














Water Technologies
Wallace & Tiernan®
Flow Measurement
Equipment

Purge, Flow
and Varea-Meter®
Products

SIEMENS

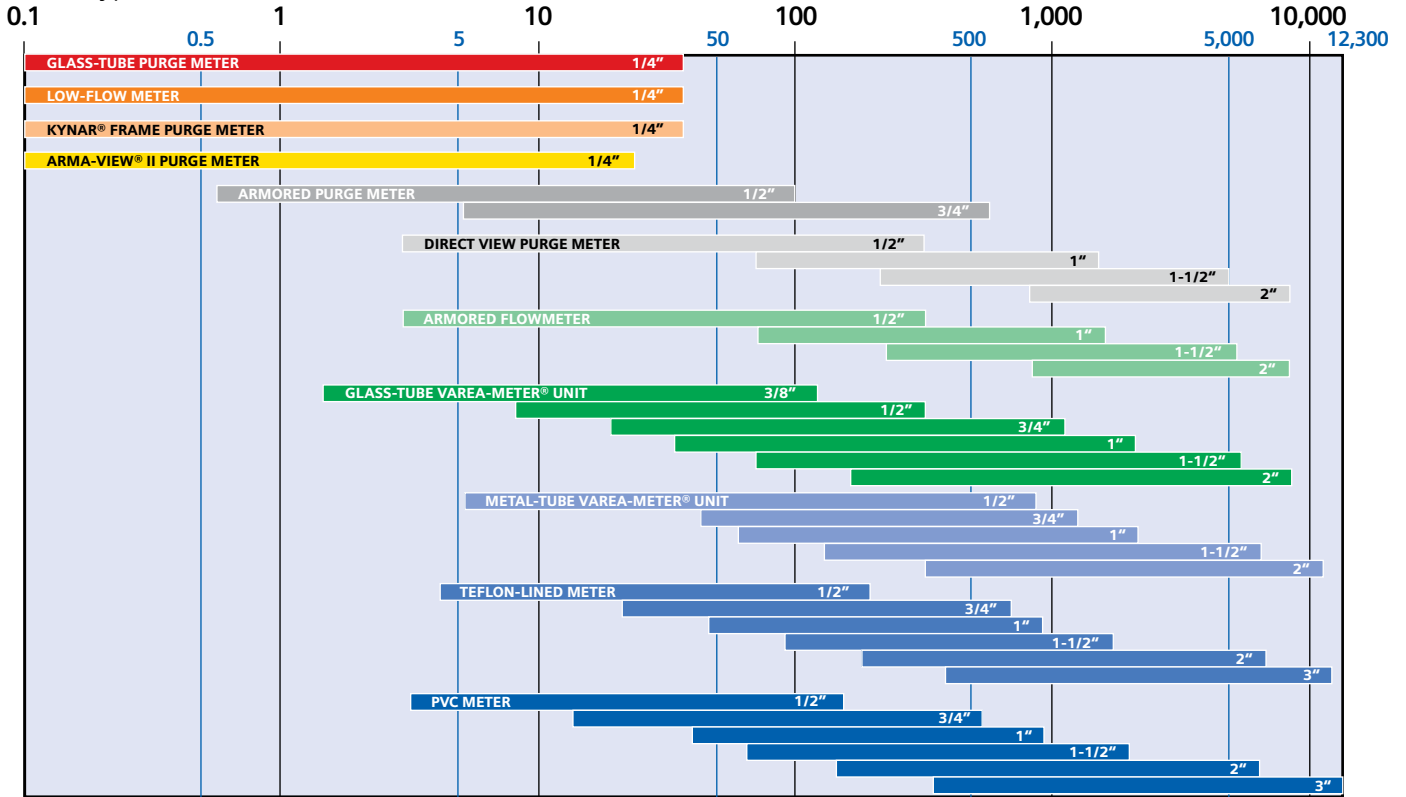


Product Overview

Wallace & Tiernan® Flowmeters			Accuracy ±Full Scale (10:1 Range)	Connections	Maximum Operating Pressure	Maximum Operating Temperature	Page Number
Glass-Tube Purge Meters		Stainless-Frame General purpose measurement of low volume flows.	10%	Horizontal 1/4 in. FNPT	17 bar (250 psi)	121° C (250° F)	4
		Kynar®-Frame Measures low volume flows in corrosive atmospheres.	10%	Horizontal 1/4 in. FNPT	10 bar (150 psi)	93° C (200° F)	4
Low-Flow Meters		Stainless-Frame For accurate measurement of low and very low flows.	2%	Horizontal 1/4 in. FNPT	17 bar (250 psi)	121° C (250° F)	4
Armored Low-Flow Meters		Arma-View® II Purge Meters Measures extra low volume flows of aggressive fluids at high pressure.	5% 3% (OPT)	Horizontal 1/4 in. FNPT	100 bar (1500 psi)	204° C (400° F)	5
		Armored Purgemeter Measures low volume flows of aggressive fluids at high pressure and temperatures.	10%	Horizontal 1/2, 3/4 in. FNPT	100 bar (1500 psi)	427° C (800° F)	5
Direct-View Flowmeters		Glass-Tube Type For flow measurements of fluids in applications where a glass tube is acceptable.	5%	Vertical 1/2, 1, 1 1/2, 2 in. FNPT	13 bar (200 psi)	93° C (200° F)	6
Armored Flow- meters		Stainless-Body Low cost, all metal meter for flow indication and flow switching of aggressive fluids at higher pressures and temperatures.	5%	Vertical 1/2, 1, 1 1/2, 2 in. FNPT or 150 lb. Flange	100 bar (1500 psi)	93° C (200° F) air 204° C (400° F) water	6
