



## QS200 INSERTION ULTRASONIC FLOWMETER SADDLE FOR LARGE PIPE SIZES

The 6, 8, 10, and 12 inch saddles are designed exclusively for the QS200 Insertion Ultrasonic Flowmeter. Supporting commercial and agricultural irrigation applications on large size pipes, the QS200 will accurately provide the information your controller needs to display the flow rate and accumulated total.

### FEATURES / BENEFITS

- Low-cost, effective and easy installation
- No moving mechanical parts (low-maintenance)
- Simple two-wire connector (for power and pulse)
- Compatible with irrigation controllers (common name brands)
- High accuracy:  $\pm 2.0\%$  of reading (compared to full scale accuracy)
- Provides extended leak detection down to 0.1 fps (0.03 m/s)
- LED light indicators: (green for power and amber for pulse)
- Patented design
- Ideal for clean water flow measurement
- External wiring: (direct burial wire)

### 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). QS200 inserts are supplied with two single conductors, 18 AWG solid copper wire leads that are 36 inches (914.4 mm) in length with UL Style 116666 direct burial insulation.

### SPECIFICATIONS

Insert Wetted Materials:	<b>Body:</b> PPS (Ryton R-4)
	<b>Sensor:</b> PEI (Utem 1000)
	<b>O-Ring:</b> EPDM
<b>Temperature Rating:</b>	
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 $\pm 2\%$ of reading
Operating Pressure:	150 psi @ 73° F (10 bar @ 23° C) 100 psi @ 140° F (7 bar @ 60° C)
Transducer Excitation:	Supply Voltage: 7.5V (dc) min. to 36V (dc) max Quiescent Current: 200 $\mu$ A (typical)
Output Frequency:	0 to 100 Hz
Output Pulse Width:	4 ms
Electrical Cable for Insert Electronics:	36 inches (914.4 mm) of 18 AWG, solid copper, "Direct Burial" (UL 493 & 83)

### 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

IP68





Representation  
of contents

## SADDLE ONLY SELECTION CHART

Model Part Number	Description	Pipe Outside Diameter (in.)	Operating Flow Range	Maximum Water Pressure**	Meter Material	Gasket Material	Saddle Material	Clamp Material
146080-01	6 in. Pipe (NPS/IPS)	6.625	.1 to 15 ft/sec (9 to 1350 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
146080-02	8 in. Pipe (NPS/IPS)	8.625	.1 to 15 ft/sec (15 to 2300 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
146080-03	10 in. Pipe (NPS/IPS)	10.750	.1 to 15 ft/sec (24 to 3650 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
146080-04	12 in. Pipe (NPS/IPS)	12.750	.1 to 15 ft/sec (35 to 5300 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
146080-05	6 in. Tube	6.000	.1 to 15 ft/sec (8 to 1230 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
146080-06	8 in. Tube	8.000	.1 to 15 ft/sec (15 to 2200 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
146080-07	10 in. Tube	10.000	.1 to 15 ft/sec (23 to 3500 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
146080-08	12 in. Tube	12.000	.1 to 15 ft/sec (34 to 5100 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
146080-09	6 in. PIP	6.140	.1 to 15 ft/sec (8 to 1230 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
146080-10	8 in. PIP	8.160	.1 to 15 ft/sec (15 to 2200 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
146080-11	10 in. PIP	10.200	.1 to 15 ft/sec (23 to 3500 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	N/A	Silicone	Aluminum	Stainless Steel
146080-12	12 in. PIP	12.240	.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

