

# ROTAMETERS

**Please see the following pages for more information on Variable Area Flow Meters**

- Rib-guided or fluted metering tubes facilitate stable, accurate readings.
- Magnifier lens in front shield enhances reading resolution.
- Easy-to-install flow tubes.
- "Non-rotating" adapter feature glass flow tubes are prevented from turning during the tightening phase of the assembly procedure.

## Single Tube Glass Flow Meters

Designed for low flow rates, these single tube flow meters are precision instruments embodying the inherent simplicity, versatility and economy of the classical variable area meter. They are particularly suitable for metering carrier gases in chromatography, in manufacturing processes, liquid and gas measurements in laboratories, pilot plants, flow and level indicating and controlling gases.

Shipped completely assembled, flow meters include standard mounting fittings in a choice of materials, side plates, thick protective front shield and back plate, with or without control valves.

## Single Tube PTFE Glass Flow Meters

The PTFE glass flow meter is designed for use with corrosive gases and liquids and for applications where contamination free flow passages are required. Fluids contact only PTFE, PCTFE and borosilicate glass.

The unique design combines the rigidity of an aluminum structural frame with the desirable chemical inertness of PTFE components. Uses standard 65mm and 150mm flow tubes. Meters are equipped with built-in PTFE needle valves with Kel-F® valve spindles. Valves may be positioned either at inlet or outlet side of flow meter.

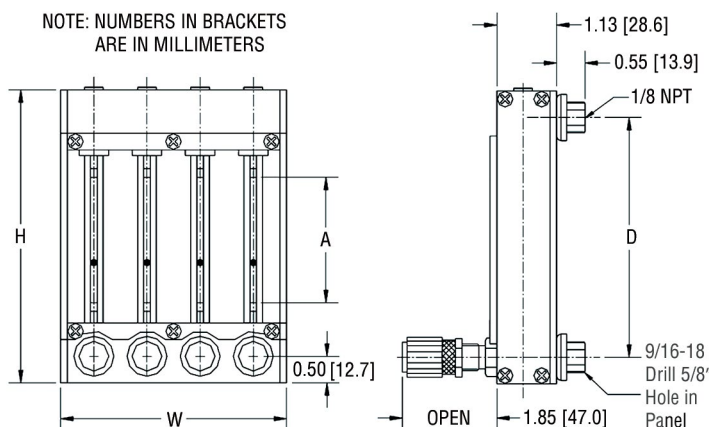


**Stainless Steel 150mm Flow Meter**



**65mm - 150mm PTFE Flow Meter**

NOTE: NUMBERS IN BRACKETS ARE IN MILLIMETERS



**DIMENSIONS FOR P STYLE METERS**

SCALE LENGTH (A)	ALL P METERS		WIDTH (W)					
	HEIGHT (H)	CENTER TO CENTER (D)	1 TUBE	2 TUBE	3 TUBE	4 TUBE	5 TUBE	6 TUBE
65mm	5.500	4.500	1.250	2.250	3.250	4.250	5.250	6.250
150mm	9.813	8.813	1.250	2.250	3.250	4.250	5.250	6.250

## SPECIFICATIONS FOR SINGLE TUBE FLOW METERS

- USEFUL FLOW RANGE:** 10:1 minimum with one float and better than 20:1 with combination of two floats installed in meters.
- STANDARD ACCURACY:**  $\pm 2\%$  of full scale (mm), 5% of full scale (direct reading).
- CALIBRATED ACCURACY:**  $\pm 1\%$  of full scale.
- REPEATABILITY:**  $\pm 0.25\%$ .
- MAX. OPERATION PRESSURE:** 200 psig/13.8 bars (PTFE 60 psig/4.13 bars).
- MAX. OPERATION TEMPERATURE:** 250 °F/121 °C (PTFE 150 °F/66 °C).
- FLOW TUBES:** Heavy walled borosilicate glass.
- FLOATS:** Glass, Sapphire, 316 Stainless Steel, Carboloy® and Tantalum.
- CHOICE OF MOUNTING FITTINGS IN CONTACT WITH FLUIDS:**
- A) Aluminum, black anodized.
  - B) Brass, chrome plated.
  - C) 316 Stainless Steel.
- SIDE PANELS:** Aluminum, black anodized.
- FRONT SHIELD:** Lexan® with longitudinal magnifier lens for enhanced reading resolution.
- BACK PLATE:** 1/8" thick white acrylics.
- O-RINGS AND PACKING:** Buna-N® O-rings in aluminum/ brass model. FKM O-rings in stainless steel meters.
- CONNECTIONS**
- OPTIONAL:** FKM PTFE FFKM and EPR. 1/8" NPT female inlet and outlet connections. 1/4" FNPT, hose and compression fittings are available.



