

# Glass Tube Flowmeter Model GT1000

**Variable Area** 

# Industrial Glass Tube, Variable Area Flowmeters

## **Description**

The Brooks® GT 1000 combines ruggedness and simplicity in design to provide a versatile glass tube flowmeter suitable for a wide range of applications. The GT 1000 O-ring construction minimizes process downtime by allowing for convenient in-line removal of the glass tube for cleaning and maintenance.

#### **Features**

- Brass or 316L SS (1.4404) end fittings
- · Flanged or threaded connections
- · Horizontal or vertical connections
- Horizontal end fittings 360 degrees rotatable
- Standard accuracy +2% full scale / Class 2.5 acc VDI/VDE
- Epoxy painted cast aluminum frame with outstanding environmental resistance
- Fluid resistant O-ring design allows tube removal without removal from the process piping

## **Product Specifications**

| Capacities and Pressure Drops      | See Capacities and Pressure Drop Tables   |
|------------------------------------|---|
| Flow Accuracy                      | Standard: ±2% Full Scale, Class 2.5 acc VDI/VDE   |
|                                    | Optional: ±1% Full Scale, Class 1.6 acc VDI/VDE   |
| Repeatability                      | ≤ 0.5% Full Scale   |
| Pressure Ratings/PED Categories    | See Pressure Ratings/PED Categories Tables for maximum non-shock pressure                             |
| Scales                             | Single or dual detachable aluminum plate  |
|                                    | Nominal Lengths: 127mm, 200mm and 250mm   |
|                                    | Graduations: Choice of direct reading units, millimeter or percentage of maximum flow with factor tag |
| Ambient Temperature Limits         | 33 to 125°F (1°C to 52°C)   |
| Operating Fluid Temperature Limits | Maximum: 250°F (121°C)  |
| (Meter)                            | Minimum: 33°F (1°C)   |
| Operating Fluid Temperature Limits | Maximum: 250°F (121°C) - Reed Switch  |
| (Alarms)                           | Maximum: 167°F (75°C) - Inductive Switch - Refer to Inductive Alarm Temperature Limits                |
|                                    | Minimum: 33°F (1°C) - Reed Switch/Inductive Switch  |
| Dimensions                         | See Dimensions Figures  |
| Optional Equipment                 | Mounting hardware for flush or front of panel   |



# **Product Specifications (continued)**

| Materials of Construction |  |  |  |  |  |  |  |
|---------------------------|--|--|--|--|--|--|--|
| Metering Tube             | Borosilicate glass   |  |  |  |  |  |  |
| Window                    | Polycarbonate with UV inhibitor  |  |  |  |  |  |  |
| Floats                    | Size 2 and 6: Sapphire, glass, Carboloy®, 316 stainless steel  |  |  |  |  |  |  |
|                           | Size 7: Glass, 316 stainless steel   |  |  |  |  |  |  |
|                           | Sizes 8-13: 316 stainless steel  |  |  |  |  |  |  |
| Float Stops               | Size 2, 6, 12 and 13: Teflon®  |  |  |  |  |  |  |
|                           | Size 7, 8, 9 and 10: 316 stainless steel springs   |  |  |  |  |  |  |
| Housing                   | Cast Aluminum with Epoxy paint   |  |  |  |  |  |  |
| End Fittings              | Brass or 316/316L stainless steel (1.4404)   |  |  |  |  |  |  |
| O-rings                   | Viton® fluoroelastomers, Buna-N, Kalrez® perfluoroelastomers (Stainless steel body only), EPDM (Stainless steel body only) |  |  |  |  |  |  |
| Hardware                  | Stainless steel Stainless steel  |  |  |  |  |  |  |
| Connections               | Brass or stainless steel fittings: NPT or BSPT/RC female connections   |  |  |  |  |  |  |
|                           | Stainless steel fittings: 150 lbs. flanges per ANSI B 16.5   |  |  |  |  |  |  |
| Connection Orientation    | Vertical or horizontal on inlet and/or outlet  |  |  |  |  |  |  |
| Certifications            | International Calibration Certificate  |  |  |  |  |  |  |
|                           | Material Certification to DIN 3.1  |  |  |  |  |  |  |
|                           | Declaration of Compliance 2.1 Oxygen Service   |  |  |  |  |  |  |

#### GT1000 Pressure Ratings and PED Categories

| Maximum Operating Pressure (PSIG/bar) at Fluid Temperature: Up to 250°F (121°C) |                      |                     |          |  |  |  |  |  |
|---|----------------------|---------------------|----------|--|--|--|--|--|
| Meter   | NPT                  | ANSI 150# RF        | PED      |  |  |  |  |  |
| Size  | Threaded Connections | Flanged Connections | Category |  |  |  |  |  |
| 2   | 500/34.5             | 240/16.5            | SEP      |  |  |  |  |  |
| 6   | 450/31               | 240/16.5            | SEP      |  |  |  |  |  |
| 7   | 300/20.7             | 240/16.5            | SEP      |  |  |  |  |  |
| 8   | 250/17               | 240/16.5            | SEP      |  |  |  |  |  |
| 9   | 200/13.8             | 200/13.8            | SEP      |  |  |  |  |  |
| 10  | 175/12.1             | 175/12.1            | SEP      |  |  |  |  |  |
| 12  | 100/6.9              | 100/6.9             | See Note |  |  |  |  |  |
| 13  | 75/5.2               | See Note            |          |  |  |  |  |  |

Note: Size 12 and 13 do not conform to Pressure Equipment Directive 97/23/EC, therefore cannot be sold or used in the EU/EFTA.

