AQUASONIC
INSERTION ULTRASONIC FLOW METER

The AQUAsonic takes our highly accurate Ultrasonic insert and adds our very popular Q9 Display. The AQUAsonic provides an accurate reading of water flow rate and accumulated total. It is designed to support commercial and industrial applications. The AQUAsonic is available in five line sizes, 1 to 4 in.

SPECIFICATIONS

Tee Housing Material:	Schedule 80 PVC
Connection Type:	Socket, NPT, BSP, DIN, ANSI Flange
Meter Sizes Available:	1 in., 1½ in., 2 in., 3 in., 4 in.
Insert Wetted Materials:	**Body:** PPS (Ryton R-4)
	Sensor: PEI (Ultem 1000)
	O-Ring: EPDM
Temperature Rating:	
Operating:	32° F to 140° F (0° C to 60° C)
Storage:	-20° F to +160° F (-29° C to +71° C)
Flow Range:	0.1 to 15 fps (0.03 to 4.6 m/s)
Accuracy:	Typically ±2% of reading
Operating Pressure:	203 psi @ 73° F (14 bar @ 23° C) (Socket Tee only) 150 psi @ 140° F (10 bar @ 60° C) (Socket Tee only)
Transducer Excitation:	External Power - (4-20mA / Scalable Pulse Output Versions) Supply Voltage: 7.5V (dc) min. to 36V (dc) max, Battery Power - Lithium C
	Quiescent Current: 200 µA (typical)
Output Frequency:	0 to 100 Hz (4-20mA / Scalable Pulse Output Versions)
Output Pulse Width:	Scaled Pulse configuration options: Limited to max of 50% duty cycle, User selectable pulse widths of 10ms, 25ms, 50ms, 75ms, & 100ms (4-20mA / Scalable Pulse Output versions)
Electronic Options:	Battery-Powered (2-Year Life) or External Power

FEATURES / BENEFITS

- Low-cost, effective and easy installation
- No moving mechanical parts (low-maintenance)
- Pin protection, four digit user selectable
- 2 Totals (Batch Total and Accumulative Total); Rate of Flow
- Factory calibrated in gallons or litres
- Diagnostic Meter show % of battery life only on battery powered AQUAsonic
- High accuracy: ± 2.0% of reading (compared to full scale accuracy)
- Provides extended leak detection down to 0.1 fps (0.03 m/s)
- Patented design
- Certified NSF61 option for those applications where potable water regulations must be met (NSF (N1) models)
- Many field configurable options for ease of operation

INSERT DESCRIPTION

Designed for above and below grade applications, such as irrigation, municipal and underground monitoring where the flow rates are between 0.1 to 15 fps (0.03 to 4.6 m/s) and temperatures are below 140° F (60° C). UM can be configured in 4-20mA, Pulse Out, or battery powered options, and in 5 tee options.

APPLICATIONS

- Irrigation & Fresh Water Pumping Station
- Industrial Effluent Water
- OEM Water Treatment equipment/skids
- Water Base Cooling System
- Groundwater Remediation
- Sub-metering of Facility Water System
- Plant Water System
- Potable Water

CERTIFICATIONS/WARRANTY

IP67 CE RoHS 2002/95/EC NSF

NSF Certification for Tee models only

2 YR METER WARRANTY

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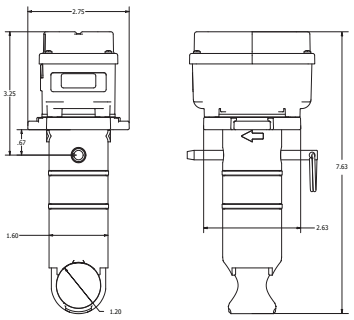
AQUASONIC *INSERTION ULTRASONIC FLOW METER*

