

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

# ROTAMETERS

- 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

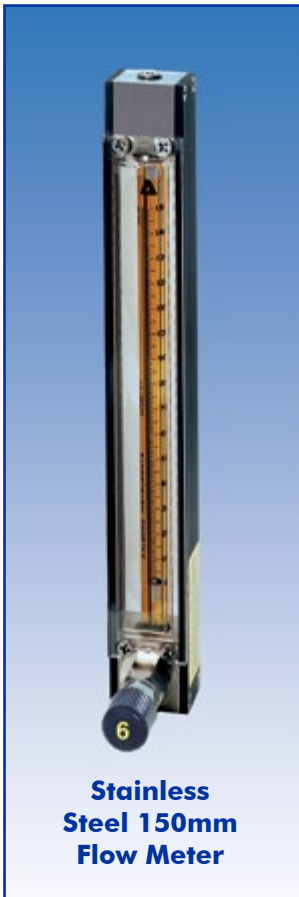
Designed for low flow rates, these single tube flow meters are precision instruments embodying the inherent simplicity, versatility and economy of the classical variable area meter. They are particularly suitable for metering carrier gases in chromatography, in manufacturing processes, liquid and gas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

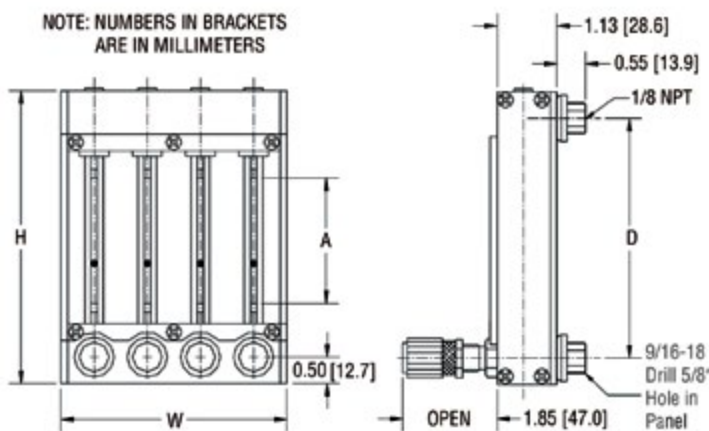
The unique design combines the rigidity of an aluminum structural frame with the desirable chemical inertness of PTFE components. Uses standard 65mm and 150mm flow tubes. Meters are equipped with built-in PTFE needle valves with Kel-F® valve spindles. Valves may be positioned either at inlet or outlet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



**Stainless Steel 150mm Flow Meter**



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



### 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:** ±2% of full scale (mm), 5% of full scale (direct reading).
- CALIBRATED ACCURACY:** ±1% of full scale.
- REPEATABILITY:** ±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. **OPTIONAL:** FKM PTFE Kalrez® and EPR.
- CONNECTIONS:** 1/8" NPT female inlet and outlet connections. **OPTIONAL:** 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.

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

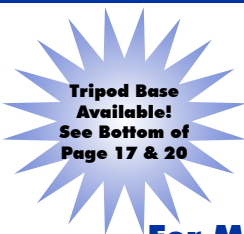
# ROTAMETERS

## Multi-tube Flow Meters also Available!

MFV™ flow capacities are offered to be matched with individual flow meter ranges

TABLE 19, 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



**For Materials of Construction see page 16**



**MFV™ Valve Cartridge**

TABLE 19-1, STANDARD 65MM FLOW METERS WITH HIGH PRECISION VALVE [MFV]