# **Product Specifications - Capacities and Pressure Drop**

Meter Sizes 2 & 6: Spherical Floats

|               | -         |         |        | WATER     |      |            |       | AIR*   |           |      |
|---------------|-----------|---------|--------|-----------|------|------------|-------|--------|-----------|------|
|               | SPHERICAL | Flow    | / Rate | Pressure  | Drop | V. I. C.** | Flow  | Rate   | Pressure  | Drop |
| TUBE          | FLOAT     | cc/min. | l/h    | Inches WC | kPa  | cSt        | slpm  | m3/nh  | Inches WC | kPa  |
|               | GLASS     | 0.42    | 0.025  | 0.3       | 0.08 | 1.0        | 0.039 | 0.0021 | 0.3       | 0.08 |
| SIZE 2        | SAPPHIRE  | 0.84    | 0.05   | 0.4       | 0.09 | 1.0        | 0.06  | 0.0033 | 0.4       | 0.1  |
| R-2-127-AAAAT | 316 SS    | 1.9     | 0.11   | 0.7       | 0.17 | 1.0        | 0.11  | 0.0066 | 0.8       | 0.19 |
|               | CARBOLOY  | 3.9     | 0.23   | 1.1       | 0.27 | 1.0        | 0.2   | 0.011  | 1.2       | 0.3  |
|               | GLASS     | 4.2     | 0.25   | 0.3       | 0.08 | 1.0        | 0.3   | 0.016  | 0.3       | 0.08 |
| SIZE 2        | SAPPHIRE  | 8.0     | 0.48   | 0.4       | 0.1  | 1.0        | 0.41  | 0.023  | 0.4       | 0.11 |
| R-2-127-DT    | 316 SS    | 16      | 0.98   | 0.9       | 0.22 | 1.0        | 0.68  | 0.038  | 1.0       | 0.24 |
|               | CARBOLOY  | 27      | 1.6    | 1.5       | 0.38 | 1.0        | 1.0   | 0.057  | 1.7       | 0.42 |
|               | GLASS     | 47      | 2.8    | 0.6       | 0.16 | 1.0        | 2.0   | 0.11   | 0.7       | 0.18 |
| SIZE 2        | SAPPHIRE  | 71      | 4.2    | 0.8       | 0.21 | 1.0        | 2.7   | 0.15   | 0.9       | 0.23 |
| R-2-127-BT    | 316 SS    | 110     | 7.1    | 1.8       | 0.45 | 1.0        | 4.1   | 0.23   | 2.0       | 0.51 |
|               | CARBOLOY  | 170     | 10     | 3.0       | 0.75 | 1.0        | 5.9   | 0.33   | 3.3       | 0.83 |
|               | GLASS     | 160     | 10     | 1.8       | 0.45 | 1.0        | 7.3   | 0.4    | 2.0       | 0.5  |
| SIZE 6        | SAPPHIRE  | 240     | 14     | 2.9       | 0.72 | 1.0        | 9.4   | 0.52   | 3.2       | 0.8  |
| R-6-127-AT    | 316 SS    | 410     | 24     | 6.1       | 1.53 | 1.0        | 14    | 0.78   | 6.8       | 1.7  |
|               | CARBOLOY  | 610     | 36     | 10.5      | 2.61 | 1.0        | 19    | 1.1    | 11.6      | 2.9  |
|               | GLASS     | 450     | 27     | 9.4       | 2.34 | 1.0        | 19    | 1.0    | 10.4      | 2.6  |
| SIZE 6        | SAPPHIRE  | 660     | 40     | 14.9      | 3.7  | 1.0        | 24    | 1.3    | 16.5      | 4.1  |
| R-6-127-BT    | 316 SS    | 1000    | 65     | 30.1      | 7.5  | 1.0        | 35    | 1.9    | 33.3      | 8.3  |
|               | CARBOLOY  | 1500    | 95     | 57.8      | 14.4 | 1.0        | 49    | 2.7    | 64.2      | 16   |

Note: 316 SS and Carboloy float capacities listed above can be used to size meters with optional inductance-type alarms

<sup>(\*)</sup> Air flow rates in standard units are at 70'F and 14.7 PSIA, air flow rates in normal units are at 1.013 bar & 20'C

<sup>(\*\*)</sup> When the viscosity of the fluid exceeds the viscosity immunity ceiling (VIC), a calculated correction is applied to account for the difference between factory calibration fluid and process fluid.

