

# Variable Area Flow Meters



## Over sixty years of variable area meter expertise

Brooks started designing and manufacturing variable area (VA) meters, also referred to as rotameters, in 1946. Now, with more than six decades of application experience, we help customers with VA solutions in just about every industry. Our solutions have come from our standard portfolio as well as custom-designed products incorporating special materials of construction, connections and pressure ratings.



The Brooks line of glass tube and metal tube VA meters ensures measurement repeatability, which provides dependable flow monitoring and consistency. External power is not required for operation; therefore, they provide a fail-safe flow indication under any circumstance. Brooks VA meters can be provided with a variety of wetted materials for high-pressure, high-temperature conditions and hazardous locations.

**Armored VA Meters:** The Brooks line of rugged metal tube VA flow meters is ideal for high-pressure, high-temperature, and other demanding flow applications where safety is a concern. HART, FOUNDATION™ Fieldbus and 4 – 20 mA outputs and limit switches provide for remote flow monitoring.

**Glass Tube VA Meters:** The Brooks line of reliable glass tube VA meters is ideal for gas and liquid flow measuring applications where viewing the process is desirable.

**Purgemeters:** The Brooks Sho-Rate™ brand of VA meters delivers industry-leading performance for gas or liquid flows. Robust engineering ensures reliable indication and unsurpassed service life.

### Applications include:



# Low-Flow Glass Tube Variable Area Meters



1350 Sho-Rate™

1358 Sho-Rate™

1250 Sho-Rate™

The name Sho-Rate™ has meant reliability and performance for decades now, and the 1350 and 1355 Sho-Rate variable area meters continue to deliver industry-leading performance for gas or liquid flows today. Their robust and proven engineering ensures reliable indication and unsurpassed service life. Sho-Rate flow meters pioneered the concept of field-replaceable tube and float kits; the tube and float can be replaced in-line, if necessary, in a matter of minutes. Now Brooks introduces the new 1250 and 1255 Sho-Rate. These glass tube flow meters offer an easy-to-read rotating magnifying glass, making it the ideal choice for display on panels and cabinets.

## 1350/1355 Sho-Rate

*Rugged and durable*

- Integral needle valves on inlet or outlet
- Integral flow controller that compensates for varying inlet or outlet pressures
- 316 stainless, brass, aluminum or Kynar™ construction
- Custom scales for any application

## 1250/1255 Sho-Rate

*Ideal for panel display*

- Integral needle valves on inlet or outlet
- Direct-read scales for common units and fluids
- Easy-change design allows quick interchangeability of tube assemblies
- Rotating lens allows 180° view with magnification

Model	Capacity – Water		Capacity – Air		Accuracy	Max. Pressure psig (bar)	Construction
	(lph)	(gph)	(m <sub>3</sub> n/hr)	(scfm)			
1350/1355 Sho-Rate	0.035 – 120	0.009 – 32	0.003 – 3.9	0.001 – 2.2	10% (1350) FS 5% (1355) FS	200 (14)	Glass tube w/ brass, 316 SS or Kynar
1358 Sho-Rate	180 – 1000	49 – 280	5.7 – 22	3.4 – 15	10% FS	200 (14)	Glass tube w/ brass or 316 SS
1250/1255 Sho-Rate	1.3 – 120	0.34 – 32	0.003 – 3.9	0.001 – 2.33	10% (1250) FS 5% (1255) FS	200 (14)	Glass tube w/ aluminum or 316 SS

# Armored Metal Tube Variable Area Meters



MT3809

3750 Ar-Mite™

The Brooks line of rugged metal tube variable area meters (rotameters) is ideal for high-pressure, high-temperature and other demanding flow applications where safety is a concern.

