

# InFLOW, INC.

1525 Skyline Lane \* Longmont, CO 80501 \* TEL/FAX: 303.652.0444 \* <http://inflowinc.com>

## *MacroFLOW* Meters

### FEATURES:

- \* **NEAR ZERO STRAIGHT RUN REQUIRED**
- \* **NIST traceable accuracy & repeatability available**
- \* **Low permanent pressure loss**
- \* **Near zero maintenance**
- \* **Field certifiable performance**
- \* **Liquids & gases including steam**
- \* **Smooth interior contours**



**6" ANSI 600 MacroFLOW**

The *MacroFLOW* meter by InFLOW, INC. is the next generation of differential pressure flow meters and is offered for a wide variety of industrial flow meter services. These flow meters require only 0 to 3D straight run, have no moving parts, are suitable for liquids & gases, have exceptional accuracy & repeatability (NIST traceable calibration available), have low pressure drop, and can be field performance verified.

*MacroFLOW* is a great choice for new tight fit or existing service locations. Installation flexibility is a direct result of the incorporation of a proprietary flow conditioner. By pre-conditioning the flow in the meter body, required straight run is minimized.

Accuracy is key with *MacroFLOW*. The differential pressure producer is a flow nozzle built according to guidelines as per ASME specification MFC-3M-1985. Even uncalibrated estimated uncertainty is typically ~1%. With optional NIST traceable calibration; the *MacroFLOW* meter can achieve certified accuracies of better than 0.5%. In addition, the smooth contoured interior surfaces provide for a long lasting flow device, one that can go many years without recalibration.

### PRINCIPLE of OPERATION:

The *MacroFLOW* meter works on the differential pressure principal as discussed by Bernoulli. An integral flow rectifier assures consistent parabolic flow contours and minimizes pulsation effects. A contoured sub-critical flow nozzle is used to create a differential pressure with respect to flow. The flow rate is then a function of the differential pressure. Flow rate is calculated as proportional to the square root of the differential pressure.

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## INSTRUMENTATION:

*MacroFLOW* comes standard with integrally mounted transmitters. In addition, single point electrical terminations are available. The standard instrumentation package includes a SMART (microprocessor based) differential pressure transmitter to monitor the flow. Output can be directly proportional to flow (square root function) or linear with differential pressure. Also available are integrally mounted pressure &/or temperature transmitters. So fitted, the turnkey *MacroFLOW* is ideal for mass flow and BTU (energy) applications. Instrumentation is custom fit to the users preference. By combining this “no moving parts” meter with auxiliary electronics, extremely high accuracies can be achieved.



2” MacroFLOW

## GENERAL SPECIFICATIONS:

Types of Fluid:	Clean, dirty, lower viscosity liquids, gases, and steam
Accuracy:	~1% typical uncalibrated, better than 0.5% reading calibrated
Repeatability:	0.1% typical
Turndown:	~10:1, to 30:1 for mass flow applications
Temperature:	Materials & instrument dependent
Pressure:	Materials & instrument dependent
Permanent Loss:	Low, application dependent
Materials:	All generally available materials
Line size:	1/2” to 30” or greater
Process connections:	NPT, flanged, butt weld, plain end; others on request
Straight run:	0-3D, application dependent
Options:	Consult factory



*MacroFLOW* w/o flow conditioner

NOTE: *MacroFLOW* meters are custom applied for each application. Sizing follows the well established ASME flow nozzle guidelines. Specific performance for individual models is available using the ASME predictions or using actual calibration data. For dimensional, material, performance, or instrument data contact your local InFLOW, INC. representative or the factory.

## DESCRIPTION:

Flow meter shall be an InFLOW, INC. model *MacroFLOW* or equivalent. Meter shall include an integral means of conditioning incoming flow and shall require no more than 3D up and downstream straight run (typical) for accurate flow rate determination. The meter shall utilize a sub-critical flow element that follows ASME MFC-3M-1985 guidelines in both geometry and predicted performance. Meter shall be constructed such that the flow element presents only smooth contours and has no cantilevered or otherwise suspended components. Sizing, materials, end connections, and instrumentation options shall be application specific for service optimization.