## Product Specifications - Capacities and Pressure Drop (continued)

Meter Sizes 7, 8, 9, 10, 12 &13: 200mm, 250mm Scale, Rib Guided Tubes, Standard Floats

|              |                 |      |       | Water       |         |            |      |       | Air***      | **        |         |        |
|--------------|-----------------|------|-------|-------------|---------|------------|------|-------|-------------|-----------|---------|--------|
|              |                 | Flow | Rate  | Pressu      | re Drop | V. I. C.** | Flow | Rate  | Pressure    | Drop      | REQ.    | REQ.   |
| TUBE         | FLOAT           | GPM  | l/h   | INCHES W.C. | kPa     | cSt        | SCFM | m3n/h | INCHES W.C. | kPa       | psi (*) | bar(*) |
| Size 7       | GLASS           | 0.16 | 36    | 2.0         | 0.5     | 1.0        | 0.88 | 1.4   | 2.0         | 0.5       | 0       | 0      |
| R-7M-25-1FT  | 316 SS          | 0.38 | 86    | 3.0         | 0.75    | 1.0        | 1.6  | 2.6   | 4.0         | 1         | 0       | 0      |
|              | 8-RV-3          | 0.77 | 170   | 3.0         | 0.75    | 2.0        | 3.1  | 5.0   | 3.0         | 0.75      | 0       | 0      |
|              | 8-RV-8          | 1.0  | 240   | 5.0         | 1.3     | 3.7        | 4.4  | 7.0   | 5.0         | 1.3       | 0       | 0      |
| Size 8       | 8-RS-8          | 1.3  | 310   | 6.0         | 1.5     | 1.8        | 5.8  | 9.2   | 6.0         | 1.5       | 0       | 0      |
| 8-8M-25-4FT  | 8-RS-14         | 1.8  | 410   | 10          | 2.5     | 1.9        | 7.5  | 11    | 11          | 2.8       | 0       | 0      |
|              | 8-RV-14         | 1.4  | 320   | 8.0         | 2       | 5.4        | 5.8  | 9.2   | 8.0         | 2         | 0       | 0      |
|              | 8-RV-31         | 2.0  | 460   | 16          | 4       | 7.0        | 8.3  | 13    | 17          | 4.3       | 30      | 2      |
|              | 8-RS-31         | 2.5  | 580   | 20          | 5       | 3.1        | 10   | 16    | 22          | 5.5       | 30      | 2      |
|              | 8-LJ-48 ****    | 4.8  | 1100  | 52          | 13      | 1.0        | 20   | 33    | 57          | 14        | 30      | 2      |
|              | 9-RV-33         | 2.5  | 570   | 6.0         | 1.5     | 11         | 10   | 16    | 7.0         | 1.8       | 0       | 0      |
| Size 9       | 9-RS-33         | 3.2  | 730   | 4.0         | 1       | 2.4        | 13   | 21    | 8.0         | 2.0       | 0       | 0      |
| R-9M-25-3FT  | 9-RV-87         | 3.9  | 890   | 14          | 3.5     | 17         | 16   | 26    | 16          | 4.0       | 30      | 2      |
|              | 9-RS-87         | 5.1  | 1100  | 18          | 4.5     | 3.5        | 21   | 35    | 19          | 4.8       | 30      | 2      |
|              | 10-RV-64        | 6.2  | 1400  | 12          | 3       | 15         | 25   | 40    | 14          | 3.5       | 0       | 0      |
| Size 10      | 10-RS-64        | 7.8  | 1700  | 16          | 4       | 3.7        | 32   | 50    | 18          | 4.5       | 0       | 0      |
| R-10M-25-3FT | 10-RS-138       | 10   | 2400  | 30          | 7.5     | 5.5        | 46   | 76    | 36          | 9         | 30      | 2      |
|              | 10-LJ-238 ****  | 20   | 4600  | 104         | 26      | 1.0        | 92   | 150   | 16          | 4         | 30      | 2      |
|              | 12-RV-119       | 13   | 2900  | 4.0         | 1       | 30         | 56   | 88    | 4.0         | 1         | 0       | 0      |
| Size 12      | 12-RV-221       | 17   | 3900  | 10          | 2.5     | 32         | 70   | 110   | 12          | 3         | 0       | 0      |
| R-12M-20-5FT | 12-RV-343       | 20   | 4700  | 16          | 4       | 24         | 86   | 140   | 20          | 5         | 30      | 2      |
|              | 12-RS-343       | 26   | 6100  | 20          | 5       | 10         | 110  | 180   | 24          | 6         | 30      | 2      |
|              | 12-HF-455 ****  | 42   | 9700  | 30          | 7.5     | 10         | 170  | 280   | 32          | 8         | 30      | 2      |
|              | 13-RV-510       | 31   | 7200  | 26          | 6.5     | 40         | 130  | 200   | 28          | 7         | 0       | 0      |
| Size 13      | 13-RS-510       | 42   | 9600  | 36          | 9       | 20         | 170  | 270   | 40          | 10        | 0       | 0      |
| R-13M-20-3FT | 13-HF-758 ****  | 62   | 14000 | 40          | 10      | 12         | 270  | 440   | 44          | 11        | 30      | 2      |
| (4) 8.5      | 13-LJ-1394 **** | 98   | 22000 | 200         | 50      | 1.0        |      | NOT   | INTENDED FO | R GAS SER | VICE    |        |

<sup>(\*)</sup> Minimum operating downstream pressure for gas service in PSIG.