Glass-Tube Varea-Meter® Units		Stainless-Frame For accurate flow measure- ments of fluids in applica- tions where a glass tube is acceptable.	2% 1% (OPT)	Vert. or Horz. 1/2, 1, 1 1/2, 2 in. FNPT or Flange	20 bar (300 psi)	93° C (200° F)	7
Metal-Tube Varea-Meter® Units		Metal-Tube Type Meters aggressive fluids accurately at high pressures and temperatures.	2% 1% (OPT)	Vertical 1/2, 1, 1 1/2, 2 in. 150, 300, or 600 lb. Flange	82 bar (1200 psi)	316° C (600° F)	8
TFE-Lined Metal-Tube Varea-Meter® Units		TFE-Lined Metal Tube Combines chemical resistance of TFE with stainless tubes and flanges for measuring aggressive fluids at high pressures and temperatures.	2%	Vertical 1/2, 1, 1 1/2, 2, 3 in. 150 lb. Flange	18 bar (275 psi)	149° C (300° F)	9
PVC-Tube Varea-Meter® Units		PVC-Tube Type Measures aggressive chemicals at low to moderate pressures and temperatures.	2%	Vertical 1/2, 1, 1 1/2, 2, 3 in. 150 lb. Flange	13 bar (200 psi)	66° C (150° F)	9
By-Pass Varea-Meter® Systems		Glass-Tube Type Measures flow through any large-diameter pipeline which can be fitted with a differential-producing device.	4%	Horizontal 1/2, 3/4, 1 in. FNPT or Flange	20 bar (300 psi)	93° C (200° F)	10
		Metal-Tube Type Measures flow through any large-diameter pipeline which can be fitted with a differential-producing device.	4%	Vertical 1 in. 150, 300 lb. Flange	82 bar (1200 psi)	316° C (600° F)	10