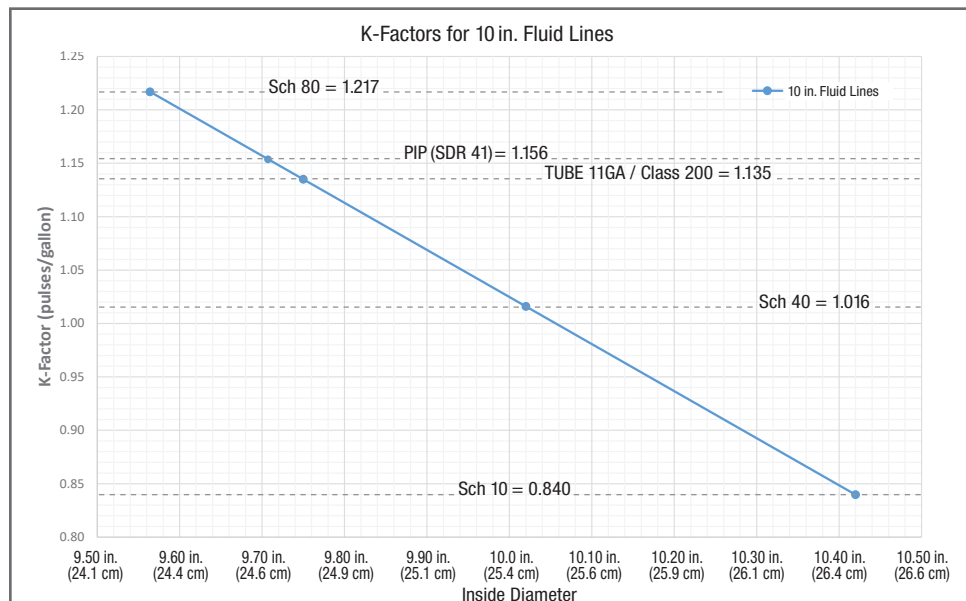
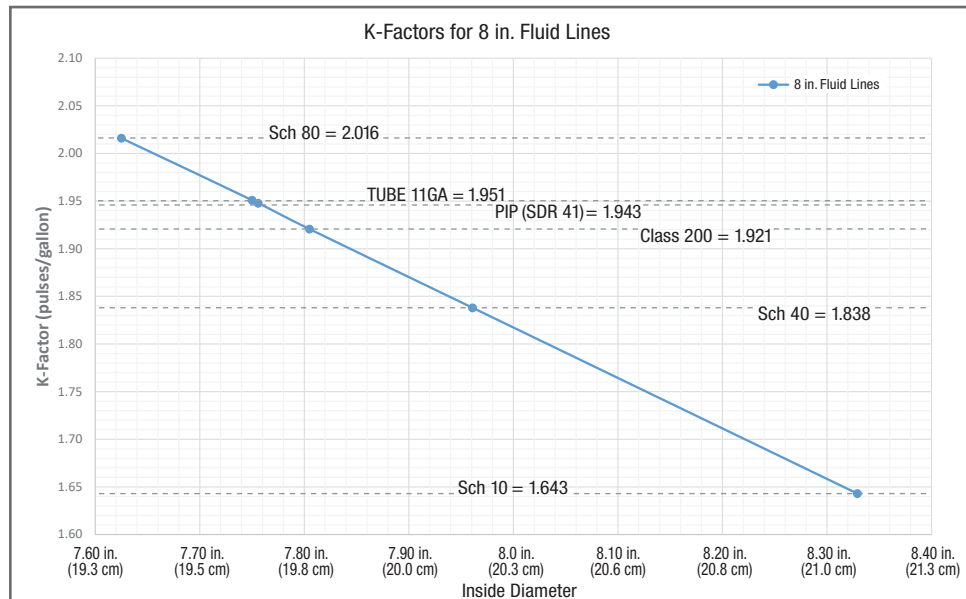
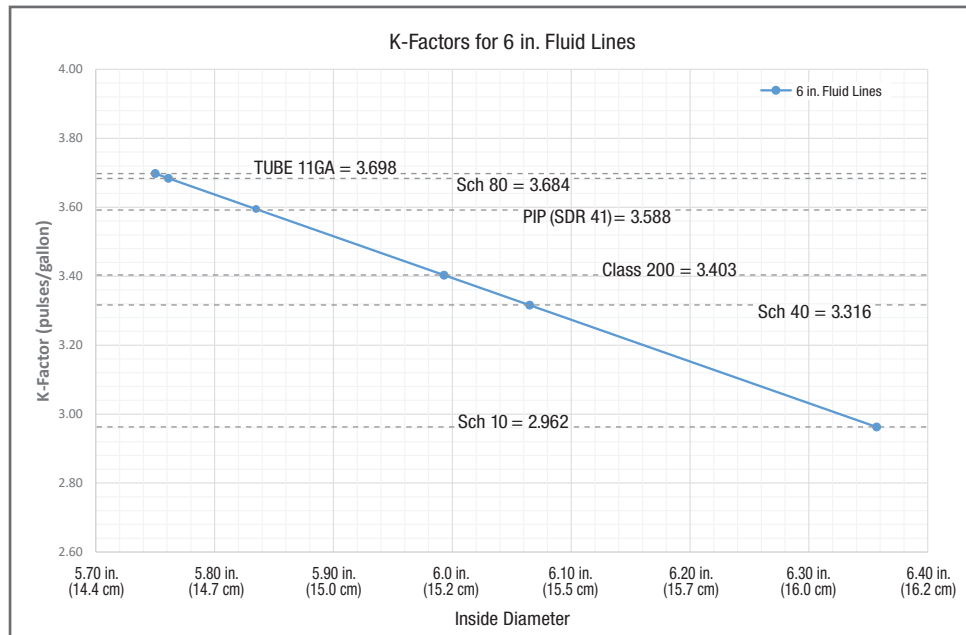
Model Part Number	Description	Pipe Outside Diameter (in.)	Operating Flow Range	Maximum Water Pressure**	Meter Material	Gasket Material	Saddle Material	Clamp Material
146090-01	6 in. Pipe (NPS/IPS)	6.625	.1 to 15 ft/sec (9 to 1350 GPM)*	150 PSI @ 73°F (10 bar @ 23°C)	Ryton	Silicone	Aluminum	Stainless Steel
146090-02	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
146090-03	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
146090-04	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
146090-05	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
146090-06	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
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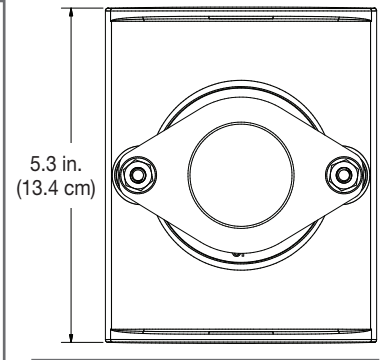
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## K-FACTORS