The selection of materials of construction, is the responsibility of the customer. The company accepts no liability.

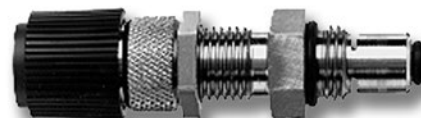
# ROTAMETERS

TABLE 21, MFV VALVE FLOW CAPACITIES 10 PSIG  
(0.7 KG/CM<sup>2</sup>) INLET PRESSURE, ATMOSPHERIC EXHAUST

ORIFICE NUMBER	AIR		HELIUM		WATER	
	std. mL/min	scfh	std. mL/min	scfh	std. mL/min	scfh
1	200	0.42	400	0.85	6	0.095
2	400	0.85	850	1.80	12	0.190
3	1000	2.12	1800	3.81	26	0.412
4	2500	4.87	6000	12.71	80	1.268
5	6200	13.14	16000	33.90	200	3.170
6	21500	45.55	55000	116.55	650	10.303

The higher cost of MFV valves is justified whenever high sensitivity control and resolution are desirable, particularly in conjunction with metering tubes of very low flow rates. MFV flow capacities are offered to be matched with individual flow meter ranges.

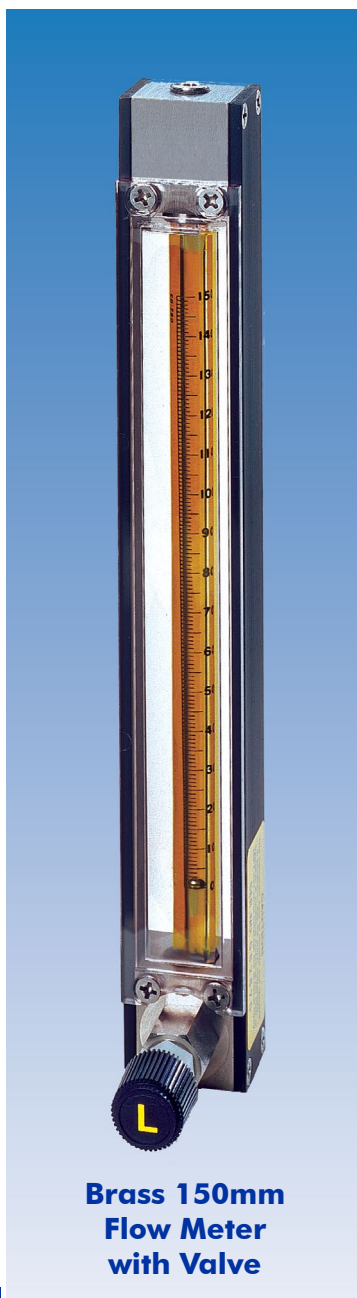
**This unique design comprises rectilinear motion valve needles, with non-rising stems**



**MFV™ Valve Cartridge**

As the needle advances into and out of high precision cylindrical orifices, the flat tapered surface of the needle gradually, without turning, uncovers the flow area. Generally, for gas metering it is recommended that valves are positioned at inlets (bottom). For liquids, valves may be positioned either at inlets or outlets (top). For vacuum services, valves must be mounted at outlets. If unspecified at time of ordering, meters will be shipped with valves mounted at the inlets. Meters are available with built-in high precision metering valves (MFV) with “non-rising stems”.