Meter Sizes 2 thru 13: 127mm, 200mm, 250mm Scale, Rib Guided Tubes, Alarm Floats

|                    |            |       |  | Water       |      | Air***     |           |       |               |     |        |        |
|--------------------|------------|-------|--|-------------|------|------------|-----------|-------|---------------|-----|--------|--------|
|                    |            | Flow  | Rate                                       | Pressure    | Drop | V. I. C.** | Flow Rate |       | Pressure Drop |     | REQ.   | REQ.   |
| TUBE               | FLOAT      | GPM   | l/h  | INCHES W.C. | kPa  | cSt        | SCFM      | m3n/h | INCHES W.C.   | kPa | psi(*) | bar(*) |
| Size 2             |            |       | Refer to Capacity Table for Sizes 2 & 6*** |             |      |            |           |       |               |     |        |        |
| Size 6             |            |       | Refer to Capacity Table for Sizes 2 & 6*** |             |      |            |           |       |               |     |        |        |
| Size 7 R-7M-25-1FT | 7-XV-11A   | 0.48  | 100  | 8.0         | 2.0  | 3.0        | 1.9       | 3.0   | 10            | 2.5 | 0      | 0      |
| Size 8             | 8-XV-14    | 1.4   | 320  | 8.0         | 2.0  | 5.4        | 6         | 9.2   | 8.0           | 2.0 | 0      | 0      |
| R-8M-25-4FT        | 8-XS-14    | 1.8   | 410  | 10          | 2.5  | 1.9        | 8         | 11    | 11            | 2.8 | 0      | 0      |
| Size 9             | 9-XV-40    | 2.8   | 630  | 6.0         | 1.5  | 11         | 10        | 18    | 7.0           | 1.8 | 0      | 0      |
| R-9M-25-3FT        | 9-XS-40    | 3.5   | 810  | 4.0         | 1.0  | 2.4        | 13        | 22    | 8.0           | 2.0 | 0      | 0      |
| Size 10            | 10-XV-64   | 6.2   | 1400                                       | 11          | 2.8  | 15         | 25        | 40    | 13            | 3.3 | 0      | 0      |
| R-10M-25-3FT       | 10-XS-138  | 10    | 2400                                       | 30          | 7.5  | 5.5        | 45        | 75    | 36            | 9.0 | 30     | 2      |
| Size 12            | 12-XV-221  | 17    | 3900                                       | 10          | 2.5  | 29         | 70        | 110   | 12            | 3.0 | 0      | 0      |
| R-12M-20-5FT       | 12-XV-343  | 20    | 4700                                       | 16          | 4.0  | 36         | 94        | 150   | 18            | 4.5 | 30     | 2      |
| Size 13            | 13-XV-510  | 31    | 7200                                       | 26          | 6.5  | 42         | 130       | 200   | 28            | 7.0 | 0      | 0      |
| R-13M-20-3FT       | 13-XS-510  | 42    | 9600                                       | 36          | 9.0  | 7.6        | 170       | 270   | 40            | 10  | 0      | 0      |
|                    | 13-XHF-758 | 62.00 | 14000                                      | 40          | 10   | 1.0        | 270       | 450   | 44            | 11  | 30     | 2      |

<sup>(\*)</sup> Minimum operating downstream pressure for gas service (psig)

#### Float Types READ HERE Spherical Type LJ Type RV (rib guided) Type RS (rib guided) Maximum flowmeter Highest immunity to viscous High flow capacity with Lowest meter capacity or fluids with medium meter some immunity to medium capacity with low capacity with limited viscosity fluids. capacity. (most stable) viscous fluids. (Descriptions refer to floats used in the same size tube)

<sup>(\*\*)</sup> Viscosity immunity ceiling listed is for stainless steel float, fluid specific gravity 1.0. When the viscosity of the fluid exceeds the viscosity immunity ceiling (VIC), a calculated correction is applied to account for the difference between factory calibration fluid and process fluid.

(\*\*\*\*) Extended range - nonviscosity compensating floats.