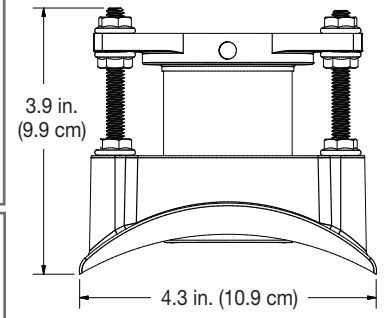
K-Value Formula (Turf Controller) = 60 / K-Factor



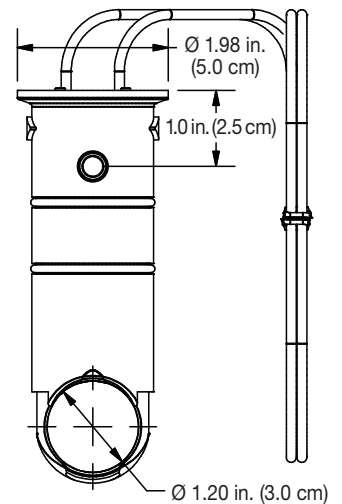
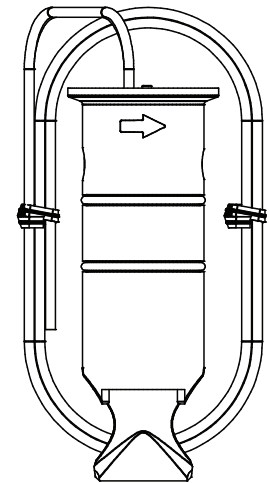
## DIMENSIONS