- Globally approved for use in hazardous environments
- Needle valves available for flow control
- Multiple connection options to match your existing system and provide easy installation
- Many corrosion-resistant material options for the metering of aggressive fluids
- Alarm and 4 – 20 mA with HART and FOUNDATION™ Fieldbus options provide for remote flow monitoring
- Excellent meter repeatability provides consistent batch and/or process production
- No power required, which reduces installation cost and provides flow measurement in hazardous areas
- Low-pressure drop

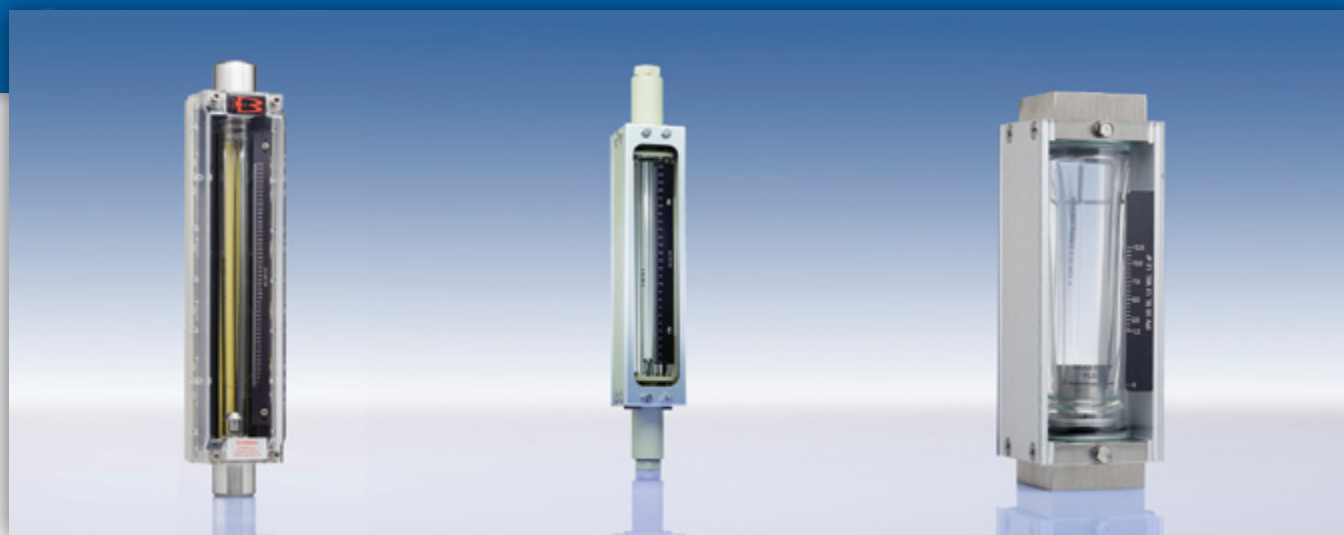
Model	Capacity – Water		Capacity – Air		Accuracy	Max. Pressure psig (bar)	Output
	(lph)	(gpm)	(m <sub>3</sub> n/hr)	(scfm)			
MT3809	25 – 100,000 <sup>1</sup>	0.11 – 440 <sup>1</sup>	0.8 – 1200 <sup>1</sup>	0.49 – 750 <sup>1</sup>	2% FS	1500 (100) <sup>2</sup>	Alarm and/or 4 – 20 mA, HART, FOUNDATION Fieldbus (IS or X-Proof)
MT3819	110 – 15,000	0.48 – 66	3.7 – 470	2 – 280	2% FS	275 (19)	Alarm and/or 4 – 20 mA, HART, FOUNDATION Fieldbus (IS or X-Proof)
MT3810	25 – 20,000	0.11 – 88	0.8 – 650	0.49 – 390	5% FS	1500 (100)	Alarm and/or 4 – 20 mA, HART (IS or X-Proof)
MT3750	0.8 – 100	0.003 – 0.44	0.04 – 3.1	0.02 – 1.9	5% FS	4000 (275)	Alarm and/or 4 – 20 mA, HART, FOUNDATION Fieldbus (IS or X-Proof)
3600 Series	19 – 11,000	0.08 – 49	0.65 – 43	0.38 – 28	10% FS	1500 (100)	Alarm (IS or X-Proof)



<sup>1</sup> Special designs for flow rates as low as 5 l/h of air and 0.08 l/h of water are available. Consult your local representative for more information.