<sup>(\*\*\*\*\*\*)</sup> Air flow rates in standard units are at 70'F and 14.7 PSIA, air flow rates in normal units are at 1.013 bar & 20'C

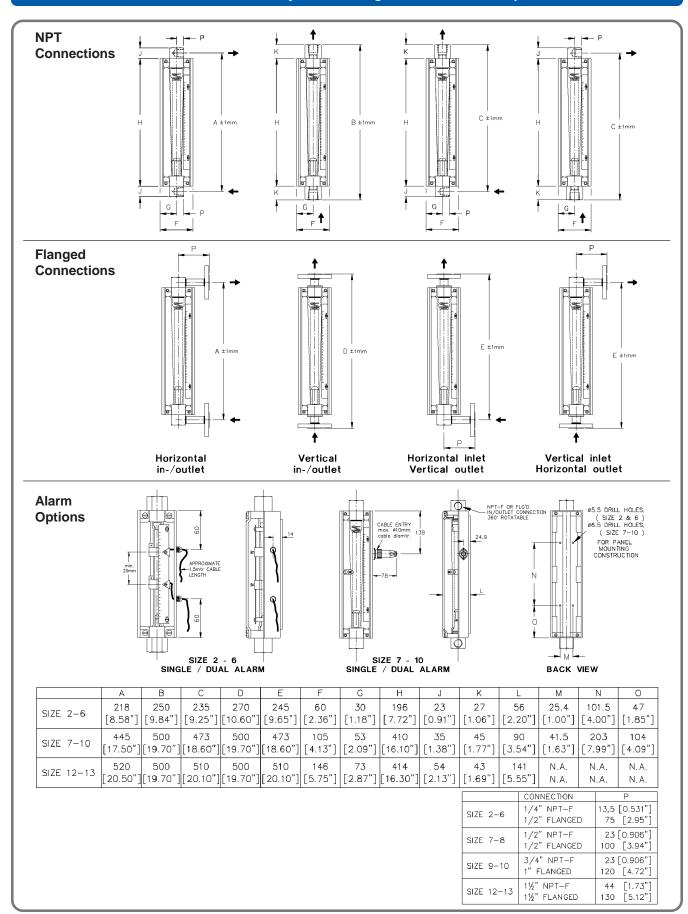
<sup>(\*\*)</sup> Viscosity immunity ceiling listed is for stainless steel float, fluid specific gravity 1.0. When the viscosity of the fluid exceeds the viscosity immunity ceiling (VIC), a calculated correction is applied to account for the difference between factory calibration fluid and process fluid.

Note 1: All size 8-13 floats listed are 316 SS with integral magnet for use with reed switch alarm.

(\*\*\*) Alarm option for sizes 2 and 6 requires metallic float (SS or carboloy) for use with inductive type alarm.

<sup>(\*\*\*\*)</sup> Air flow rates in standard units are at 70'F and 14.7 PSIA, air flow rates in normal units are at 1.013 bar & 20'C

## Product Dimensions - GT1000 Family: NPT, Flanged and w/Alarm Options



### GT1000 Optional Equipment - Alarms & Valves

#### GT1000 Alarm Contacts Meter Sizes 7 to 13

The Brooks reed switch alarm is a normally open, latching switch used in conjunction with the GT1000 glass tube flow meter for signaling high and/or low flow or a deviation from a flow setting.

A magnet embedded and sealed in the float actuates the alarm switch. The reed switch is mounted adjacent to the flow tube and is easily adjustable over the entire flow range of the instrument.

The sealed reed switch consists of a biasing magnet and hermetically sealed reed switch, which is insulated to prevent damage from mild shock and normal pipe vibration. The contact rating of the switch is very low.

An external relay is recommended for secure operation. Plus the external relay can be configured to operate as a normally open or normally closed state which provides totally flexibilty of operation.

#### Alarm Certifications Data Reed Switch

Maximum Voltage\* 175 Vdc, 124 Vac

Maximum Current\* 250 mA
Maximum Contact Rating\* 3 Watts
\*(Maximum Switch Specifications)

#### **Electrical Classification**

#### Non Incendive:

Maximum Voltage 30 Vdc Maximum Current 250 mA Maximum Contact Rating 3 Watts



US and Canada E73889

NI Class I, Div 2, Groups A, B, C and D: Class II, Groups F and G, T6. per UL 1604, Third Edition

Environmental rating: Type 4X

#### **Intrinsically Safe:**

Entity parameters:

Vmax = Ui = 30 Vdc, Imax = 100 mA, Ci = 0, Li = 0



US and Canada E73889

IS Class I, II, III, Div 1, Groups A, thru G, T6 per UL 913: Sixth Edition

Environmental rating: Type 4X

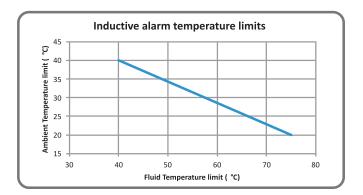
#### Inductive Alarms,

#### Alarm Contacts Meter Sizes 2 and 6

Inductive coils for high and/or low flow alarm may be mounted to the instrument to create a highly sensitive, stable and accurate device for signaling high or low flows or deviations from a controlled flow. The inductive alarm can only be used in combination with 316 ss or Carboloy® ball floats. The alarm points may be adjusted over the entire flowmeter range and be set so that any two contacts may be made to operate simultaneously. For hazardous area applications Brooks can supply an approved Namur power supply/ amplifier/relay unit to obtain an intrinsically safe current circuit.