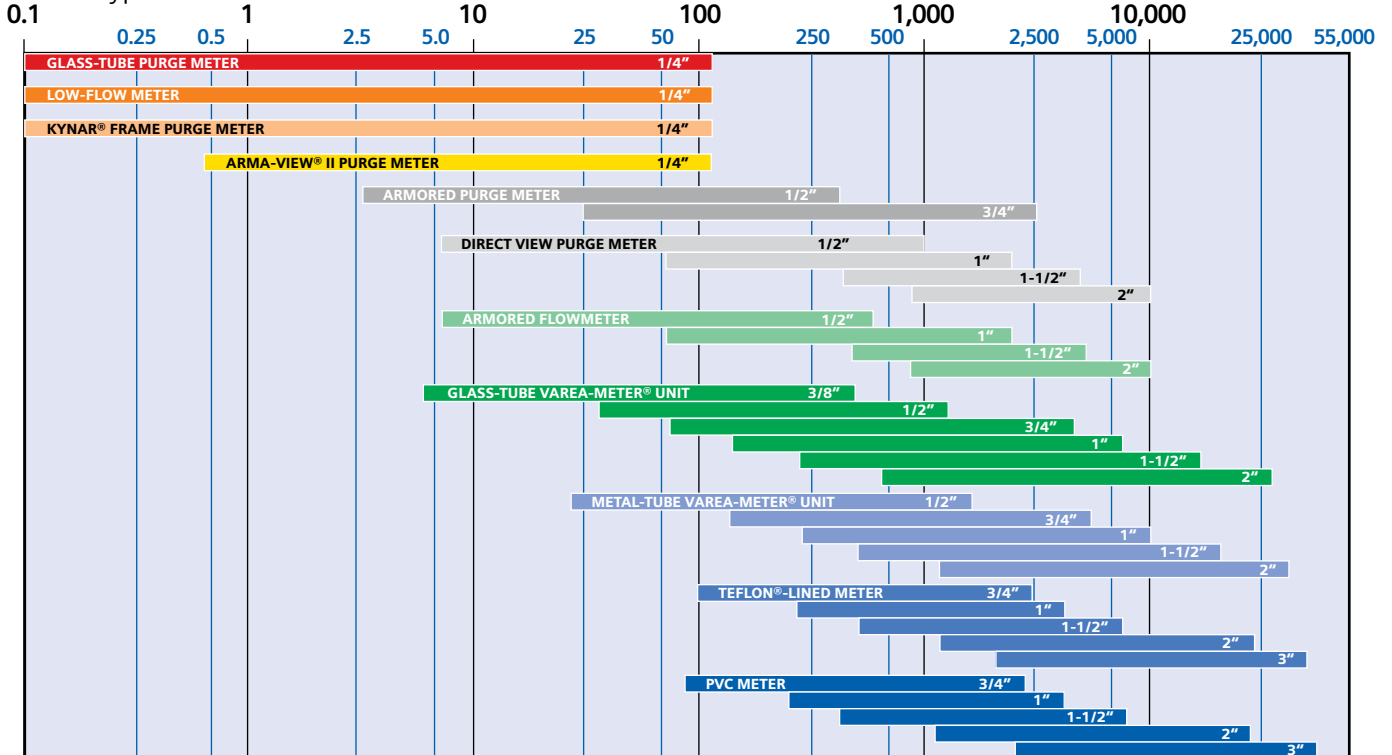
LIQUID CAPACITY CHART - GPH CAPACITIES

Meter Type and Size



GAS CAPACITY CHART - SCFH CAPACITIES

Meter Type and Size



Glass-Tube Purge Meters and Low-Flow Meters

Wallace & Tiernan® glass-tube purge and low-flow meters are available with stainless steel or Kynar® (purge meter only) frames. Standard calibrations are in ccm, gph, sccm, scfh, and percent. Calibration in other units and for liquid viscosities other than one centistoke is available.

All meters feature an optional built-in flow-control valve, horizontal inlet and outlet connections, and an external threaded tube-locking plug for easy tube removal and integral backcheck. (See pages 2 and 3 for specifications.)



Stainless Frame Type

These glass-tube meters have a rugged stainless steel frame, available in 1 1/2-inch and 3-inch scale lengths, and use a high-stability float for accurate, repeatable performance. Meters can be supplied with flow controllers and plastic bezels for flush mounting (not available with 1 1/2-inch scale purge meter.) Request literature no. WT.510.100.000.UA.PS



KYNAR® Frame Type

These glass-tube purge meters have a one-piece molded Kynar® frame and end fittings for long life in highly corrosive atmospheres. An optional Kynar® flow control valve is available. Scales are 3 inches long. Request literature no. WT.510.105.000.UA.PS



Low-Flow Meters

Low-flow meters are available with stainless steel frame type construction. They have 6-inch (150 mm) scales and provide outstanding 2% f.s. accuracy over a 10:1 range. An optional flow controller can be supplied to maintain a constant flow rate. Request literature no. WT.510.150.000.UA.PS

Armored Low-Flow Meters



Arma-View® II Purge Meter

Easy Readability

State-of-the-art technology in a variable-area design provides easy visual readout.