<sup>2</sup> Special designs for up to 15,000 psi (1000 bar) are available. Consult your local representative for more information.

# High-Flow Glass Tube Variable Area Meters



GT1000

GT1100

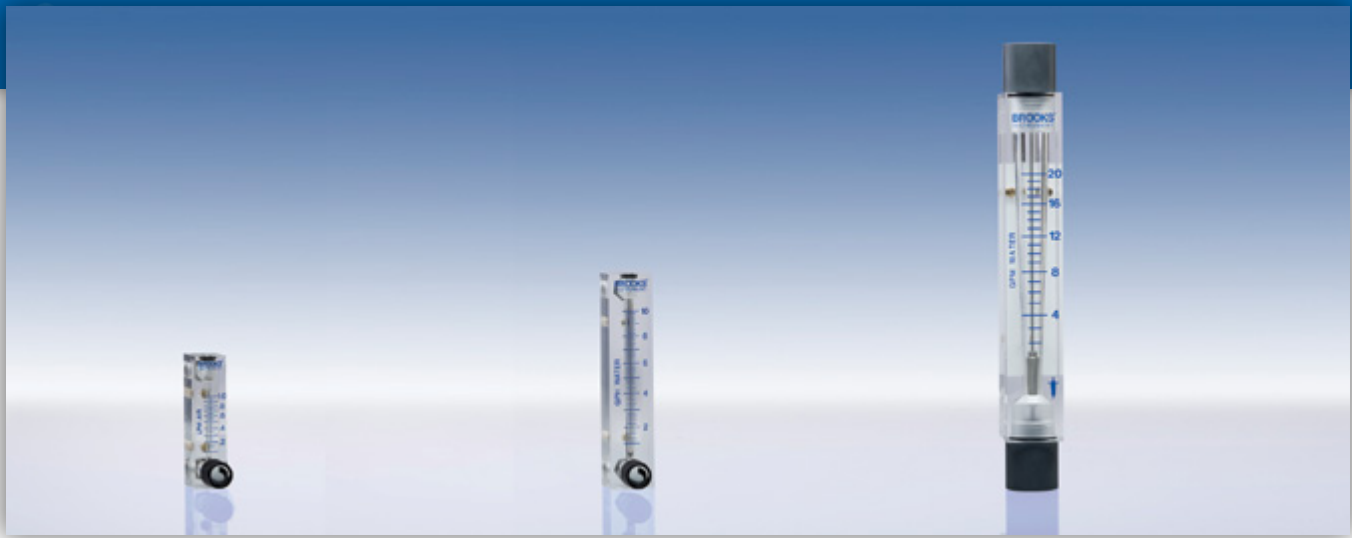
GT1305

The Brooks line of reliable glass tube variable area meters (rotameters) is ideal for many gas and liquid flow measuring applications where viewing the process is important.

- Tube and float can be re-ranged in-line, minimizing process downtime
- Rotatable connections for easy installation at any angle
- Packing gland or O-ring sealing to meet piping requirements or customer preference
- Globally approved for use in hazardous environments
- Reliable – only one moving part
- No power required, which reduces installation cost and provides flow measurement in hazardous areas
- Low-pressure drop allows for economical pump selection
- Flow alarms available on some models
- Rugged, vented polycarbonate enclosure available on most models

Model	Capacity – Water		Capacity – Air		Accuracy	Max. Pressure psig (bar)	Output
	(lph)	(gpm)	(m <sub>3</sub> n/hr)	(scfm)			
GT1000	0.032 – 22,000	0.0001 – 98	0.002 – 280	0.001 – 170	2% FS	500 (34)	Alarm (IS)
GT1100	0.032 – 22,000	0.0001 – 98	0.002 – 280	0.001 – 170	2% FS	500 (34)	Local indication
GT1307	35 – 22,000	0.15 – 98	1.5 – 280	0.9 – 170	2% FS	350 (24)	Local indication
GT1306	24 – 2200	0.1 – 9.8	1.2 – 63	0.8 – 39	3% FS	350 (24)	Local indication
GT1305	180 – 11,000	0.8 – 50	5.4 – 90	3 – 55	10% FS	200 (14)	Alarm (IS)