Data 10&15-14-N3 Inductive Coils

| Power Supply Current Consumption Current Consumption Self Inductance Self Capacitance Max. Temperature | 8 volt nominal (max. 15.5 Vdc) Active area clear: > 3 mA Active area obscured: < 1 mA 70 µH 90 nF Refer to chart |
|--|--|
| Electrical Classification Intrinsically Safe:  | PTB99ATEX2128X<br>Ex II 2 G<br>EEx ia IIC T6   |
| Enclosure Type:  | IP67   |
| EMC Directive:   | EN 60947-5-2 DIN EN 60947-5-6 (Namur)  |



#### **Alarm Hysteresis**

8mm typical (0.32 in)

#### **Alarm Accessories**

Remotely mounted, switch isolator/power supplies are required for inductive alarms and recommended for reed switch alarms. One or two single-pole, double-throw (SPDT) relays are available with either 110 or 220 AC volt units.

#### **Optional Needle Valves**

For flow rate control, needle valves are externally piped to either the inlet or outlet connection of the meter. Valves are available with threaded or flanged connections. Note, solenoid valves should not be used because this type of valve can cause pressure shocks which can damage the glass tube.

Note: Valves are supplied separately.

# **Model Code**

| l.                                    | Description  Base Model Numbers | Code Option<br>1020N | Option De         | Inlet and Ou                 | tlat           |              |                    |                |                        |            |  |  |
|---------------------------------------|---------------------------------|----------------------|-------------------|------------------------------|----------------|--------------|--------------------|----------------|------------------------|------------|--|--|
| 1.                                    | base model numbers              |                      |                   | et and Outle                 |                |              |                    |                |                        |            |  |  |
|                                       |                                 | 1024N                |                   |                              |                |              |                    |                |                        |            |  |  |
|                                       |                                 | 1026N                |                   | Inlet and Ve<br>et and Horiz |                |              |                    |                |                        |            |  |  |
|                                       |                                 | 1027N                | vertical int      | et and Horiz                 | ontal Outlet   |              |                    |                |                        |            |  |  |
| II.                                   | Size and Tube Designator        |                      | Size              | Tube                         |                |              |                    |                |                        |            |  |  |
|                                       |                                 | Q                    | Size 2            | R-2-127-                     | -AAAAT         |              |                    |                |                        |            |  |  |
|                                       |                                 | Ċ                    | Size 2 R-2-127-DT |                              |                |              |                    |                |                        |            |  |  |
|                                       |                                 | E                    | Size 2 R-2-127-BT |                              |                |              |                    |                |                        |            |  |  |
|                                       |                                 | G                    | Size 6 R-6-127-AT |                              |                |              |                    |                |                        |            |  |  |
|                                       |                                 | Н                    | Size 6 R-6-127-BT |                              |                |              |                    |                |                        |            |  |  |
|                                       |                                 | i i                  | Size 7            | R-7M-25                      |                |              |                    |                |                        |            |  |  |
|                                       |                                 | K                    | Size 8            | R-8M-25                      | -4FT           |              |                    |                |                        |            |  |  |
|                                       |                                 | L                    | Size 9            | R-9M-25                      |                |              |                    |                |                        |            |  |  |
|                                       |                                 | M                    | Size 10           | R-10M-2                      |                |              |                    |                |                        |            |  |  |
|                                       | İ                               | N                    | Size 12           | R-12M-2                      |                | available in | EU)                |                |                        |            |  |  |
|                                       |                                 | P                    | Size 13           |                              | 0-3FT (Not     |              |                    |                |                        |            |  |  |
|                                       |                                 | -                    |                   | 1                            |                |              |                    |                |                        |            |  |  |
| III.                                  | Alarms                          |                      | Switch            |                              | Relay          |              |                    |                |                        |            |  |  |
|                                       |                                 | 0                    | None              |                              | None           |              |                    |                |                        |            |  |  |
|                                       |                                 | 1                    | 1 Switch/Se       |                              | No Relay       |              |                    |                |                        |            |  |  |
|                                       |                                 | 2                    | 2 Switches/       |                              | No Relay       |              |                    |                |                        |            |  |  |
|                                       |                                 | 3                    | 1 Switch/Se       |                              |                | Dual Relay   |                    |                |                        |            |  |  |
|                                       |                                 | 4                    | 2 Switches/       |                              | 220 Vac IS     | Dual Relay   | (SPDT)             |                |                        |            |  |  |
|                                       |                                 | 5                    | 1 Switch/Se       |                              |                | Dual Relay   |                    |                |                        |            |  |  |
|                                       |                                 | 6                    | 2 Switches/       | Sensors                      | 110 Vac IS     | Dual Relay   | (SPDT)             |                |                        |            |  |  |
| IV.                                   | Floats                          |                      | Size 2            | Size 6                       | Size 7         | Size 8       | Size 9             | Size 10        | Size 12                | Size 13    |  |  |
|                                       | Standard Floats Size 2, 6 & 7   | 1                    | Glass             | Glass                        | Glass          | -            | -                  | -              | -                      | -          |  |  |
