Model FM-1000 Series

Compact High Accuracy Flowmeter (65mm)

Description

The FM-1000 Series Flowmeters incorporate the innovative design of the FM-1050 in a more compact unit without reducing standards of accuracy. This is the rotameter of choice for those interested in conserving space. The same ±5% full scale accuracy is guaranteed for the 65mm scale length of these flowmeters.

Unlike the FM-1050 series which uses reference scales, the FM-1000 Series Flowmeters are direct reading for air, and are available in either English or Metric units. Choose between a black glass or a stainless steel float. These flow tubes are fluted to provide better float stability.

The FM-1000 Series glass metering tubes are enclosed in the Tube- Cube®. Protection of the tube, magnified tube scale for easy reading and alignment during replacement are afforded with this unitized holder. Integral fluted float guides for optimum float performance are standard with all tubes unless otherwise specified.

Valve Options

- No valve for those who just want indication
- Utility (six-turn) valve for those who desire control as well as indication
- High accuracy (fifteen-turn) valve for very precise control

Design Features

- Rugged, compact design
- Precision tapered, fluted metering tube
- Tube Cube® unitized glass tube holding assembly
- Reflective plastic background and 1.5 X magnification lens for excellent readability
- Safety blow-out back panel
- Full 10 to 1 (100% to 10% full scale) metering range
- Low pressure drop for increased flow rates at low feed pressures
- Easy installation and quick service access
- Optional utility and high performance valves do not require special fittings
- Corrosion resistant options: all wetted parts of 316 stainless steel or Monel with Viton or Teflon seals
- Custom scales and flow curves available

Specifications

Pressure Rating:	250 psig maximum operating pressure
Temperature Rating:	-20° to 250°F maximum operating temperature
Accuracy:	±5% of full scale flow rate – consult factory for higher accuracies
Repeatability:	0.25% of scale reading
Range:	10 to 1, i.e., 100% to 10% of full scale
Scale Readings:	Direct reading air (special other scales available)
Shipping Weight:	1 lb

Materials of Construction

Wetted End Blocks, Fittings and Internal Parts:	Brass, 316 stainless steel – standard; Anodized aluminum, Kynar, Monel – optional
Seal Materials:	Buna-N or Viton – standard; Teflon, EPR, or Kalrez – optional
Side Plates:	Painted or anodized aluminum
Metering Tube:	Borosilicate glass enclosed in Tube-Cube® holder
Piping Connections:	Brass, 316 stainless steel – standard; Aluminum, Monel – optional
Float Materials:	Black glass or 316 stainless steel – standard; sapphire, ceramic, Carboloy or Tantalum – optional
Scale:	Ceramic ink on glass tube, length 65mm

Dimensions FM-1000 Flowmeter

See pages 369 for engineering drawing.

Don't See It Here?

Matheson offers a complete line of variable area flowmeters. Our standard, more common configuration options are shown here. However, if you don't see what you are looking for, contact us. We manufacture flowmeters for liquids as well as gases, and can use other end block materials, such as aluminum, Kynar and Monel, and other seal materials such as Teflon, EPR and Kalrez. In addition, we offer other connection fittings, including NPT, tube and hose, in a variety of sizes. Lastly, we have an enormous library of flow calibrations and correlation tables for dozens of other gases and a wide range of conditions.

So, if you don't see it here, give us a call. We'll build to suit your specific needs.

- *See pages 351 for additional general information.*
- *See page 355 for Tube-Cube® information.*
- *See page 364 for Replacement Seal Kits and Parts.*

Model FM-1000 Series

Compact High Accuracy Flowmeter (65mm) *(continued)*

Flow Tube Capacities for FM-1000 Series Flowmeters, Direct Reading

Float Material	Metric Scale Tube No	Metric Scale Air (SLPM)*	English Scale Tube No.	English Scale Air (SCFH)*	Utility Valve Size†	HA Valve Size†
Glass	**J009**	10-130ccm	**J011**	0.02-0.24	7	2
Stainless Steel	**J010**	20-300ccm	**J012**	0.05-0.65	7	2
Glass	**J109**	100-500ccm	**J111**	0.2-1.1	7	3
Stainless Steel	**J110**	200-1000ccm	**J112**	0.4-2.2	7	3
Glass	**J209**	0.1-1	**J211**	0.2-2.8	8	4
Stainless Steel	**J210**	0.1-2.1	**J212**	0.2-5.6	8	4
Glass	**J409**	0.5-5	**J411**	1-11	8	5
Stainless Steel	**J410**	0.5-9.5	**J412**	2-20	8	6
Glass	**J509**	2-24	**J512**	5-55	9	6
Stainless Steel	**J510**	2-50	**J513**	10-100	9	6
Carboloy	**J511**	5-70	**J514**	10-150	9	6

**All air flow rates are at 70°F and 14.7 psia*
†At 10 psig inlet pressure

Ordering Information

Model Series	Number of Metering Tubes	End Blocks/ Seal Material	Valve Types	Connections	Accessories	Connection Orientation	Flow Tube (Capacities)
☐	☐	— ☐	☐	☐	☐	☐ —	☐☐☐☐

Model Number Generator For FM-1000 Series Glass Tube Flowmeters

MODEL SERIES
J = Model FM-1000 Glass Tube Flowmeter with 65mm tube

NUMBER OF METERING TUBES
1 = Single Tube Unit

END BLOCKS/SEAL MATERIAL
3 = Chrome Plated Brass with Buna-N Seals
4 = 316 Stainless Steel with Viton Seal

VALVE TYPES
A = Utility Valve on Inlet
B = Utility Valve on Outlet
C = High Accuracy Valve on Inlet
D = High Accuracy Valve on Outlet
G = No Valve

CONNECTIONS
1 = 1/8" NPT Female (std)
2 = 1/4" NPT Female
4 = 1/4" Tube
6 = 1/4" Hose (3/16"-3/8" Hose Tapered)

ACCESSORIES (ORDER SEPARATELY)
0 = None
1 = Flush Panel Mounting Bezel – Clear
5 = Base Plate
7 = Flush Panel Mounting Bezel – Black

CONNECTION ORIENTATION
1 = Back In and Back Out

FLOW TUBE (CAPACITIES)
JXXX = See Capacity Table For FM-1000 Series Flowmeters

ADDITIONAL OPTIONS
- +/- 1% Accuracy, Full Scale, With Certification, Gases, Reference Scales
- +/- 5% Accuracy, Full Scale with Certification, Gases, Direct Read
- MMSP-0003-XX Clean for O_2 Service

The FM-1000 Series are direct reading scale flowmeters for air. Inquire for other tube scales available.