**For Materials of Construction see page 15**



**Brass 150mm  
Flow Meter  
with Valve**

TABLE 21-1, STANDARD 150MM FLOW METERS WITH HIGH PRECISION VALVE [MFV]							
MAXIMUM FLOW RATE					FRAME MATERIAL FLOW TUBE		
AIR		WATER		FLOAT MATERIAL	ALUMINUM	BRASS	STAINLESS STEEL
mL/min	scfh	mL/min	gph		MODEL NO.	MODEL NO.	MODEL NO.
11.6	0.024	N/A		Glass	6AP0101M1	6AP1101M1	6AP2101M1
18.3	0.038			Sapphire	6AP0102M1	6AP1102M1	6AP2102M1
34	0.07			316 S.S.	6AP0103M1	6AP1103M1	6AP2103M1
62.8	0.13			Carboloy®	6AP0104M1	6AP1104M1	6AP2104M1
46.6	0.098	0.098	0.007	Glass	6AP0105M1	6AP1105M1	6AP2105M1
73.1	0.154	0.154	0.015	Sapphire	6AP0106M1	6AP1106M1	6AP2106M1
138.3	0.293	0.293	0.037	316 S.S.	6AP0107M1	6AP1107M1	6AP2107M1
239.1	0.506	0.506	0.072	Carboloy®	6AP0108M1	6AP1108M1	6AP2108M1
91.6	0.194	0.194	0.020	Glass	6AP0109M1	6AP1109M1	6AP2109M1
144.3	0.306	0.306	0.035	Sapphire	6AP0110M1	6AP1110M1	6AP2110M1
262.2	0.556	0.556	0.079	316 S.S.	6AP0111M1	6AP1111M1	6AP2111M1
431.7	0.915	0.915	0.146	Carboloy®	6AP0112M1	6AP1112M1	6AP2112M1
370.6	0.784	0.784	0.090	Glass	6AP0113M1	6AP1113M1	6AP2113M1
513.3	1.087	1.087	0.158	Sapphire	6AP0114M1	6AP1114M1	6AP2114M1
816.0	1.729	1.729	0.301	316 S.S.	6AP0115M1	6AP1115M1	6AP2115M1
1216.9	2.579	2.579	0.500	Carboloy®	6AP0116M1	6AP1116M1	6AP2116M1
817	1.731	1.731	0.240	Glass	6AP0117M1	6AP1117M1	6AP2117M1
1093	2.316	2.316	0.394	Sapphire	6AP0118M1	6AP1118M1	6AP2118M1
1665	3.528	3.528	0.702	316 S.S.	6AP0119M1	6AP1119M1	6AP2119M1
2405	5.096	5.096	1.094	Carboloy®	6AP0120M1	6AP1120M1	6AP2120M1
2214	4.690	4.690	0.792	Glass	6AP0121M1	6AP1121M1	6AP2121M1
2975	6.300	6.300	1.234	Sapphire	6AP0122M1	6AP1122M1	6AP2122M1
4494	9.520	9.520	2.092	316 S.S.	6AP0123M1	6AP1123M1	6AP2123M1
6467	13.70	13.70	3.218	Carboloy®	6AP0124M1	6AP1124M1	6AP2124M1
3780	8.00	8.00	1.411	Glass	6AP0125M1	6AP1125M1	6AP2125M1
4942	10.47	10.47	2.124	Sapphire	6AP0126M1	6AP1126M1	6AP2126M1
7720	16.35	15.82	226	316 S.S.	6AP0127M1	6AP1127M1	6AP2127M1
10780	22.84	22.84	5.437	Carboloy®	6AP0128M1	6AP1128M1	6AP2128M1
8555	18.12	18.12	3.170	Glass	6AP0129M1	6AP1129M1	6AP2129M1
11140	23.60	23.60	4.771	Sapphire	6AP0130M1	6AP1130M1	6AP2130M1
16493	34.94	34.94	7.893	316 S.S.	6AP0131M1	6AP1131M1	6AP2131M1
23001	48.73	48.73	11.67	Carboloy®	6AP0132M1	6AP1132M1	6AP2132M1
23105	48.95	48.95	9.177	Glass	6AP0133M1	6AP1133M1	6AP2133M1
29410	62.30	62.30	13.2	Sapphire	6AP0134M1	6AP1134M1	6AP2134M1
42860	90.80	90.80	21.22	316 S.S.	6AP0135M1	6AP1135M1	6AP2135M1
60212	127.5	127.5	31.26	Carboloy®	6AP0136M1	6AP1136M1	6AP2136M1