

## CORI-FLOW™ M54

### Low Flow Coriolis Mass Flow Meter / Controller

- High accuracy, excellent repeatability
- Fast response
- Independent of fluid properties
- Compact, rugged (IP65) design
- Optional ATEX approval Cat.3, Zone 2



### Low Flow Coriolis Mass Flow Meters / Controllers for Liquid and Gases

CORI-FLOW™ Mass Flow Meters and Controllers are precise and compact instruments, based on the Coriolis measuring principle, designed to cover the needs of the low flow market. Bronkhorst® model M54 Mass Flow Meter (MFM) is suited for highly accurate measurement of gas or liquid flow ranges between 0,1... 10 kg/h and 1... 100 kg/h (which corresponds with 1,33... 133,3 l<sub>n</sub>/min up to 13,3... 1333 l<sub>n</sub>/min when used on nitrogen) at operating pressures up to 200 bar. The instruments are equipped with a robust IP65 weatherproof housing and are optionally available with ATEX approval for use in Zone 2 hazardous areas.

The instrument contains a microprocessor based pc-board with signal and fieldbus conversion and a PID controller for optional mass flow control by means of a separately mounted control valve or pump.

## Technical specifications

### Measurement / control system

Flow range (intermediate ranges available)	min. 0,1... 10 kg/h max. 1... 100 kg/h
Mass flow accuracy	Liquid: ±0,2% RD; Gas: ±0,5% RD
Repeatability	± 0,1 % RD
Turndown ratio	up to 1:100
Zero stability (ZS)	< ± 0,5 kg/h (Guaranteed at constant temperature and for unchanging process and environmental conditions.)
Operating temperature	standard: 0... 70°C; max. 50°C for ATEX Cat.3, Zone 2; max. 120°C for special version with remote electronics (130°C ≤ 1 hour allowed for CIP)
Mounting	Any position, attitude sensitivity negligible; External shocks or vibrations should be avoided.
Leak integrity, outboard	Outboard < 2 x 10 <sup>-9</sup> mbar l/s He
Warm-up time	> 30 min for optimum accuracy

## Mechanical parts

Material (wetted parts)	stainless steel 316L or comparable; optional: Hastelloy-C22
Pressure rating (PN)	200 bar abs
Process connections	compression type or face seal (VCR/VCO) couplings (welded)
Seals	metal
Ingress protection	IP65 (weatherproof)

## Electrical properties

Power supply	+15...24 Vdc +/- 10% Max. ripple recommended: 50 mV tt
Max. power consumption	Meter: approx. 80 mA at 15 Vdc
Analog output	0...5 (10) Vdc, min. load impedance > 2 k $\Omega$ ; 0 (4)...20 mA (sourcing), max. load impedance < 375 $\Omega$
Analog setpoint	(for MFM + pump or control valve) 0...5 (10) Vdc, min. load impedance > 424 k $\Omega$ ; 0 (4)...20 mA (sourcing), max. load impedance ~ 250 $\Omega$
Digital communication	standard: RS232; options: PROFIBUS DP, DeviceNet™, Modbus RTU or FLOW-BUS

## Electrical connection

Analog/RS232	8-pin DIN (male);
PROFIBUS DP	bus: 5-pin M12 (female); power: 8-pin DIN (male);
CANopen® / DeviceNet™	5-pin M12 (male);
FLOW-BUS/Modbus-RTU/ASCII	5-pin M12 (male);

## Control valve options

M54+C0I: Gas flow control valve	Kv-max= 6,6 x 10 <sup>-2</sup>
M54+C2I: Liquid flow control valve	Kv-max= 2,3 x 10 <sup>-3</sup>
M54+C5I: Gas/Liquid flow control valve	Kv-max= 6,6 x 10 <sup>-2</sup>
M54+F-004AI: Gas/Liquid flow control	Kv-max= 3,0 x 10 <sup>-1</sup>
M54+F-004BI: Gas/Liquid flow control	Kv-max= 1,0

Technical specifications subject to change without notice.

For dimensional drawings and hook-up diagrams please visit the [product page](#) on our [website](#)

## Recommended accessories



### E-8000 SERIE

#### Digital Readout / Control Systems

Bright, wide angle, 1.8" display (TFT technology)

User friendly operation, menu driven with 4 push buttons



### BRIGHT SERIE

#### Compact Local R/C Module

Bright, wide angle, 1.8" display

User friendly operation

Indication/operation/configuration



### PIPS SERIE

#### Plug-in Power Supply

For lab-style or industrial devices

Interchangeable plugs (Euro, UK, USA, Australian, IEC) for mains connection

## Related products



### MINI CORI-FLOW™ M14

Min. flow 0,03...1 kg/h

Max. flow 0,3...30 kg/h

Pressure rating 200 bar

Independent of fluid properties

High accuracy, fast response



### MINI CORI-FLOW™ M15

Min. flow 0,2...5 kg/h

Max. flow 3...300 kg/h

Pressure rating 100 bar

Independent of fluid properties

High accuracy, fast response



### CORI-FLOW™ M55

Min. flow 0,5...20 kg/h

Max. flow 12...600 kg/h

Pressure rating 100 bar

Independent of fluid properties

High accuracy, fast response



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