**SADDLE - TOP VIEW**



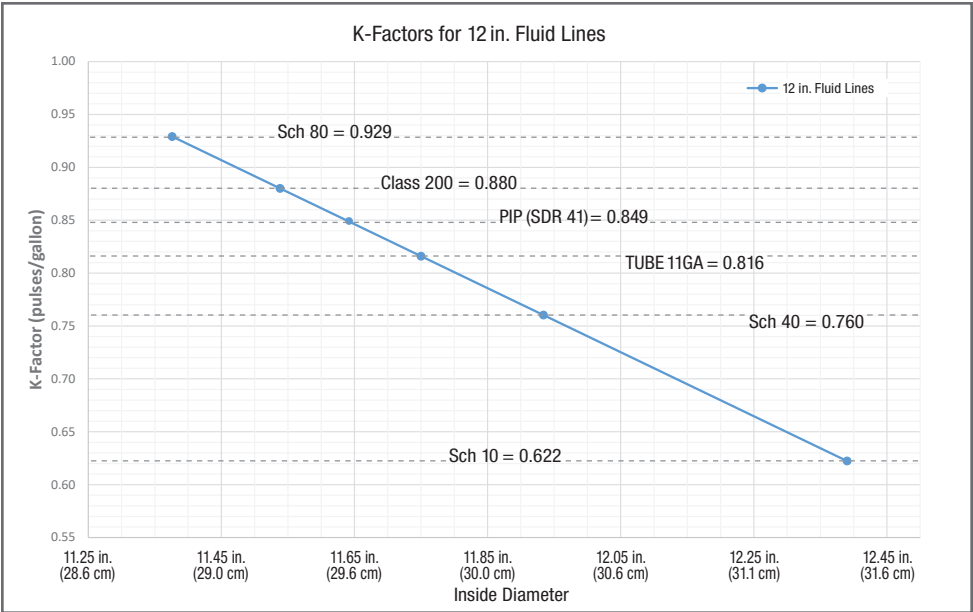
**SADDLE - FRONT VIEW**



K-FACTORS CONTINUED ON BACK

**QS200 INSERT**

K-FACTORS CONTINUED



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



## QSE MAG FLOWMETER

The **FLOMEC® QSE Mag Series** is a dependable highly accurate electromagnetic flowmeter designed for flow and usage monitoring in commercial applications, such as wastewater that is dumped into a city sewer system.

The Noryl™ housing and flow tube offer a lightweight, easy-to-install Mag Meter that is resistant to heat and compatible with many water-based liquid solutions. **When installing to metal pipe, it is recommended to use flexible expansion joints on one or both ends to eliminate any stresses that might be incurred from misaligned rigid metal piping.**

The QSE Mag Meter monitors flow rate and total flow in a wide variety of applications including: HVAC, Turf/ Irrigation and other water reclamation applications.

## FEATURES / BENEFITS

- Low investment and operating costs
- $\pm 0.5\%$  Accuracy of Reading (from 0.25 fps to 15 fps [0.08 to 4.6 m/s])
- Wide turndown ratio of 60:1
- Non-intrusive, no moving parts to wear out, low maintenance and repair cost, tolerates high flows without damage
- The slightly modified bore permits unobstructed flow, minimizes flow disturbances and straight pipe requirements
- Seven line sizes ( $\frac{1}{2}$ " to 4")  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", 1", 1- $\frac{1}{2}$ ", 2", 3", and 4"
- Housing ported with "Thermal Well Supports" for sensors (Energy Management)
- Compatible with FLOMEC Q9 Electronics Display or FLOMEC QSI I/O Board

## PRODUCT CONFIGURATION

### 1 PRODUCT IDENTIFIER:

**QSE** = Electro-Magnetic Flowmeter

### 2 TURBINE SIZE:

**05** =  $\frac{1}{2}$ " (15 mm)

**07** =  $\frac{3}{4}$ " (20 mm)

**10** = 1" (25 mm)

**15** = 1- $\frac{1}{2}$ " (40 mm)

**20** = 2" (50 mm)

**30** = 3" (80 mm) (Flange Only)

**40** = 4" (100 mm) (Flange Only)

### 3 FITTING:

**NPT** = NPT (Male) ( $\frac{1}{2}$ " to 2" Only)

**BSP** = BSPP (Male) (ISO 228) ( $\frac{1}{2}$ " to 2" Only)

**FAP** = ANSI Flange - Polymer (3" & 4" Only)

### 4 ELECTRONIC CHOICE:

**Q9** = 2-Button Integral Display with 2 Totals (Batch Total = Resettable, Total = Non-Resettable) and Rate of Flow. Also provides a Scaled Pulse Output (NPN Open Collector).

**42** = 2-Button Integral Display with 2 Totals (Batch Total = Resettable, Total = Non-Resettable) and Rate of Flow. Also provides 4-20 mA Output and Scaled Pulse Output (NPN Open Collector).

**QB** = Integral Pulse Transmitter, Unscaled Pulse Output (NPN Open Collector)

### 5 COMMUNICATION CHOICE:

**Q1** = QSI Module: Bluetooth®, Pulse Output (Flow or Energy and Scalable), RS485 (Modbus RTU or BACnet® MS/TP), Temperature Inputs, BTU Calculator, Energy Use Computation. *Note: Energy Use Computation Requires Temperature Sensor Probes (Select Probes Below). No Local Display Option.*

**Q2** = QSI Module: Bluetooth®, Pulse Output (Flow or Energy and Scalable), Temperature Inputs, BTU (Heat) Calculator, Energy Use Computation. *Note: Energy Use Computation Requires Temperature Sensor Probes (Select Probes Below). No Local Display Option.*

**Q3** = QSI Module: Bluetooth®, Pulse Output (Scalable), 4-20mA. *No Local Display Option.*

**XX** = No Communication Suite. Required for Q9 and 42 Electronic Choice.

### 6 TEMPERATURE SENSOR PROBES (NOT NSF Certified):

**1 = Integrates with QSI Communications Choice for Energy Use Computation (2ea)** 1" (25 mm) Long Temperature Sensor Probes w/Cables (10 ft. [3 m]), Used with  $\frac{1}{2}$ " through 2" Meters

