- > Construction principles
- > Model numbering
- > Models and ranges:
 - > LIQUI-FLOW™ mini series
 - > μ -FLOW series
 - > LIQUI-FLOW™ series
- > Operating principles
- > Features and benefits
- > Examples of applications
- > Installation and start-up
- > Hands-on



Duration

3 hours

Location

Bronkhorst Training Centre,
Ruurlo, The Netherlands

Date

Ask your local Sales Representative for available dates

Attendees

1-4 persons

Executive trainer(s)

Bronkhorst Specialists

Certificate

A certificate of participation will be supplied

Modulnr: 7.26.045



Control Valves

Training objectives

In this course you will gain knowledge about the principles of mass flow control using proportional control valves. You will get insight in the construction, the operation principles and application advantages of the Bronkhorst Control Valves range. In a practical setting the installation, start-up and maintenance of Bronkhorst control valves will be explained.

Audience

This training course is dedicated for attendees who are interested in the field of low flow fluidics handling technology.

Level

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

Prerequisites

No specific prerequisites required

Content

In this course the following topics will be discussed:

- > Introduction
- > Construction principles
- > Model numbering
- > Models and ranges:
 - > Solenoid valves
 - > Direct acting valves
 - > Vary-P valves
 - > Pilot valves
 - > Bellow valves
 - > Membrane valves
 - > Pneumatic valves
- > Operating principles
- > Valve selection, based on:
 - > K_v -value and orifice calculation
 - > Pressure rating
 - > Minimum and maximum Delta-P
 - > Medium and sealing material
- > Features and benefits
- > Examples of applications
- > Installation and start-up
- > Hands-on



Duration

3 hours

Location

Bronkhorst Training Centre,
Ruurlo, The Netherlands

Date

Ask your local Sales Representative for available dates

Attendees

1-4 persons

Executive trainer(s)

Bronkhorst Specialists

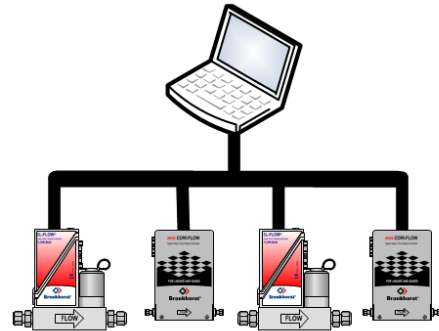
Certificate

A certificate of participation will be supplied

Modulnr: 7.26.046



Digital Communication and Fieldbus Interfaces



Training objectives

In this course you will gain knowledge about the principles of digital communication and fieldbus interface technology. You will get insight in the available fieldbus interfaces including the Bronkhorst specific FLOW-BUS technology. In a practical setting you will get the opportunity to install and operate a bus system yourself based on the Bronkhorst FLOW-BUS system.

Audience

This training course is dedicated for attendees who are interested in the field of low flow fluidics handling technology.

Level

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

Prerequisites

No specific prerequisites required

Content

In this course the following topics will be discussed:

- > Introduction
- > Basic Multi-Bus Controller board
- > Optional fieldbus interfaces
 - > FLOW-BUS
 - > DeviceNet™
 - > EtherCAT®
 - > Modbus-RTU /ASCII
 - > PROFIBUS DP
 - > PROFINET
 - > FLOW-BUS to fieldbus Gateway
- > Features and benefits
- > Hands-on: installation and operation
- > Bronkhorst software tools:
 - > FlowDDE
 - > FlowView
 - > FlowPlot
 - > FlowFix
- > Hands-on

Duration

3 hours

Location

Bronkhorst Training Centre,
Ruurlo, The Netherlands

Date

Ask your local Sales Representative for available dates

Attendees

1-4 persons

Executive trainer(s)

Bronkhorst Specialists

Certificate

A certificate of participation will be supplied

Modulenr: 7.26.047



Readout systems / Power Supply



Training objectives

In this course you will get insight in the Bronkhorst Readout and Power Supply systems. The advantages and typical applications will be explained for local and central read out, digital control and power supply options. In a practical setting you will get the opportunity to operate a digital readout unit yourself.

