



FM-200K-H

- **Heatable version, max 180 °C**
- **Electrically heated version, max 180 °C**
- **Needle valve integrated in the inlet**
- **Large scaling**
- **Sure connection technique**
- **No cold bridges**
- **Integrated thermostat**
- **Status contact output**
- **Easy to maintain**
- **Optional with flow alarm FA...**

Flowmeter series FM[®]

Heatable up to 180 °C Version FM-2K

Electrically heated up to 180 °C, with needle valve at the inlet Version FM-200K-H

Application

The **M&C** flowmeters **FM-2K** and **FM-200K-H** are used in analysis technique to control gas flow up to an operating temperature of 180 °C.

Depending on the flowmeter glass tube, ranges from 16 l/h to 800 l/h can be realized.

Description

The **M&C** flowmeters **FM-2K** and **FM-200K-H** consist of a vertical cone shaped glass tube with a free movable float ball inside. The sample gas, flowing from the bottom to the top, lifts the float ball as far as an annular gap appears between the tube wall and the float ball and the forces on the ball are compensated. The position of the float ball is related to a scale on the flow meter tube.

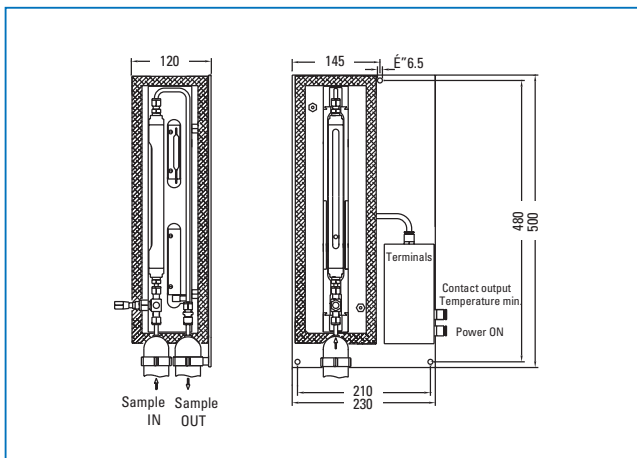
The **FM-2K** is a basic heat resistant version for installation in heated systems. The electrically heated version **FM-200K-H** is equipped with an integrated needle valve and is fixed on a mounting plate, decoupled from heat and covered with an insulated enclosure. The heater consists of a heating element with high capacity. The temperature is adjustable on the integrated thermostat up to 180 °C with high temperature limiter and low temperature alarm.

The window of the heat insulated enclosure guarantees a proper reading-out. The electrical connection box with integrated thermostat is installed outside the enclosure on the mounting plate. A flow control is possible consisting of fibre-optical light guides **FO1**, the sensor head **FA2-H** and the pre-amplifier **K-FA-H** which is installed on the mounting plate as well. The electronic controller **FA...-K** (option) has to be mounted externally. – See data sheet 5-6.10.2. –

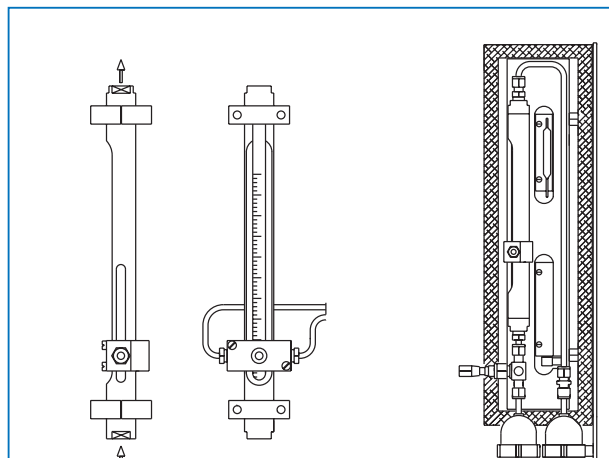
In order to avoid cold bridges, the connecting fittings are equally heated by means of double-ended thermal conducting jaws. The electrically heated sample lines type **3/4/5-N/M/H** – see data sheet 2-6.1 – are fixed with mounting brackets.