MAXIMUM FLOW RATE					FRAME MATERIAL		
AIR		WATER		FLOAT MATERIAL	ALUMINUM	BRASS	STAINLESS STEEL
mL/min	scfh	mL/min	gph		MODEL NO.	MODEL NO.	MODEL NO.
5.8	0.013	0.07	0.001	Glass	6AP0101M6	6AP1101M6	6AP2101M6
9	0.017	0.08	0.001	Sapphire	6AP0102M6	6AP1102M6	6AP2102M6
19	0.036	0.28	0.004	316 S.S.	6AP0103M6	6AP1103M6	6AP2103M6
33	0.070	0.62	0.009	Carboloy®	6AP0104M6	6AP1104M6	6AP2104M6
49	0.104	0.55	0.009	Glass	6AP0105M6	6AP1105M6	6AP2105M6
74	0.153	0.98	0.016	Sapphire	6AP0106M6	6AP1106M6	6AP2106M6
145	0.307	2.38	0.038	316 S.S.	6AP0107M6	6AP1107M6	6AP2107M6
246	0.528	4.60	0.073	Carboloy®	6AP0108M6	6AP1108M6	6AP2108M6
107	0.22	1.24	0.019	Glass	6AP0109M6	6AP1109M6	6AP2109M6
167	0.35	2.47	0.039	Sapphire	6AP0110M6	6AP1110M6	6AP2110M6
314	0.66	5.75	0.091	316 S.S.	6AP0111M6	6AP1111M6	6AP2111M6
517	1.09	10.58	0.160	Carboloy®	6AP0112M6	6AP1112M6	6AP2112M6
216	0.46	2.8	0.045	Glass	6AP0113M6	6AP1113M6	6AP2113M6
320	0.68	5.3	0.079	Sapphire	6AP0114M6	6AP1114M6	6AP2114M6
538	1.14	11.2	0.170	316 S.S.	6AP0115M6	6AP1115M6	6AP2115M6
826	1.75	19.5	0.302	Carboloy®	6AP0116M6	6AP1116M6	6AP2116M6
1056	2.23	20.8	0.329	Glass	6AP0117M6	6AP1117M6	6AP2117M6
1399	2.96	33.3	0.527	Sapphire	6AP0118M6	6AP1118M6	6AP2118M6
2125	4.50	58.7	0.930	316 S.S.	6AP0119M6	6AP1119M6	6AP2119M6
3059	6.48	90.0	1.426	Carboloy®	6AP0120M6	6AP1120M6	6AP2120M6
1249	2.65	25	0.396	Glass	6AP0121M6	6AP1121M6	6AP2121M6
1623	3.44	36.7	0.581	Sapphire	6AP0122M6	6AP1122M6	6AP2122M6
2520	5.34	70.7	1.121	316 S.S.	6AP0123M6	6AP1123M6	6AP2123M6
3680	7.80	103.5	1.641	Carboloy®	6AP0124M6	6AP1124M6	6AP2124M6
2030	4.3	39.5	0.61	Glass	6AP0125M6	6AP1125M6	6AP2125M6
2655	5.62	63.2	0.99	Sapphire	6AP0126M6	6AP1126M6	6AP2126M6
4041	8.56	111.7	1.75	316 S.S.	6AP0127M6	6AP1127M6	6AP2127M6
5769	12.22	172	2.72	Carboloy®	6AP0128M6	6AP1128M6	6AP2128M6
2522	5.35	54.7	0.86	Glass	6AP0129M6	6AP1129M6	6AP2129M6
4917	10.42	143	2.26	316 S.S.	6AP0130M6	6AP1130M6	6AP2130M6
6318	13.4	147	2.33	Glass	6AP0131M6	6AP1131M6	6AP2131M6
8145	17.3	217	3.44	Sapphire	6AP0132M6	6AP1132M6	6AP2132M6
12058	25.5	364	5.77	316 S.S.	6AP0133M6	6AP1133M6	6AP2133M6
16943	35.9	540	8.56	Carboloy®	6AP0134M6	6AP1134M6	6AP2134M6
12860	27.2	307	4.86	Glass	6AP0135M6	6AP1135M6	6AP2135M6
16617	35.2	449	7.11	Sapphire	6AP0136M6	6AP1136M6	6AP2136M6
24452	51.8	723	11.46	316 S.S.	6AP0137M6	6AP1137M6	6AP2137C6
34507	73.1	1049	16.63	Carboloy®	6AP0138C6	6AP1138M6	6AP2138M6
21969	46.5	550	8.71	Glass	6AP0139M6	6AP1139M6	6AP2139M6
28518	60.4	811	12.85	Sapphire	6AP0140M6	6AP1140M6	6AP2140M6
41289	87.4	1297	20.56	316 S.S.	6AP0141M6	6AP1141M6	6AP2141M6
58348	123.6	1895	30.04	Carboloy®	6AP0142M6	6AP1142M6	6AP2142M6

Meters are available with built-in high precision metering valves (MFV) with "non-rising stems". 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. 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.

**Calibrations for other gases available.**



**Aluminum 65mm Flow Meter with MFV valve**