Audience

This training course is dedicated for attendees who are interested in the field of low flow fluidics handling technology.

Level

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

Prerequisites

No specific prerequisites required

Duration

3 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 discussed:

- > Introduction
- > Construction principles
- > Models / Model numbering
 - > E-8000, Power Supply / Readout & Control
 - > Bright, Local Read Out Unit
 - > PiPS, Plug in Power Supply
- > Features and benefits
- > Installation and operation
- > Hands-on

Attendees

1-4 persons

Executive trainer(s)

Bronkhorst Specialists

Certificate

A certificate of participation will be supplied

Modulnr: 7.26.048



Vapour Delivery Systems

Training objectives

In this course you will gain knowledge about the principles of liquid vaporization. You will get insight in the technology, construction and the operation principles of the Bronkhorst Controlled Evaporization Mixing (CEM) equipment. The advantages and typical applications will be explained including the compact Vapour Delivery Module (VDM). In a practical setting you will get the opportunity to operate a Bronkhorst CEM system yourself.

Audience

This training course is dedicated for attendees who are interested in the field of low flow fluidics handling technology.

Level

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

Prerequisites

Course: EL-FLOW Select

Course: CORI-FLOW and/or LIQUI-FLOW

Content

In this course the following topics will be discussed:

- > Introduction
- > Construction principles
- > Model numbering
- > Models and ranges:
 - > CEM (Controlled Evaporization and Mixing)
 - > VDM (compact Vapour Delivery Module)
- > Operating principles
- > Features and benefits
- > Examples of applications
- > Installation and start-up
- > Hands-on



Duration

3 hours

Location

Bronkhorst Training Centre,
Ruurlo, The Netherlands

Date

Ask your local Sales Representative for available dates

Attendees

1-4 persons

Executive trainer(s)

Bronkhorst Specialists

Certificate

A certificate of participation will be supplied

Modulennr: 7.26.049



Customized Manifold Solutions

for mass flow and pressure

Training objectives

In this course you will gain insight in the extended options within the Bronkhorst product range to engineer and construct customer specific integral solutions for mass flow and pressure measurement and control. You will get insight in the construction and the operation principles of the Bronkhorst IQ⁺-FLOW, FLOW-SMS and MANI-FLOW product series. In a practical setting the advantages of the Customized Manifold Solutions will be demonstrated.

Audience

This training course is dedicated for attendees who are interested in the field of low flow fluidics handling technology.

Level

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

Prerequisites

No specific prerequisites required

Content

In this course the following topics will be discussed:

- > Introduction
- > Construction principles
- > Model numbering
- > Models and ranges:
 - > FLOW-SMS
 - > MANI-FLOW
 - > IQ⁺-FLOW
- > Operating principles
- > Features and benefits
- > Examples of applications
- > Installation and start-up
- > Hands-on



Duration

3 hours

Location

Bronkhorst Training Centre,
Ruurlo, The Netherlands

Date

Ask your local Sales Representative for available dates

Attendees

1-4 persons

Executive trainer(s)

Bronkhorst Specialists

Certificate

A certificate of participation will be supplied

Modulnr: 7.26.050



Gas 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. In a practical setting a calibration demonstration will be given with an EL-FLOW Select Mass Flow Controller.

Audience

This training course is dedicated for attendees who are interested in the field of low flow fluidics handling technology.

Level

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

Prerequisites

Course: EL-FLOW Select

Content

In this course the following topics will be discussed:

- > Introduction
- > Calibration definitions
- > Calibration methods
- > Calibration equipment
- > Linearisation and adjustment methods
- > Basic functions of FLUICAL[®] calibration software
- > Adjustment and calibration of an EL-FLOW Select mass flow controller (with Look Up Table)
- > Hands-on



Duration

3 hours

Location

Bronkhorst Training Centre,
Ruurlo, The Netherlands

Date

Ask your local Sales Representative for available dates

Attendees

1-4 persons

Executive trainer(s)

Bronkhorst Specialists

Certificate

A certificate of participation will be supplied

Modulennr: 7.26.051





Contact

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I : www.bronkhorst.com

Subscription

Please contact your local sales representatives for available dates and subscription.