FLOW INSERT SELECTION CHART

Pipe Size	Operating Range (Min.)	Operating Range (Max.)	Adjoining Pipe	Typical[1] K-Factor	Hydrawise®[2] K-Factor (Litre/Pulse)	Rain Master® K-Factor	Offset	Reference	
								Pulses/Gal	Pulses/Litre
1 in.	0.22 GPM (0.83 L/min) 0.1 ft/sec	33 GPM (124.92 L/min) 15 ft/sec	Sch 40	0.5575	0.0352	152	0	107.62	28.43
			Sch 80	0.5354	0.0338	146	0	112.06	29.60
1-½ in.	0.55 GPM (2.08 L/min) 0.1 ft/sec	82 GPM (310.41 L/min) 15 ft/sec	Sch 40	0.7923	0.0500	216	0	75.73	20.00
			Sch 80	0.7860	0.0496	214	0	76.34	20.17
2 in.	0.92 GPM (3.48 L/min) 0.1 ft/sec	138 GPM (522.39 L/min) 15 ft/sec	Sch 40	1.4610	0.0922	398	0	41.07	10.85
			Sch 80	1.4568	0.0919	397	0	41.19	10.88
3 in.	2.06 GPM (7.80 L/min) 0.1 ft/sec	309 GPM (1169.70 L/min) 15 ft/sec	Sch 40	4.2630	0.2690	1163	0	14.07	3.72
			Sch 80	4.0850	0.2577	1114	0	14.69	3.88
4 in.	3.58 GPM (13.55 L/min) 0.1 ft/sec	537 GPM (2032.78 L/min) 15 ft/sec	Sch 40	8.0881	0.5103	2206	0	7.42	1.96
			Sch 80	7.9062	0.4988	2156	0	7.59	2.00
Insert Only			Sch 80	Use pipe size to determine value			0	Use pipe size to determine value	

DIMENSIONS



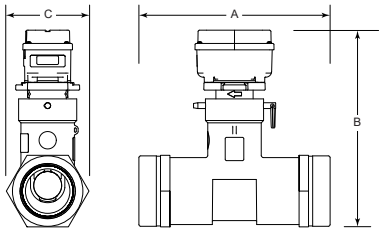
AQUASONIC INSERT

K-Factor Information: *NOTE: The meter size is molded on the vertical stem of the Tee.* FLOMEC ultrasonic meters use K-Factor plus offset numbers for greater accuracy during calibration. These values are derived by calibrating the meters using NIST traceable instrumentation. Using both sets of values to calibrate the meters provides greater accuracy than using only a K-factor value. The K-factor and offset values for each meter are listed above.

IMPORTANT: The K-factors provided are for reference. Accuracy can be affected by plumbing configuration, fluid condition, adjoining pipe schedule, type of meter tee (non-FLOMEC brand), and entrapped air. Customers should always validate accuracy and adjust K-factor as needed. If using non-FLOMEC tees, K-Factor will be different than those shown. Inconsistencies with these tees affect any stated value. Customers must verify accuracy if concerned.

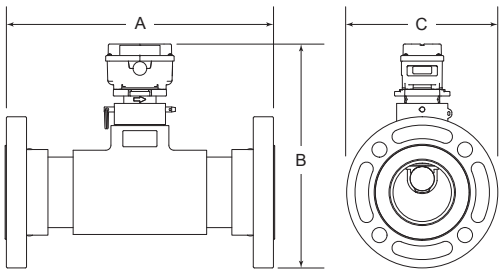
1, 1-1/2, & 2 INCH METERS

Meter Size & Fitting	A. Length	B. Height	C. Width
1-Inch Socket	4.25 in. (108mm)	7.63 in. (194mm)	2.75 in. (70mm)
1-Inch NPT	6.50 in. (165mm)	7.63 in. (194mm)	2.75 in. (70mm)
1-Inch BSP	6.73 in. (171mm)	7.63 in. (194mm)	2.75 in. (70mm)
1½-Inch Socket	4.90 in. (125mm)	7.87 in. (200mm)	2.75 in. (70mm)
1½-Inch NPT	7.44 in. (189mm)	7.91 in. (201mm)	2.87 in. (73mm)
1½-Inch BSP	7.40 in. (188mm)	7.87 in. (200mm)	2.75 in. (70mm)
2-Inch Socket	5.56 in. (141mm)	8.36 in. (212mm)	2.88 in. (73mm)
2-Inch NPT	8.22 in. (209mm)	8.44 in. (214mm)	3.55 in. (90mm)
2-Inch BSP	8.09 in. (205mm)	8.36 in. (212mm)	2.88 in. (73mm)



