

# DATASHEET XM13

## mini CORI-FLOW Ex d XM13

Ex-Proof Coriolis Mass Flow Meter/Controller for low flow rates



### Ex-proof Coriolis Mass Flow Meters/Controllers for low flow rates

mini CORI-FLOW Ex d Mass Flow Meters are precise and compact instruments for low flow rates, based on the [Coriolis measuring principle](#), built in an explosion proof housing for use in IECEx and ATEX Zone 1 hazardous areas, ATEX approval II 2 G Ex d e IIB T6 Gb. Bronkhorst® model XM13 Mass Flow Meter (MFM) is suited for highly accurate measurement of gas or liquid flow in the range of 0...2000 g/h (which corresponds with 0...26,6 l<sub>n</sub>/min when used on nitrogen) at operating pressures up to 138 bar (a).

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 rates	Liquid: 0...2000 g/h (nominal flow rate: 1000 g/h); Gas: 0...26,6 l <sub>n</sub> /min (N <sub>2</sub> ); Full Scale (FS) value is user-configurable
Mass flow accuracy	Liquid: ±0,2% Rd; Gas: ±0,5% Rd
Repeatability	±0,05% of rate ± ½(ZS* x 100/actual flow)%
Turndown ratio	Meter: up to 1:100; Controller: ≥ 1:50
Zero stability (ZS)	< ± 0,2 g/h (Guaranteed at constant temperature and for unchanging process and environmental conditions.)
Response time (sensor)	≤ 200 msec
Settling time (in control, typical)	1 sec. (typical)
Temperature range	Ambient temperature range: 0...55°C; Process temperature range: 0...70°C
Temperature effect	on zero: < 0,02 g/h/°C; on span: < 0,001% Rd/°C; self heating (at zero flow): < 15°C (Depends on flow rate, heat capacity fluid, T amb., T fluid and cooling capacity.)
Mounting	Any position, attitude sensitivity negligible. External shocks or vibrations should be avoided.
Temperature accuracy	± 0,5 °C
Density accuracy	< ± 5 kg/m <sup>3</sup> (at full scale flow)

## Measurement / control system

Leak integrity, outboard	tested < $2 \times 10^{-9}$ mbar l/s He
Warm-up time	> 30 min for optimum accuracy

## Mechanical parts

Sensor	single tube, DN 0,5
Valve seat	Kalrez®-6375, other on request; (for controllers)
Material (wetted parts)	stainless steel 316L or comparable
Pressure rating (PN)	138 bar abs
Process connections	1/8" OD compression type (welded); other on request
Seals	metal
Ingress protection	IP66

## Electrical properties

Power supply	+15...24 Vdc +/- 10% Max. ripple recommended: 50 mV tt
Max. power consumption	Meter: max. 3 W; Controller: max. 7 W
Analog output	0...5 (10) Vdc, min. load impedance > 2 k $\Omega$ ; 0 (4)...20 mA (sourcing), max. load impedance < 375 $\Omega$ ; on request: Ex i output 4...20 mA
Analog setpoint	(for MFM + pump or control valve) 0...5 (10) Vdc, min. load impedance > 100 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	All instrument connections are wired to screw terminals

## Electrical connection

## Control valve options

### External actuator options to be connected to the controller

Electromagnetic control valve (Bronkhorst®)	C2I valve with XC coil or XB coil through barrier
Pneumatic actuated control valve (Badger Meter)	RC200 valve with Ex d TEIP11 I/P converter
Mass Flow Meter controlled pump	Pump with ATEX zone 1 U/f converter

## Ex-proof specifications

Approvals (MFM)	ATEX: II 2 G Ex d e IIB T6 Gb   DEKRA 12ATEX0144X   IECx: Ex d e IIB T6 Gb   IECEx DEK 12.00400   TIIS Zone 1 / JP Ex IIB T6 Gb   DEK 19.0041
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## Approvals / certificates

Technical specifications subject to change without notice.

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

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## Recommended accessories



### E-8000 SERIES

#### Digital Readout / Control Systems

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

User friendly operation, menu driven with 4 push buttons

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## Related products



### MINI CORI-FLOW EX D XM12

Flow range 0...200 g/h  
Pressure rating 138 bar  
IECEX and ATEX Zone 1 approved  
Independent of fluid properties



### MINI CORI-FLOW EX D XM14

Flow range 0...30 kg/h  
Pressure rating 107 bar  
IECEX and ATEX Zone 1 approved  
Independent of fluid properties



### MINI CORI-FLOW™ M13

Flow range 0...2000 g/h  
Pressure rating 200 bar  
Independent of fluid properties  
High accuracy, fast response