|                                       | Standard Hoats Size 2, 0 & 7    | 2                    | Sapphire          | Sapphire                     | -              | -            | +-                 | +-             | _                      | _          |  |  |
|                                       | Alarm Floats Size 2, 6 & 7      | 3                    | 316 SS            | 316 SS                       | 316 SS         | -            | -                  | -              | -                      | _          |  |  |
|                                       | Alaini i loats size z, o & 7    | 4                    | Carboloy          | Carboloy                     | -              | -            | +-                 | +              | _                      |            |  |  |
|                                       | Standard Floats Size 8-13       | A                    | - Carboloy        | -                            | 1-             | -            | 9-RV-33            | 10-RV-64       | 12-RV-119              | 12_D\/_510 |  |  |
|                                       | Standard Hoats Size 6-15        | B                    | -                 | -                            | 1_             | 8-RV-3       | 9-RS-33            | 10-RV-64       | 12-RV-117              |            |  |  |
|                                       | •                               | C                    | -                 | -                            | 1              | 8-RV-8       | 9-RV-87            | 10-113-04      | 12-RV-221              |            |  |  |
|                                       |                                 |                      | -                 | -                            | 1_             | 8-RS-8       | 9-RS-87            | 10-RS-138      |                        |            |  |  |
|                                       |                                 | E                    | 1-                | -                            | 1_             | 8-RV-14      | -                  | 10-K3-136      | 12-K3-343              |            |  |  |
|                                       |                                 | F                    | -                 | -                            | +-             | 8-RS-14      | -                  | 10-Lj-230      | -                      | 13-L]-139  |  |  |
|                                       | ·                               | G                    | -                 |                              | 1_             | 8-RV-31      | -                  | +              | _                      |            |  |  |
|                                       |                                 | H                    | -                 | -                            | 1_             | 8-RS-31      | -                  | 1_             | _                      | _          |  |  |
|                                       | ľ                               | <u>''</u>            | -                 | -                            | 1_             | 8-L]-48      | -                  | +-             | _                      | _          |  |  |
|                                       | Alarm Floats Size 7-13          | N N                  | -                 | -                            | 7-XV-11A       | 8-XV-14      | 9-XV-40            | 10-XV-64       | 12-XV-221              | 13-XV-510  |  |  |
|                                       | A(a)111 1 (0a(3 3)26 /-13       | P                    | -                 | -                            | / VA-TTH       | 8-XS-14      | 9-XV-40<br>9-XS-40 | 10-7/V-04      | 12-XV-221<br>12-XV-343 |            |  |  |
|                                       |                                 | R                    | -                 | -                            | 1.             | 0-Λ3-14<br>- | 9-73-40            | 10-XS-138      |                        | T2-V2-7I   |  |  |
|                                       |                                 | S                    | -                 | -                            | -              | -            | -                  | -<br>10-73-130 | -                      | 13-XHF-75  |  |  |
|                                       |                                 |                      |                   |                              |                | 1-           | 1-                 |                |                        | -/ // CT   |  |  |
| ٧.                                    | End Fitting Material            | 1                    | Brass             |                              |                |              |                    |                |                        |            |  |  |
|                                       | and Certification               | 2                    | 316 Stainle       |                              |                |              |                    |                |                        |            |  |  |
|                                       |                                 | 4                    | 316 Stainle       | ess Steel with               | n Material Cer | tificate 3.1 |                    |                |                        |            |  |  |
|                                       | O ring Material                 | •                    | \/i+a=            |                              |                |              |                    |                |                        |            |  |  |
| VI.                                   | O-ring Material                 | A                    | Viton             |                              |                |              |                    |                |                        |            |  |  |
|                                       |                                 | В                    | Buna              |                              |                |              |                    |                |                        |            |  |  |
|                                       |                                 | <u> </u>             | Kalrez            |                              |                |              |                    |                |                        |            |  |  |
|                                       |                                 | D                    | EPDM              |                              |                |              |                    |                |                        |            |  |  |
| VII. Connection Type A NPT-F Threaded |                                 |                      |                   |                              |                |              |                    |                |                        |            |  |  |
| •                                     | ,,                              | В                    |                   |                              |                |              |                    |                |                        |            |  |  |
|                                       |                                 |                      | ANSI 150#         |                              |                |              |                    |                |                        |            |  |  |
|                                       |                                 |                      |                   |                              |                |              |                    |                |                        |            |  |  |
| VIII                                  | Connection Size                 | 11                   | 1/4"              |                              |                |              |                    |                |                        |            |  |  |
|                                       |                                 | 2                    | 1/2"              |                              |                |              |                    |                |                        |            |  |  |
|                                       |                                 | 3                    | 3/4"              |                              |                |              |                    |                |                        |            |  |  |
|                                       |                                 | 4                    | 1"                |                              |                |              |                    |                |                        |            |  |  |
|                                       |                                 | 5                    | 1-1/2"            |                              |                |              |                    |                |                        |            |  |  |