3 & 4 INCH METERS

Meter Size & Fitting	A. Length	B. Height	C. Width
3-Inch Socket	6.63 in. (168mm)	9.45 in. (240mm)	4.18 in. (106mm)
3-Inch NPT	14.06 in. (357mm)	9.45 in. (240mm)	4.25 in. (108mm)
3-Inch ANSI Flange	13.25 in. (337mm)	11.11 in. (282mm)	7.50 in. (191mm)
3-Inch DIN Flange	13.25 in. (337mm)	11.36 in. (289mm)	8.00 in. (203mm)
4-Inch Socket	7.38 in. (188mm)	10.66 in. (271mm)	5.23 in. (133mm)
4-Inch NPT	16.31 in. (414mm)	10.66 in. (271mm)	5.87 in. (149mm)
4-Inch ANSI Flange	13.22 in. (336mm)	12.55 in. (318mm)	9.00 in. (229mm)
4-Inch DIN Flange	13.22 in. (336mm)	12.30 in. (313mm)	8.50 in. (216mm)



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Service & Warranty: For technical assistance, warranty replacement or repair contact your **FLOMEC®** or **GPI®** distributor: In North or South America: **888-996-3837 / FLOMECmeters.com**
Outside North or South America: **+61 2 9540 4433 / FLOMECmeters.com**

AQUASONIC
INSERTION ULTRASONIC FLOW METER

FLOMEC®

SADDLE FOR LARGE PIPE SIZES

The AQUAsonic meter takes our highly accurate Ultrasonic insert and adds our very popular Q9 Display. This meter provides an accurate reading of water flow rate and accumulated total. It is designed to support commercial and industrial applications. Our AQUAsonic is available in 4 saddle line sizes, 6, 8, 10, 12in.

FEATURES / BENEFITS

- Low-cost, effective and easy installation
- No moving mechanical parts (low-maintenance)
- Pin protection, four digit user selectable
- 2 Totals (Batch Total and Accumulative Total); Rate of Flow
- Diagnostic Meter show % of battery life only on battery powered AQUAsonic (battery powered version only)
- High accuracy: ± 2.0% of reading (compared to full scale accuracy)
- Provides extended leak detection down to 0.1 fps (0.03 m/s)
- Patented design
- Many field configurable options for ease of operation

SPECIFICATIONS

Saddle Housing	Aluminum
Connection Type	Saddle
Saddle sizes Available	6 in, 8 in, 10 in, 12 in
Insert Wetted Materials:	**Body:** PPS (Ryton R-4)
	Sensor: PEI (Ultem 1000)
	O-Ring: EPDM
Temperature Rating:	
Operating:	32° F to 140° F (0° C to 60° C)
Storage:	-20° F to +160° F (-29° C to +71° C)
Flow Range:	0.1 to 15 fps (0.03 to 4.6 m/s)
Accuracy:	Typically ±2% of reading
Operating Pressure:	150 psi @ 73° F (10 bar @ 23° C) 100 psi @ 140° F (7 bar @ 60° C)
Transducer Power:	External Power - (4-20mA / Scalable Pulse Output Versions) Supply Voltage: 7.5V (dc) min. to 36V (dc) max, OR Battery Power - Lithium C
Output Frequency:	0 to 100 Hz (4-20mA / Scalable Pulse Output Versions)
Output Pulse Width:	Scaled Pulse configuration options: Limited to max of 50% duty cycle, User selectable pulse widths of 10ms, 25ms, 50ms, 75ms, & 100ms (4-20mA / Scalable Pulse Output versions)
Electronic Options	Battery-Powered (2-Year Life) or External Power (4-20mA / Scalable Pulse Output)

INSERT DESCRIPTION

Designed for above and below grade applications, such as irrigation, municipal and underground monitoring where the flow rates are between 0.1 to 15 fps (0.03 to 4.6 m/s) and temperatures are below 140° F (60° C). AQUAsonic can be configured in 4-20mA / Scalable Pulse Output, OR battery powered, and in 4 saddle options.