True Magnetic Coupling

A powerful magnet encapsulated in the float forms a linkage with the follower magnets of the indicating mechanism. The indicator finds correct position in relationship to the float. Intelligent coupling between the float and follower prevent separation if sudden flow surges occur. Variations in flow are indicated on the calibrated scale.

Versatility and Convenience

Inlet and outlet connections are horizontal. An optional inlet control valve provides smooth manual control of flow rate. The characterized valve stem assures dependable control.

Rugged Construction

The meter body is 316 stainless steel unibody construction. Except for O-rings and stop spring, all wetted parts, tube, float, and valve stem are 316 stainless steel. Standard O-rings are Viton®. Buna-N, EPR, TFE, or Kalrez® are also available.

Transmitter Available

An optional FM-approved hazardous location 4-20 mA transmitter provides remote indication of flow rate. See page 11 for further details.

Versatile Flow Controller

An optional purge type flow controller keeps flow constant regardless of pressure variations. It is offered in 316 stainless steel constructions, for inlet and outlet configurations. It can be assembled to the meter or as a stand-alone in the process line.

Request literature no. WT.510.350.000.UA.PS



Armored Purge Meter

High Temperature and Pressure Operation

Heavy-duty stainless steel construction assures proper operation to 100 bar (1500 psi) and 427° C (800° F). At no time is the glass scale tube exposed to the process fluid. A stainless steel sheath encloses the O-ring sealed glass tube.

Easy Maintenance

An O-ring at the top of the metering plug acts as an anti-backflow device, eliminating the need for check valves. A bottom port makes cleaning easy.

Flow Switch Available

This optional magnetically coupled switch gives reliable high and/or low switching. It is easily set to open or close on increasing or decreasing flow. Available in a general or a UL listed hazardous-location arrangement. See page 11 for additional information.

Description

This armored purge meter operates over a 10:1 range. Scales are 1 1/4 inches long. The 1/2-inch meter has a gph or scfh scale; the 3/4-inch meter, a gpm or scfm scale. Each has a percent scale also. Construction of meter body is 316 stainless steel with Buna-N, TFE, and 321 stainless trim to give maximum corrosion resistance.

Request literature no. WT.510.200.000.UA.PS

Direct-View Flowmeter



Direct-View Flowmeter

Higher Capacities

Size for size, this meter gives higher capacities; the tapered-float design passes volumes of fluids often double that of other designs.

Convenient to Use

The tube and float can be removed without tools and without disturbing connections. The meter is designed for easy flush or surface panel mounting.

Description

This is an inexpensive, 5% accuracy flowmeter for liquids or gases. It gives accurate and repeatable indication. Meter sizes are 1/2, 1, 1-1/2, and 2 inches with capacities to 492 lpm (130 gpm) water and 250 scmm (150 scfm) air at STP. Operating range is 10:1. (See page 2 for pressure and temperature limits.)

Scales are 2 to 4 inches long and calibrated in gpm and percent for liquids, percent for gases, or special calibrations. Scales are fused on the tubes or detached. The cast aluminum frame offers 316 stainless or brass end fittings. Front and rear tube shields of strong, clear polycarbonate are standard. All other wetted parts are: borosilicate glass; Buna-N, Viton® or EPR O-rings; stainless steel, brass, beryllium copper or polypropylene float materials. An optional external alarm switch is available for high/low alarm. See page 11 for further details.

Request literature no. WT.550.100.000.UA.PS

Armored Flowmeter

Higher Capacities

Size for size, this meter gives higher capacities; the tapered float design passes volumes of fluids often double that of other designs.

Reliable & Repeatable

Almost frictionless rotation of the indicator or flow switch magnets and their polarity relationship with the float magnet make for reliable and repeatable indication transmission and flow switching.

Description

This inexpensive, 5% accuracy flowmeter gives reliable flow indication of aggressive fluids at high temperatures and pressures. (See page 2 for pressure and temperature limits.) Available options include a 4-20mA output flow signal and high/low alarm switch. Meter sizes (pipe connections) are 1/2, 1, 1-1/2, and 2 inches with capacities to 492 lpm (130 gpm) water and 250 sccm (150 scfm) air at STP. Operating range is 10:1. Mounting is vertical in the line with NPT female or 150 lb RF connections. All wetted parts are stainless steel (except polypropylene float or optional TFE in gas service); Buna-N, Viton® or EPR O-rings. The float has an encapsulated alnico magnet.