**2 = Integrates with QSI Communications Choice for Energy Use Computation (2ea)** 2" (50 mm) Long Temperature Sensor Probes w/Cables (10 ft. [3 m]), Used with 3" and 4" Meters

**X** = No Temperature Probes

### 7 PACKAGING:

**A** =  $\frac{1}{2}$ " - 2" Meters with Q9 or QB Electronics Choice

$\frac{1}{2}$ ",  $\frac{3}{4}$ " and 1" Meters with 42 Electronics Choice

**B** = 3" Meter

**C** = 4" Meter

**D** = 1- $\frac{1}{2}$ " and 2" Meters with 42 Electronics Choice



>>>> **1** **2** **3** **4** **5** **6** **7**  
**QSE 30 FAP Q9 XX X B**

## SPECIFICATIONS

<b>Fitting Type:</b>	NPT, BSPP, ANSI Flanged	
	1/2" to 2" - NPT (Male), BSPP (Male) (ISO 228)	
	3" and 4" 150# ANSI Flanged - Polymer Flange	
<b>Recommended Plastic Flange Bolt Torque:</b>	25 ft.-lbs. (33.9 N-m)	
<b>Pipe Sizes:</b>	1/2", 3/4", 1", 1-1/2", 2", 3", 4"	
<b>Pressure Rating:</b>	150 psi @ 70° F (10.3 bar @ 21° C)	
<b>Velocity:</b>	0.25 to 15 fps (0.08 to 4.6 m/s)	
<b>Flow:</b>	1/2" (05)	0.167 - 10 GPM (0.632 - 37.85 L/min)
	3/4" (07)	0.33 - 20 GPM (1.25 - 75.71 L/min)
	1" (10)	0.67 - 40 GPM (2.54 - 151.42 L/min)
	1-1/2" (15)	1.33 - 80 GPM (5.03 - 302.83 L/min)
	2" (20)	2.5 - 150 GPM (9.46 - 567.81 L/min)
	3" (30)	5 - 300 GPM (18.93 - 1135.62 L/min)
	4" (40)	10 - 600 GPM (37.85 - 2271.25 L/min)
<b>Accuracy</b>		
±0.5% of Reading between 0.25 fps and 15 fps (0.08 m/s and 4.6 m/s) (Reference Owner's Manual for complete accuracy and uncertainty specifications)		

<b>Operating Temperature Range:</b>	32° F to 180° F (0° C to 82° C)	
<b>Ambient Temperature Range:</b>	0° F to 140° F (-18° C to 60° C)	
<b>Typical K-Factor:</b>	1/2" (05)	4347 PPG (1148.4 Pulses/L)
	3/4" (07)	1937 PPG (511.7 Pulses/L)
	1" (10)	1089 PPG (287.7 Pulses/L)
	1-1/2" (15)	484.1 PPG (127.9 Pulses/L)
	2" (20)	400 PPG (105.7 Pulses/L)
	3" (30)	121 PPG (32.0 Pulses/L)
	4" (40)	68.1 PPG (18.0 Pulses/L)
<b>Power Supply:</b>	Externally Powered	
	Voltage Supply (Min): 12V (dc)	
	Voltage Supply (Max): 36V (dc)	
<b>Consumption:</b>	Max current consumption (QSE with QSB): 75mA	
	Max current consumption (QSE with QSI): 150mA	
<b>Wetted Materials:</b>	Body	Noryl™
	Electrodes	316L SS
	Seals	EPDM O-Rings
<b>Output Frequency Range:</b>	All Sizes	10 Hz Minimum - 1,000 Hz Maximum
<b>Calibration Report:</b>	N.I.S.T. Certification Available	