APPLICATIONS

- Agriculture Irrigation
- Turf / Landscape Irrigation Systems
- Micro Irrigation Systems
- Groundwater Monitoring
- Sub-Metering Applications:
  - » High Rise Tenant Buildings
  - » Apartment Complex
  - » Universities
  - » Commercial Businesses
  - » Processing Facilities

APPROVALS/WARRANTY

IP67 CE RoHS 2002/95/EC

2 YR METER WARRANTY

Representation of contents

SADDLE ONLY SELECTION CHART

Description	Pipe Outside Diameter (in.)	Clamp Outside Diameter (in.)	Clamp Circumference (in.)	Operating Flow Range	Maximum Water Pressure**	Meter Material	Gasket Material	Saddle Material	Clamp Material
6 in. Pipe (NPS/IPS)	6.625	6.48 - 7.13	20.36 - 22.40	.1 to 15 ft/sec (9 to 1350 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
8 in. Pipe (NPS/IPS)	8.625	8.39 - 9.04	25.36 - 28.40	.1 to 15 ft/sec (15 to 2300 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
10 in. Pipe (NPS/IPS)	10.750	10.48 - 11.13	32.9 - 34.97	.1 to 15 ft/sec (24 to 3650 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
12 in. Pipe (NPS/IPS)	12.750	12.46 - 13.11	39.14 - 41.19	.1 to 15 ft/sec (35 to 5300 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
6 in. Tube	6.000	5.91 - 6.56	18.57 - 20.61	.1 to 15 ft/sec (8 to 1230 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
8 in. Tube	8.000	7.79 - 8.44	24.47 - 26.52	.1 to 15 ft/sec (15 to 2200 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
10 in. Tube	10.000	9.73 - 10.38	30.57 - 32.61	.1 to 15 ft/sec (23 to 3500 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
12 in. Tube	12.000	11.72 - 12.37	36.82 - 38.86	.1 to 15 ft/sec (34 to 5100 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
6 in. PIP	6.140	5.91 - 6.56	18.57 - 20.61	.1 to 15 ft/sec (8 to 1230 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
8 in. PIP	8.160	7.79 - 8.44	24.47 - 26.52	.1 to 15 ft/sec (15 to 2200 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
10 in. PIP	10.200	9.73 - 10.38	30.57 - 32.61	.1 to 15 ft/sec (23 to 3500 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
12 in. PIP	12.240	11.72 - 12.37	36.82 - 38.86	.1 to 15 ft/sec (34 to 5100 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel

**Nominal flow rate shown. Actual flow is dependent on pipe schedule (wall thickness).*
*** Maximum water pressure for larger line sizes would be based on the material of the sensor, adapter, and pipe. Pressure is also derated due to temperature (1.20 psi / °F).*

