

Variable Area Flowmeters

Global Purgemaster

10A6100

- **High Strength Stainless Steel Body** - Rigid construction to maintain tube alignment and resistance to pipe strain.
- **"Snap-in" Tube Construction** - Minimizes the downtime needed to clean the meter tube or to change the meter range.
- **Optimum Variety** - Available in 1-1/2, 3, 5, and 10 inch scale lengths and end fitting materials of stainless steel and KYNAR®
- **Internal Back check** - Restricts back flow and draining of process fluid when metering tube is removed. (Not available with outlet control valve.)
- **Control Valve** - The optional control valve provides a smooth fine degree of adjustment.
- **Versatile Flow Controller** - The optional Differential Pressure Regulator is designed to give reliable flow control regardless of changes in upstream pressure.
- **Adjustable Alarms** - Single (min. or max.) or Dual (min. & max) alarm sensors are adjustable over the entire meter range.



Purgemaster™
Series 10A6100

PURGEMASTER™

The Purgemaster Purge Meters are low capacity variable area flowmeters for both liquid and gas with an excellent selection of material and scale lengths in a single product family design. They provide optimum flexibility with minimum component proliferation. The meter features a corrosion resistant, high strength stainless steel body, quick, easy snap-in tube construction and a safety tested operator protection shield.

The Purgemaster is ideal for such applications as the purging of control lines and instrument enclosures. Their use is easily extended into fluid sampling, liquid specific gravity, and level measurement and similar services.

Engineering Specifications

Performance:

Repeatability: 0.5% of full scale reading.

Accuracy:

ACCURACY STATEMENT
± Percent of Full Scale

Scale Length	Standard Accuracy	Optional Accuracy
1-1/2" (38 mm)	10%	4%
3" (75 mm)	10%	4%
5" (127 mm)	2%*	1%*
10" (250 mm)	2%	1%

* Except tube number FP-1/16-xx-G5 which have ±5% standard accuracy and ±2% optional accuracy.

Rangeability: 10 to 1 or greater

Operational Limits:

Ambient Temperature Limits:

32°F to 140°F (0°C to 60°C)

Minimum Temperature: 32°F (0°C)

Minimum Pressure: Full vacuum. If vacuum conditions require a control valve, it should be in the outlet fitting.

Maximum Process Temperature and Pressure: Temperature and pressure are interdependent but the listed combination limits must not be exceeded.

End Fitting Mat'l	Type Adaptor Mat'l	Max. Fluid Temp. °F(°C)	Maximum Fluid Pressure PSIG (kPa)			
			Operating Temperature °F(°C)			
			<100°F (38°C)	150°F (65°C)	200°F (93°C)	250°F (120°C)
316SS	316SS	250 (120)	250 (1724)	250 (1724)	250 (1724)	250 (1724)
316SS	KYNAR	200 (93)	250 (1724)	225 (1550)	200 (1380)	---
KYNAR	KYNAR	150 (65)	200 (1380)	150 (1034)	---	---

Materials of Construction:

Meter

Tube*: Borosilicate glass

Floats*: Refer to Capacity Tables (Table I, II, III, & IV)

End Fittings*: 316 stainless steel and KYNAR®

Tube Adaptor*: 316 stainless steel or KYNAR® with stainless end fittings, KYNAR® with Kynar end fittings

Tube Adaptor Spring*: 316 stainless steel with stainless steel end fittings, Hastelloy "C" with KYNAR® end fittings.

Float Stop*: 1-1/2 and 3 inch meters 316 stainless steel with stainless steel end fittings, Hastelloy "C" with KYNAR® end fittings; 5 and 10 inch meter - Teflon.

Tube Rest Gasket: Teflon

O-Ring*: Viton when stainless or KYNAR® end fittings are specified.

Optional: Butyl Rubber, Ethylene Propylene Rubber and Kalrez.®

Valve Stem*: Stainless steel with stainless fittings; KYNAR® tip over stainless steel (non-process wetted) with KYNAR® fittings.

Internal Back check*: Teflon

Body: 304 stainless steel

Shield: Polycarbonate

**Process wetted parts*

Caution

It is important that the process wetted parts materials are compatible with the process fluid. Meter damage, with potential resulting unsafe conditions, can occur if the wrong material is used. For example, VITON O-rings **MUST NEVER BE USED FOR AMMONIA SERVICE**

Warning

Operating the meter without the protection shield may result in operator bodily injury.

Connections: 1/4 inch NPT. Inlet and outlet fittings are horizontal and face back.

Mounting: In-line; wall or front of panel through mounting holes in back of the body; or rear of panel mounting.

Scale Length: 1-1/2, 3, 5, and 10 inch.

Scales (on tube): As indicated in capacity tables. (Optional metal scale for 5 and 10" rear panel mounting)

Differential Pressure Regulator¹

Body: 316 stainless steel

Diaphragm: Viton (with stainless body); Buna-N (optional).

Ball Valve: 316 stainless steel

Springs: Type 316 stainless steel

Max Pressure: 200 psig (1380kPa) at 100°F (38°C)

Maximum Differential Pressure:
100 psi (690 kPa)

Pipe Connection:
1/4" NPT internal threads

Weight (Approximation)

Purge Meter Only

Scale Length	lb	Kg
1-1/2" (38 mm)	1.0	0.45
3" (75 mm)	1.0	0.45
5" (127 mm)	1.4	0.65
10" (250 mm)	1.8	0.80

Purge Meter with Regulator: Add 2-1/2 lb (1.15kg) to weights listed above.

Note 1: When combined with a 53R2110 Differential Pressure Regulator, the PURGEMASTER can control a flow of liquid or gas that is subject to varying line pressure. However, due to gas compressibility, the true value of mass flow rate of a gas can be measured only if the downstream pressure remains constant.

Alarms

Principle of operation

The ring sensors with a bistable switching action picks up the relay in the amplifier when the ball float reaches the trigger level and remains in that position, even if the float continues to move towards the alarm zone, thus leaving the trigger level. The relay will drop out as soon as the float crosses the trigger level from the opposite direction, and moves back from the alarm zone into the normal operating range. The actual float position - above or below the trigger level - is precisely indicated.

Explosion hazardous operation is feasible, since the ring sensor used is an intrinsically safe switch with intrinsically safe circuit. Due to the relatively short metering tube, type 10A6131 is suitable either as a minimum or a maximum alarm. Models 10A6132 or 10A6133 are recommended if both alarm operations are required.

Design Features

- Sensor height 14 mm, therefore only small coverage of the scale.
- Integrated clamp device directly to the meter body. No automatically adjustability during operation possible.

Alarm Specifications

Ring sensor

RC-10-14-N for 1/8 inch meter tubes,

RC-10-15-N for 1/4 inch meter tubes

Bistable Switching Action

FM Approved for

Class I, Div 1, Groups A, B, C and D;

Class II, Div 1, Groups E, F, and G

Class III, Div 1

Power supply requirements: 5 to 25 V dc

Load Current (current range): ≤ 0.01mA, ≥ .3 mA

Repeatability: ≤ 0.01 mm

Self Inductance: 100 μH

Self Capacitance: 150 nF

Ambient temp. limit: -14°F (-26° C) to 158°F (70°C)

Cable: 6 1/2 feet (2m) standard (max. 9800 feet (3000 m) possible)

Housing: Crastin, black

Protective Class: NEMA 4X/IP67

Weight: 150 g (approximate)