Dimensions

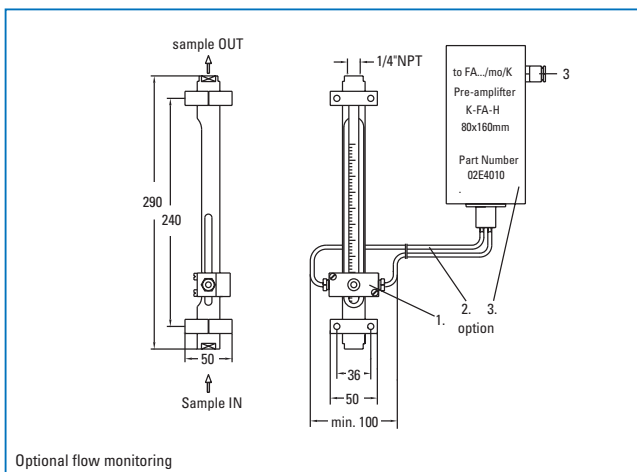
Version FM-200 H



Version FM-200 H/FA



Heatable version FM-2K



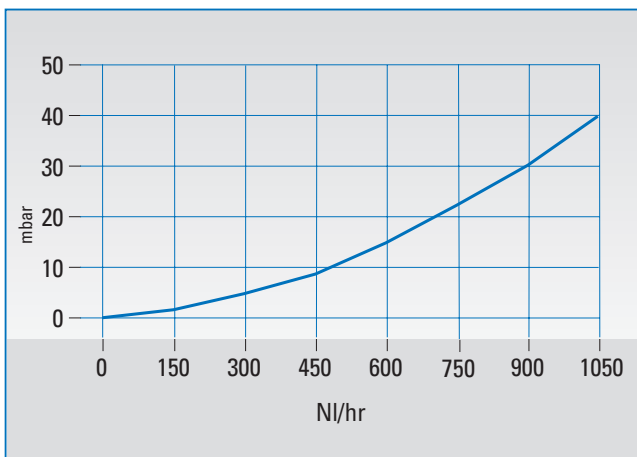
Optional flow monitoring

Dimensions in mm

optional flow monitoring consisting of:

- | | | | |
|---|----------------------------|----------------|----------------------------------|
| 1 | Sensor head | FA2-H | 02E4002 |
| 2 | Fiber-optical light guides | FO1 | 02E4060 /4065 /4063 |
| 3 | Pre-amplifier | K-FA-H | 02E4010 |
| 4 | Electronic controller | FA...-K | 02E7310 /7410 /7510 /7560 |

**Flow rate in NI/hr
air and differential pressure in mbar**



Technical Data

	FM-2K	FM-200K-H	FM-200K-H/FA
Part-No.	09F2105	09F2505	09F2555**
Heated / needle valve in the inlet	no	yes	
Optical flow control, mono-stable**	no		fix between 20-50 % of scale
Standard measuring range, at 1,2 bar, 20 °C	25-250 l/hr air		
Measuring ranges available	Scale: 1,6-16; 6-60; 10-100; 25-250; 50-500; 80-800 l/hr air, 1,2 bar, 20 °C		
Operating pressure / operating temperature	max. 2 bar g/ max. +180°C		
Ambient temperature	-40 to +180 °C	-25 to +60 °C	-25 to +50 °C
Storage temperature	-40 to +80 °C	-25 to +80 °C	
Gas connections	1/4" NPT i	Tube fittings Swagelok ø6 mm, optional ø1/4"	
Temperature controller		Capillary thermostat, integrated in electrical connection box with high temperature limiter and low temperature alarm contact adjustable from 0 to 180 °C, set in factory at 180 °C	
Operating temperature		alarm point ΔT -30 °C to T_{Set}	
Temperature alarm contact		change over contact, voltage free; contact rating 250V, 3A-, 0,25A=	
Power supply		230V 50Hz, 220VA optional 115V 60Hz (a)	
Electrical connections		Terminals 4 mm ² , 2x Cable glands PG13	
Protection / Electrical standard		IP 54 EN60529 / EN 61010, EN60519-1	
Dimensions	50 x 290 x 50 mm(w x h x d)	250 x 500 x 140 mm(w x h x d)	
Weight	0,8 kg	8 kg	8,5 kg
Stagnant space / Mounting		approx. 6 cm ³ / wall mounting	
Material of sample contacting parts		glass, stainless steel 316Ti, PTFE	

** The optical flow alarm is only equipped with pre-amplifier K-FA-H, the electronic controller must be ordered separately.