Representation of contents

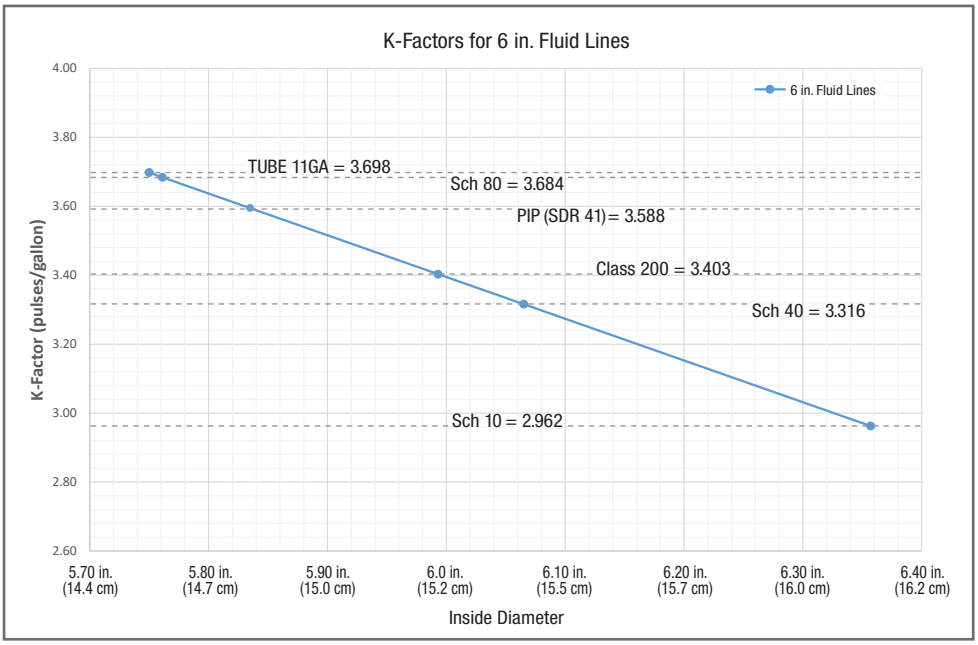
SADDLE WITH SENSOR SELECTION CHART

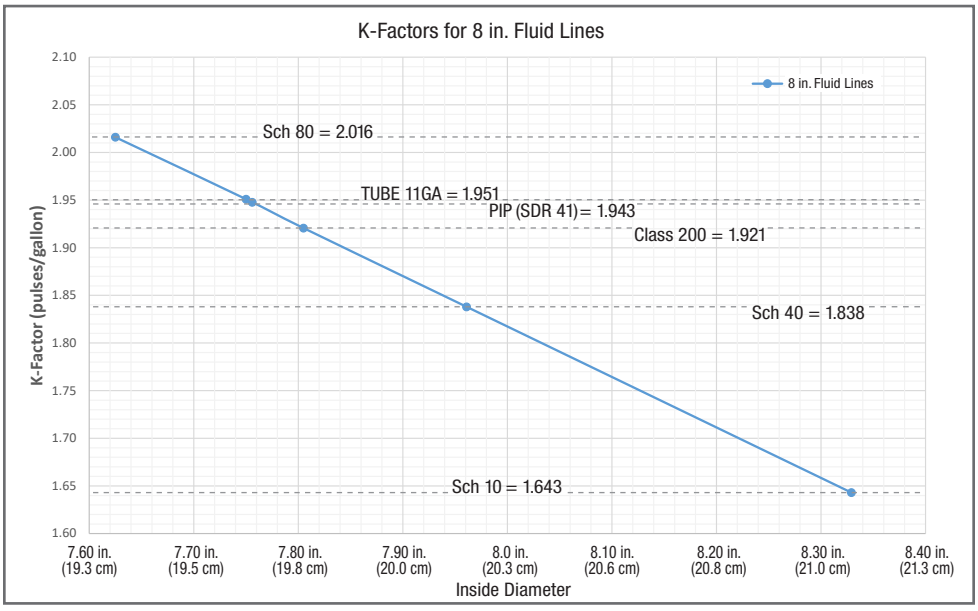
Description	Pipe Outside Diameter (in.)	Operating Flow Range	Maximum Water Pressure**	Meter Material	Gasket Material	Saddle Material	Clamp Material
6 in. Pipe (NPS/IPS)	6.625	.1 to 15 ft/sec (9 to 1350 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	Ryton	Silicone	Aluminum	Stainless Steel
8 in. Pipe (NPS/IPS)	8.625	.1 to 15 ft/sec (15 to 2300 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	Ryton	Silicone	Aluminum	Stainless Steel
10 in. Pipe (NPS/IPS)	10.750	.1 to 15 ft/sec (24 to 3650 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	Ryton	Silicone	Aluminum	Stainless Steel
12 in. Pipe (NPS/IPS)	12.750	.1 to 15 ft/sec (35 to 5300 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	Ryton	Silicone	Aluminum	Stainless Steel
6 in. Tube	6.000	.1 to 15 ft/sec (8 to 1230 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	Ryton	Silicone	Aluminum	Stainless Steel
8 in. Tube	8.000	.1 to 15 ft/sec (15 to 2200 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	Ryton	Silicone	Aluminum	Stainless Steel
10 in. Tube	10.000	.1 to 15 ft/sec (23 to 3500 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	Ryton	Silicone	Aluminum	Stainless Steel
12 in. Tube	12.000	.1 to 15 ft/sec (34 to 5100 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	Ryton	Silicone	Aluminum	Stainless Steel
6 in. PIP	6.140	.1 to 15 ft/sec (8 to 1230 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	Ryton	Silicone	Aluminum	Stainless Steel
8 in. PIP	8.160	.1 to 15 ft/sec (15 to 2200 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	Ryton	Silicone	Aluminum	Stainless Steel
10 in. PIP	10.200	.1 to 15 ft/sec (23 to 3500 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	Ryton	Silicone	Aluminum	Stainless Steel
12 in. PIP	12.240	.1 to 15 ft/sec (34 to 5100 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	Ryton	Silicone	Aluminum	Stainless Steel