A magnetically coupled indicating unit includes a standard 6" reversible scale with GPM on one side and percent of maximum flow on the other. Special scale calibrations are optional. Available options include a 4-20 mA general purpose or FM-approved hazardous location transmitter for remote indication of flow rate. Integral or external alarm switches are available for high/low alarm. See page 11 for further details.



Armored Flowmeter

Request WT.550.200.000.UA.PS.

Glass-Tube Varea-Meter® Units



Glass-Tube Varea-Meter® Units

Rugged, One-Piece Enclosure

This one-piece, deep-formed frame protects the tube from pipe strains, makes for design simplicity, minimizes parts, and is easy to assemble. Frames are welded, heavy-gauge 302 stainless steel. Front and rear tube shields are standard.

Positive, Convenient Tube Sealing, Easy Tube Removal

There is no packing, no spring in the flow stream. Tubes and retainers are sealed by same-size O-rings.

Float Design Increases Capacity

Varea-Meter® floats have their metering discs between the upper and lower bodies. The short lower body results in less flow restriction and less pressure drop than with conventional floats. Along with high-taper tubes, these floats give higher capacities for a given tube size. Thus, it is often possible to select a smaller Varea-Meter® unit for less cost.

Description

These rotameters have a wide range of capacities and tube sizes. Metering accuracy is 2% of full scale (1% with custom calibration) over a 10:1 range (see page 2 for pressure and temperature limits.) Beaded-guide tubes are available with 5- or 10-inch scales. End fittings for vertical and horizontal connections come in both threaded and flanged types. Choice of such wetted parts materials as brass, carbon steel, 316 stainless, PVC, TFE, Kynar®, Buna-N, Viton®, and EPR give a good balance between cost and maximum corrosion resistance. Request literature no. WT.520.100.000.UA.PS

Metal-Tube Varea-Meter® Units

Non-Fouling Float

This unit features an extra-long float magnet located above the metering disk which reduces flux density. This discourages accumulation of magnetic particles, especially on the disk edge where they can cause errors in indication and calibration drift.

No Float Extensions

When the float is at rest, nothing projects beyond the flanges. Spool pieces are not required for installation, eliminating a frequent cause of damage when removing meters from a line.

Gas Measurement to 0 PSIG

A unique dry snubber is standard on this Varea-Meter® unit used for gas service. It stabilizes the float, gives reliable indication down to atmospheric pressure. It eliminates dashpots, offset piping, and horizontal connections.

Reliable Magnetic Coupling

Almost frictionless rotation of the instrument magnet and its powerful bond with the float magnet give a dependable magnetic coupling. A metal shield shunts stray magnetic fields around the coupling.

Description

Available in a variety of tube sizes (1/2, 3/4, 1, 1-1/2 and 2 inches) and flange facings and ratings, these metal-tube rotameters give reliable flow measurement over a 10:1 range for aggressive fluids at high temperatures and pressures. (See page 2 for pressure and temperature limits.) Metering accuracy is 2% of full scale (1% with custom calibration). Flanges available have ANSI 150-, 300-, and 600-lb. ratings. Flanges are raised, flat, large female, tongue-and groove, or ring-joint face. The standard tube-and-float material is 316 stainless steel. A Hastelloy® C float is also available. The magnetic indicator has a 6-inch scale. Percent of maximum flow is the standard calibration; gpm water, scfm air or special graduations are optional. Available options include a 4-20 mA general purpose or FM-approved hazardous location transmitter for remote indication of flow rate. Intergral or external alarm switches are available for high/low alarm. See page 11 for further details.

Request literature no. WT.520.205.000.UA.PS



Metal-Tube Varea-Meter® Unit

TFE-Lined Metal-Tube and PVC-Tube Varea-Meter® Units

for very aggressive chemicals



TFE-Lined Varea-Meter® Unit



PVC-Tube Varea-Meter® Unit

For metering difficult fluids and gases, a choice of two straight-through Varea-Meter® models is offered. The TFE-lined meter is designed to give long dependable service metering aggressive chemicals at high temperatures and/or pressures. For lower temperatures and pressures where PVC is acceptable, the PVC-tube meter gives excellent results metering aggressive chemicals. Each meter features:

Exact Full Scale Capacity

Custom weighted float give desired full scale flow capacity-exactly.