# Model Code (continued)

| Code D | Description                  | Code Option | Option Description                           |
|--------|------------------------------|-------------|--|
| IX.    | Right Side Scale Inscription | 9           | No scale required at this location           |
|        | (When facing meter)          | Α           | No inscription (blank scale)                 |
|        |                              | В           | MM scale                                     |
|        |                              | С           | PERCENT scale - fluid GAS                    |
|        |                              | D           | PERCENT scale - fluid LIQUID                 |
|        |                              | E           | Direct Reading scale - fluid LIQUID          |
|        |                              | F           | Direct Reading scale - fluid GAS             |
|        |                              | G           | Direct Reading scale - fluid HIGH VISCOSITY  |
| X.     | Left Side Scale Inscription  | 9           | No scale required at this location           |
|        | (When facing meter)          | A           | No inscription (blank scale)                 |
|        | ,,                           | В           | MM scale                                     |
|        |                              | C           | PERCENT scale - fluid GAS                    |
|        |                              | D           | PERCENT scale - fluid LIQUID                 |
|        |                              | E           | Direct Reading scale - fluid LIQUID          |
|        |                              | F           | Direct Reading scale - fluid GAS             |
|        |                              | G           | Direct Reading scale - fluid HIGH VISCOSITY  |
| XI.    | Meter Accuracy               | С           | 2% Full Scale                                |
| Αι.    | Meter Accuracy               | D           | 2% Full Scale and Certification to ICC       |
|        |                              | E           | 1% Full Scale                                |
|        |                              | F           | 1% Full Scale and Certification to ICC       |
|        |                              | 1           | 2.5 VDI                                      |
|        |                              | Ĺ           | 1.6 VDI                                      |
| VII    | Needle Valve/Flow Controller |             | None   |
| XII.   | Needle Valve/Flow Controller | 0<br>A      | Valve on Inlet                               |
|        |                              | B           | Valve on Outlet                              |
|        |                              | В           | valve on outlet                              |
| XIII.  | Panel Mounting               | 0           | None   |
|        |                              | 1           | Front Panel Mounting                         |
|        |                              | 2           | Back Panel Mounting                          |
| XIV.   | Processes with Certificates  | 0           | None   |
|        |                              | A           | Declaration of Compliance 2.1 Oxygen Service |
| ΧV     | Additional Certificate       | 0           | None   |
|        | Requirements                 | В           | International Calibration Certificate        |
| ΥVI    | OEM                          | 1           | Standard                                     |
| Ανι.   | OLM                          | 2           | No Brooks Identification                     |
|        |                              |             | NO DIOUNS INCHINICATION                      |

#### Sample Standard Model Code

| 1     | II | II | IV | V | VI | VII | VIII | IX | Х | XI | XII | XIII | XIV | XV | XVI |
|-------|----|----|----|---|----|-----|------|----|---|----|-----|------|-----|----|-----|
| 1020N | K  | 0  | В  | 2 | Α  | Α   | 3    | E  | 9 | С  | 0   | 0    | 0   | 0  | 1   |

# GT1000 - Approximate Shipping Weights

|            | NPT CONNECTIONS | FLANGED CONNECTIONS |  |  |  |
|------------|-----------------|---------------------|--|--|--|
| METER SIZE | SHIPPING WEIGHT | SHIPPING WEIGHT     |  |  |  |
| 2 TO 6     | 7 / 3.2         | 10 / 4.5            |  |  |  |
| 7 AND 8    | 12 / 5.5        | 13 / 5.9            |  |  |  |
| 9          | 18 / 6.2        | 20/9                |  |  |  |
| 10         | 25 / 11.4       | 29 / 13.2           |  |  |  |
| 12         | 39 / 17.7       | 49 / 22.3           |  |  |  |
| 13         | 40 / 18.2       | 52 / 23.6           |  |  |  |

## **Brooks Service and Support**

Brooks is committed to assuring all of our customers receive the ideal flow solution for their application, along with outstanding service and support to back it up. We operate first class repair facilities located around the world to provide rapid response and support. Each location utilizes primary standard calibration equipment to ensure accuracy and reliability for repairs and recalibration and is certified by our local Weights and Measures Authorities and traceable to the relevant International Standards.

Visit www.BrooksInstrument.com to locate the service location nearest to you.

#### START-UP SERVICE AND IN-SITU CALIBRATION

Brooks Instrument can provide start-up service prior to operation when required. For some process applications, where ISO-9001 Quality Certification is important, it is mandatory to verify and/or (re)calibrate the products periodically. In many cases this service can be provided under in-situ conditions, and the results will be traceable to the relevant international quality standards.

#### **CUSTOMER SEMINARS AND TRAINING**

Brooks Instrument can provide customer seminars and dedicated training to engineers, end users, and maintenance persons. Please contact your nearest sales representative for more details.

Due to Brooks Instrument's commitment to continuous improvement of our products, all specifications are subject to change without notice.

**TRADEMARKS** 

Brooks ...... Brooks Instrument, LLC

All other trademarks are the property of their respective owners.





Global Headquarters **Brooks Instrument** 407 West Vine Street Hatfield, PA 19440-0903 USA Toll-Free (USA): 888-554-FLOW T: 215-362-3500 F: 215-362-3745 BrooksAM@BrooksInstrument.com

A list of all Brooks Instrument locations and contact details can be found at www.BrooksInstrument.com

