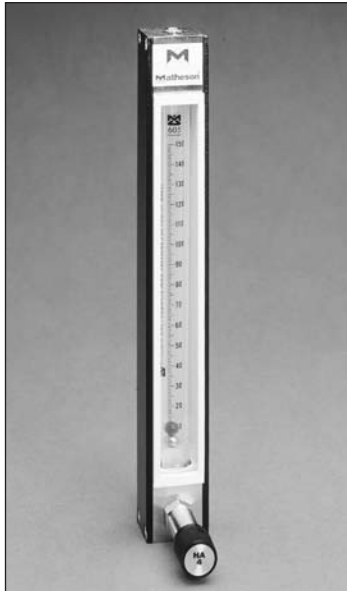


## Model FM-1050 Series High Accuracy Flowmeter (150mm)



### Description

Matheson's FM-1050 Series Flowmeters provide the most accurate indication and precise control of fluids available for a wide range of applications. This versatile meter is functionally and dimensionally interchangeable with other current designs while incorporating many innovative features.

All FM-1050 Series glass metering tubes have integral float guides to ensure a guaranteed  $\pm 5\%$  ( $\pm 1\%$  with optional calibration) of full scale accuracy. Both glass and stainless steel floats are included. The meters are available in a range of 150mm reference indicating scales. Be sure to request calibration data for the gas(es) you will be measuring.

Standard with this series is the uniquely designed Tube-Cube®. The "cube," a unitized tube holder, aligns the tube quickly and easily for simple tube installation or replacement. The Tube-Cube® provides protection during handling, reducing chipped tube ends, broken tubes and misalignment. The 1.5 X scale magnification lens allows for a more accurate reading. End seals in the FM-1050 are direct acting and nonrotating for fast alignment and convenient service access.

### 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 and repeatability

### Design Features

- High resolution 150mm scale length
- Precision tapered, fluted metering tube
- Low pressure drop for increased available flow rates at low feed pressures

- Standard front panel mounting requires minimum hardware — easy installation, quick access
- Available utility and high precision metering valves do not require special fittings
- Simplified, direct acting, nonrotating compression plug for quick and easy tube sealing

### Specifications

Pressure Rating:	250 psig maximum
Temperature Rating:	250°F maximum
Accuracy:	$\pm 5\%$ of full scale flow rate
Optional Accuracies:	$\pm 1\%$ and $3\%$ of full scale for reference scales only
Repeatability:	0.25% of scale reading
Range:	10 to 1, i.e., 100% to 10% of full scale mm or linear flow with conversion curves and/or factors
Scale Readings:	Special direct reading 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; EPR, Kalrez or Teflon – optional
Side Plates:	Painted or anodized aluminum
Metering Tube:	Borosilicate glass enclosed in <b>Tube-Cube®</b> holder
Piping Connections:	Brass, 316 stainless steel – standard; Aluminum, Monel – optional
Float Materials:	Black glass and 316 stainless steel – standard; sapphire, Carboloy or Tantalum – optional
Scale:	Ceramic ink on glass tube, length 150mm

### Dimensions FM-1050 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-1050 Series High Accuracy Flowmeter (150mm) (continued)

### Flow Tube Capacities for FM-1050 Series Flowmeters, Reference Scales

Tube No.	Float Material	CO <sub>2</sub> Carbon Dioxide (SCCM)	AR Argon (SCCM)	O <sub>2</sub> Oxygen (SCCM)	Air (SCCM)	N <sub>2</sub> Nitrogen (SCCM)	Natural Gas (SCCM)	He Helium (SCCM)	H <sub>2</sub> Hydrogen (SCCM)	Utility Valve Size	HA Valve Size
E910*	Glass	0.34-108	0.23-88	0.25-97	0.13-104	0.29-108	0.47-162	0.26-144	0.56-269	7	1
E100	Glass & Stainless Steel	6.8-200	4.6-140	5.2-145	6-150	6.5-175	9-270	5.3-160	11.7-360	7	2
E200	Glass & Stainless Steel	11-280	7-220	8-240	10-270	10.5-275	14.5-410	9-260	19-560	7	2
E300	Glass & Stainless Steel	36-750	32-690	35-770	38-840	39-850	56-1180	47-1350	99-2500	7	3
E406	Glass & Stainless Steel	72-1450	75-1490	83-1660	88-1800	90-1850	111-2430	163-3680	278-6509	7	4
		(SLPM)	(SLPM)	(SLPM)	(SLPM)	(SLPM)	(SLPM)	(SLPM)	(SLPM)		
E500	Glass & Stainless Steel	0.22-4.4	0.21-4.13	0.24-4.69	0.23-4.6	0.25-5	0.35-6.9	0.51-10.4	0.81-16.2	8	5
E606	Glass & Stainless Steel	0.34-6.6	0.34-6.7	0.38-7.4	0.4-7.6	0.42-7.9	0.53-10	0.81-16.5	1.3-26.4	8	5
E700	Glass & Stainless Steel	0.77-14.4	0.76-14.3	0.85-16.1	0.88-16	0.91-17.2	1.26-22.6	2-39.8	3.09-59.6	9	6
E800	Glass & Stainless Steel	2.05-37.4	2.06-38.1	2.32-43.1	2.4-44	2.47-46	3.21-59.3	5.71-110.7	8.6-161.1	9	6

All flow rates are at 70°F and 14.7 psia

NOTE: Reference tubes are supplied with correlation charts for air and water flow rates at STP. If you require a correlation chart for other gases or liquids, or at pressures or temperatures other than standard, please indicate such when ordering.

\*0-100 calibrated correlated reference tube scale only

Flow charts for tubes are located at [www.mathesontrigas.com/literature](http://www.mathesontrigas.com/literature)

### Ordering Information

Model Series	Number of Metering Tubes	End Blocks/ Seal Material	Valve Types	Connections	Accessories	Connection Orientation	Flow Tube (Capacities)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Model Number Generator For FM-1050 Series Glass Tube Flowmeters

#### MODEL SERIES

E = Model FM-1050 Glass Tube Flowmeter with 150mm 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 Seals

#### 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)

EXXX = See Capacity Table For FM-1050 Series Flowmeters

#### ADDITIONAL OPTIONS

- +/- 1% Accuracy, Full Scale, With Certification, Gases, No Direct Read
- +/- 2% Accuracy, Full Scale, With Certification, Gases, No Direct Read
- +/- 3% Accuracy, Full Scale, With Certification, Gases, Direct Read
- +/- 5% Accuracy, Full Scale with Certification, Gases, Direct Read
- MMSP-0003-XX Clean for O<sub>2</sub> Service

These are Reference Scale Flowmeters. Be sure to request calibration data for the gas(es) you will be measuring