Unobstructed Flow Path

Both meters feature straight-through construction — no guides or obstructions in the flow path.

Simple Installation

In and out piping is vertical — no spool pieces are required for installation.

Indication or Transmission of Flow Alarms

- Standard flow rate indicator has a 6 inch percent scale, an optional FM-approved electronic transmitter is available to give a 4-20 mA output.
- Optional intergral or external flow switch is available for high and/or low flow switching. See page 11 for additional information.

Request WT.520.215.000.UA.PS for complete information.

By-Pass Varea-Meter® Systems

For very high flow rates, a by-pass Varea-Meter® system can be used. Two styles are available, glass-tube type or metal-tube type.

Glass-Tube Type

By-pass meters are shipped with the orifice in place, ready to install. No mercury or bellows-type manometer required. Checking or snubbing devices can be omitted as over-ranging is harmless.

A 1/2-inch Glass-Tube Varea-Meter® unit is available with 5- or 10-inch scales, threaded or flanged horizontal connections, and in a variety of materials. For indication and an alarm extension, a 3/4 inch meter is available with 5-inch scale, a 1-inch threaded-flange inlet and a 3/4-inch threaded outlet.

Request literature no. WT.520.300.000.UA.PS

Metal-Tube Type

A straight-through meter is available in a 1/2-inch tube size with 316 stainless wetted parts. Flanges can be carbon steel, 316 stainless. Flange limits are 48 bar (720 psi) and 316° C (600° F). Can be supplied with a magnetic indicator, with optional 4-20 mA flow-rate transmitter, and optional flow switch. When the metal-tube meter's float is at rest, float extensions do not project beyond the flanges. Installation is simplified. No spool pieces required.

Request literature no. WT.520.300.000.UA.PS



Glass-Tube Type



Metal-Tube Type

Flow Switches, Electronic Transmitter and Flow Controllers

Flow Controllers



Flow Controllers

There are three types of flow controllers. Each is designed to maintain a constant set flow rate regardless of variations in line pressure. All are suitable for gas or liquid service.

Series 5700 General Purpose

Series 5700 General Purpose controllers are ideally suited for use on Wallace & Tiernan® Armored Purge Meters, Armored Flow Meters, Direct View Flow Meters, Glass Tube Varea-Meters® units and all straight through Varea-Meter® units, and as a stand alone controller with other meter types.

Series 5750 Purge Flow Controller

Series 5750 Purge type controllers is designed for control of low-volume flows. It can be assembled to a Wallace & Tiernan® purge, low flow of Armor View® II meters or a stand alone in the process line.

Series 5800 Purge and Low Flow Meter Controller.

The Series 5800 purge type flow controller is engineered specifically for use with Wallace & Tiernan® glass- tube Purge Meters and Low Flow Meters.

For more information, request literature no. WT.570.100.000.UA.PS

Electronic Transmitter



Electronic Transmitters

The Varea-Com™ transmitter provides linear 4-20 mA signal proportional to flow rate. The gasketed cast-aluminum case is compact, and rated NEMA® 4, and FM Approved for use in hazardous areas.

The transmitter is a smart, microprocessor based 2 wire low power unit. Its patented sensor with micro-processor controlled gain is capable filling flow correction needs at the meter, providing accurate flow information remotely to external support systems. The patented magnetic sensor with automatic gain control enables a high dynamic capture range without sacrificing accuracy.

Flow Switch



Flow Switch for Straight-Through Meters, Flowmeters, and Armored Purge Meters

Integral Flow Switch (Not available with Armored Purge)

This low cost switch mounts inside the meter's indicator and enables remote monitoring of either high or low alarm set points. It is available in a general purpose version or an FM Approved intrinsically safe version.

External Flow Switch

This optional compact switch gives reliable high and/or low flow switching. It contains a powerful rotating magnet which responds linearly to float position. Its switches are long life, hermetically sealed reed types. Almost frictionless rotation of the switch magnet and its powerful bond with the float magnet give a dependable magnetic coupling. Even under sudden flow surges, switching remains reliable. Switches can be set to open or close on increasing or decreasing flow. The flow switch is available as Series 5600, a general purpose unit in a NEMA® 4X enclosure and Series 5500, UL® listed for hazardous locations.

Flow Switch



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