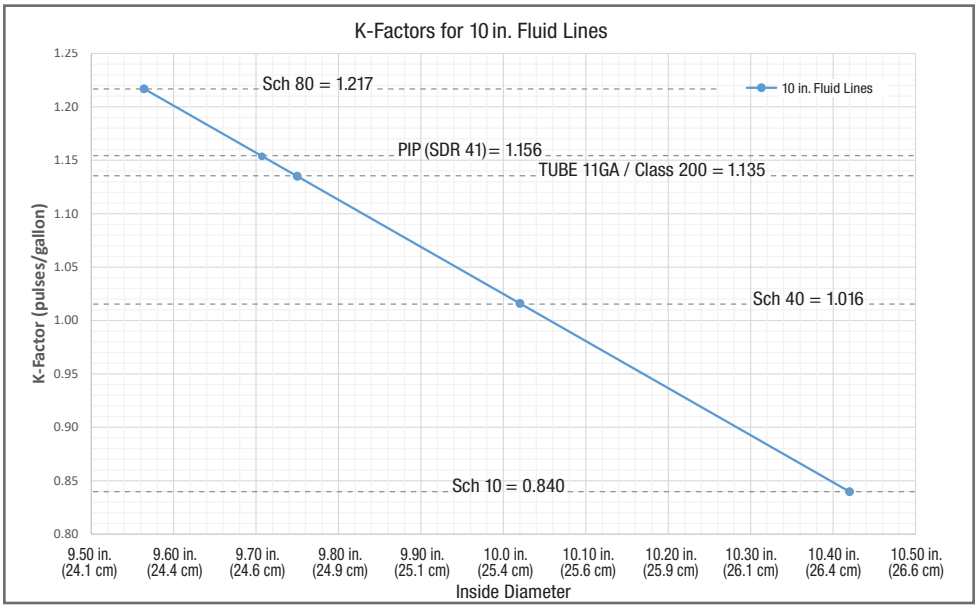
**Nominal flow rate shown. Actual flow is dependent on pipe schedule (wall thickness).*
*** Maximum water pressure for larger line sizes would be based on the material of the sensor, adapter, and pipe. Pressure is also derated due to temperature (1.20 psi / °F).*