# Plastic Tube Variable Area Meters



2510

2520

2540

Brooks Instrument's versatile, economic acrylic flow meters are ideal for a variety of air, water and gas flow instrumentation applications. The new Series 2500 is a standard precision-machined acrylic flow meter for liquids and gases. It has direct-read air or water scales and is available in either English or metric scales. Series 2500 devices can be configured with various control valve, fitting and O-ring options.

- Easy-to-read English or metric scales
- Water ranges from 4 ccm to 20 gpm
- Air ranges from 40 ccm to 4000 slpm
- Threaded brass inserts for quick installation
- Easy disassembly and assembly for maintenance
- Durable one-piece clear acrylic construction
- Stable, easy-to-read float

Model	Capacity – Water		Capacity – Air		Accuracy	Max. Pressure psig (bar)	Temperature °C (°F)	Construction
	(lph)	(gph)	(m <sub>3</sub> n/hr)	(scfm)				
2510	8 – 150	.2 – 40	.002 – 5.5	.002 – 3.3	5% FS	100 (6.8)	65 (150)	Plastic tube w/ brass or 316 SS
2520	4 – 220	1 – 60	.002 – 5.5	.002 – 3.3	3% FS	100 (6.8)	65 (150)	Plastic tube w/ brass or 316 SS
2530	45 – 1130	12 – 300	.76 – 30	.5 – 20	3% FS	100 (6.8)	65 (150)	Plastic tube w/ brass or 316 SS
2540-S/2540-V /2540-I	90 – 4500	24 – 1200	5.5 – 165	3 – 100	2% FS	100 (6.8)	65 (150)	Plastic tube w/ PVC or 316 SS

Need more options in plastic tube variable area meters? Brooks Instrument's sister company Key Instruments offers precision-machined acrylic flow meters, molded plastic flow meters, glass tube flow meters, and flow control valves for medical, industrial, chemical and laboratory applications. Key Instruments also maintains a large inventory of standard meters for immediate delivery to meet your requirements. Turn to the Key Instruments brochure or visit [www.KeyInstruments.com](http://www.KeyInstruments.com) for more information.



# Precision Valves, Controllers, Switches and Indicators



FC8800 Series  
with 1350 Sho-Rate™

8500 Series NRS™

1198

## Manual Flow Controller

Brooks Model FC8800/8900 Series flow controllers are designed to maintain a constant differential pressure across an integral manual flow regulating valve.

- Series 8800 controllers are designed for all liquid and gas flows with variable upstream pressures.
- Series 8900 controllers are for all liquid and gas flows with variable downstream pressures.

## Control Valve, Fine Control

Brooks Model 8500 Series NRS™ (non-rising stem) control valves are designed specifically for extremely low-flow gas and liquid applications. Straight and 90° angle models in brass or stainless steel are available. They feature a means of adjusting a sliding tapered needle, which prevents sticking. These valves are particularly suitable for precise control and possess a high turns-to-lift ratio. The flow is constant for any given stem position.

## Flow Switch

The CCB311 flow switch is designed to detect low flows in horizontal or vertical pipes with an upward flow direction. Suitable for liquids or gases, the CCB311 flow switch is very robust with high repeatability and a very basic design. It is certified explosion proof/intrinsically safe.

## Flow Indicator

Brooks Instrument Model 1198 flow indicators provide a quick, reliable and economical way to verify fluid flows through industrial process lines. Model 1198 is available with three styles of indicators including paddle wheel, flap style or drip tube/whistle shape. Many specials are also available upon request to meet various conditions of pressure, temperature, fluid types and mechanical dimensions.