## APPLICATIONS

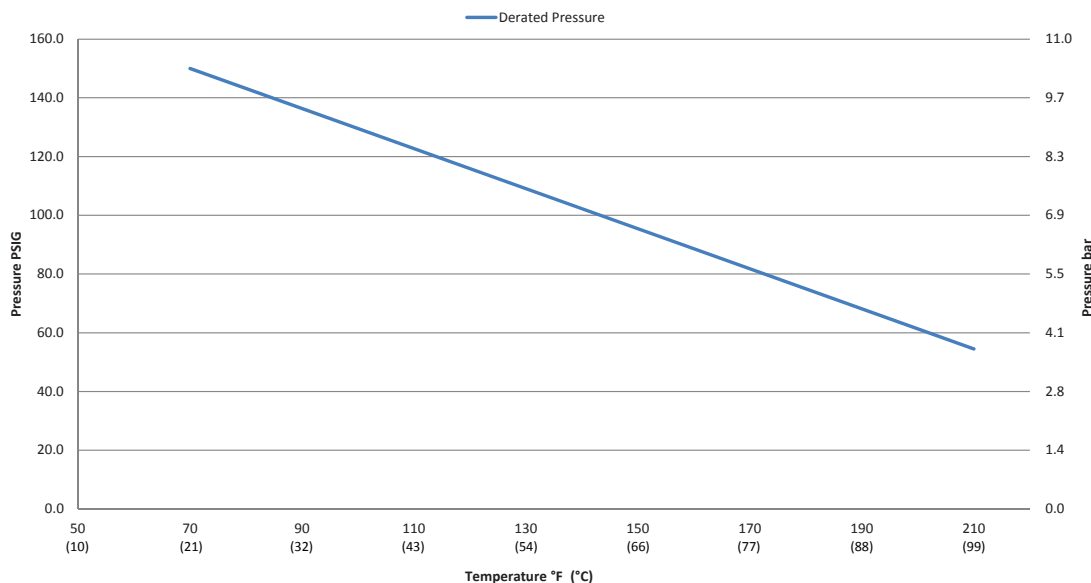
- Waste Water Monitoring
- Agriculture Irrigation
- Turf Irrigation Systems
- Micro Irrigation Systems
- EMS (Energy Management Systems)
- Reclaimed (Recycled) Water
- Greywater
- BAS (Building Automation Systems)
- Chilled water
- Domestic water (hot and cold)
- Energy sub-metering (BTU hot and cold)
- OEM Water Treatment Skids
- Cooling Tower Bleed-Off

## CERTIFICATIONS

IP67



**Derated Pressure Curve for QSE (Pressure vs Temperature)**



Wichita · Sydney

GREAT PLAINS INDUSTRIES



**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**

**Media Contact**

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**Oct. 20, 2020**

FOR IMMEDIATE RELEASE:

**New FLOMEC® QS200 Insertion Ultrasonic Flowmeter Saddle Brings Award-Winning,  
Patented Ultrasonic Leak Detection Technology to Large Pipe Sizes**

Great Plains Industries (GPI) is pleased to introduce the [FLOMEC QS200 Insertion Ultrasonic Flowmeter Saddle](#) for large pipe sizes, in production now.

The original [QS200](#) was introduced last year and has already become one of the go-to products for the turf irrigation professional. It measures flow rates five times lower than current flow sensors on the market—as low as 0.22GPM— and provides extended leak detection down to 0.1fps. Its ultrasonic sensing enables it to detect very small leaks that most mechanical meters cannot, making it an invaluable tool for saving water and money over time.

Originally offered in 1 through 4-inch models, the QS200 is now available with the new FLOMEC Saddle for larger pipes including 6, 8, 10 and 12-inch. This brings the advantages of the QS200's patented, award-winning ultrasonic technology to additional applications. With no moving parts, there is virtually no ongoing maintenance and ultrasonic sensing provides high accuracy with a very wide flow range of 0.1 to 15 Ft/Sec.

**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

The innovative saddle design with adjustable sleeve makes installation quick and easy, particularly when compared to installing a spool piece or flanged meter. The QS200 is designed to communicate with most popular irrigation controllers and can easily replace existing paddle wheel meters.

For Turf Irrigation, Agricultural Irrigation, or HVAC the QS200 for large pipes is the best choice for value, accuracy and reliability.

To learn more, visit:

<https://flomecmeters.com/flomec-products/qs200-insertion-ultrasonic-flowmeter-2/>

QS200 Saddle Marketing Collateral and Images:

<https://app.catsy.com/app/share/gplains/o/lightboxes/4067624687>

### **About FLOMEC Meters From Great Plains Industries (GPI)**

GPI's FLOMEC flowmeters provide flow control solutions for commercial and lite industrial applications including turf, landscape, water reclamation, HVAC, and petrochemical flow monitoring. FLOMEC brand flowmeters measure a wide variety of liquids from water to lubricants in commercial process operations. GPI is known for high quality durable meters, excellent customer service and on-time product delivery.

For more information, visit [flomecmeters.com](https://flomecmeters.com).

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