K-FACTORS

K-Value Formula (Turf Controller) = 60 / K-Factor

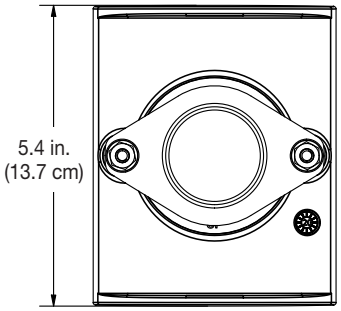




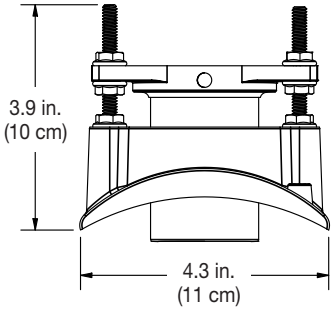


K-FACTORS CONTINUED ON BACK

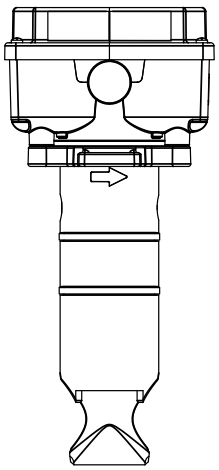
DIMENSIONS

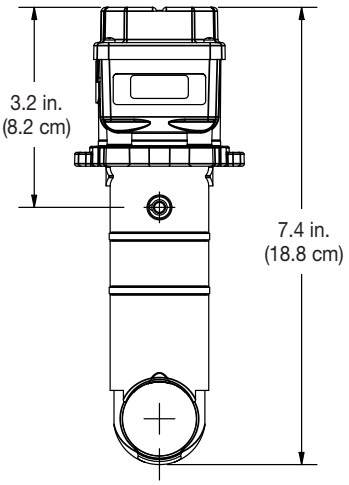


SADDLE - TOP VIEW



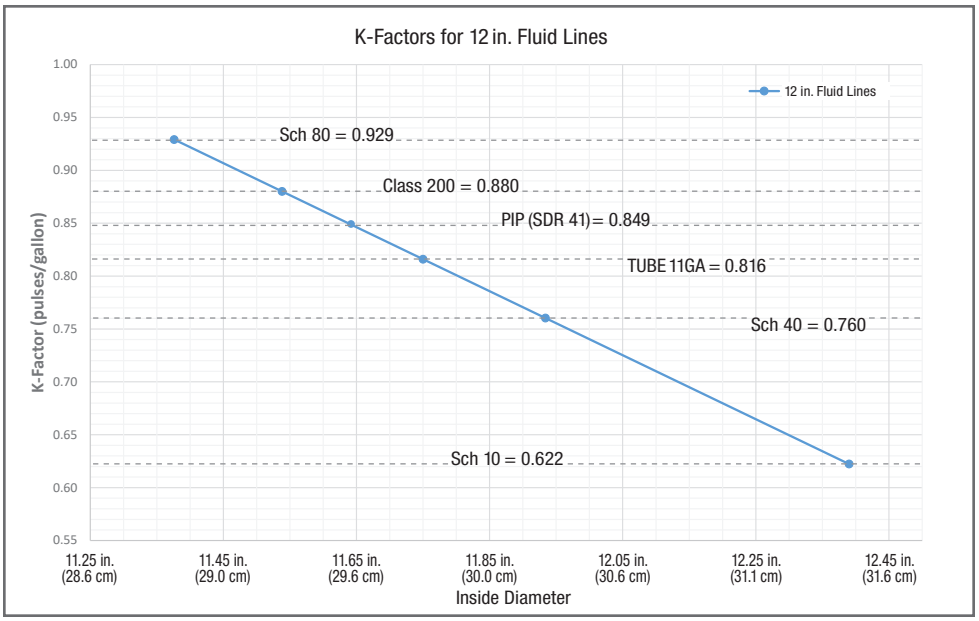
SADDLE - FRONT VIEW





AQUAsonic INSERT

K-FACTORS CONTINUED



SADDLE FAMILY LINE-UP *(Shown on pipe. Pipe not included.)*

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Service & Warranty: For technical assistance, warranty replacement or repair contact your **FLOMEC®** or **GPI®** distributor: In North or South America: **888-996-3837 / FLOMECmeters.com**
Outside North or South America: **+61 2 9540 4433 / FLOMECmeters.com**

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