Commercial Construction

Springboro Water Dept.
220 E. Mill St.
Springboro, Ohio 45066
(937) 748-0020 PH
(937) 748-3216 FX
build@cityofspringboro.com

WATER REGULATIONS

WATER METER

1. The water meter yoke shall be a model 502, complete with a ¾ inch expander, 2 gaskets, and angle valves on each end. The yoke shall accommodate a 5/8-inch x ¾ inch meter furnished and installed by the City of Springboro.
    - **Any meter larger than 5/8-inch x ¾ inch is not furnished by the City of Springboro.** The customer supplied water meter must meet Springboro Water Department specifications regarding make and type and must have a shutoff valve placed on the inlet side of the water meter.
    - **See below for water meter specifications. Please direct all water meter questions to the Utility Clerk at 937-748-4360.**
2. The yoke shall be installed upon immediate entry of the water lateral into the structure. The yoke must be accessible at all times.
3. A remote reader must be installed on the side or rear of the structure a minimum of 6 inches from any connecting wall, post, or any other object. A 4 conductor #22 AWG cable for the remote reader shall be installed in a ½ inch flexible conduit. The ½ inch flexible conduit shall be continuous from the water meter to the remote reader location.

WATER LINE

1. The minimum water lateral size is 1 inch.
2. Splices are not allowed without prior approval. A blue #14 AWG minimum tracer wire shall be installed with all plastic water lines.
3. Water laterals entering a crawl space must be installed underground until the point directly below the entry into the structure.
4. All water lines, including fire lines, 2 inches or larger shall be pressure tested and chlorinated.
    a. The water line will then be flushed by the City and purity samples will be taken.
    b. Once negative results have been obtained, the water line will be put into service.
5. All structures must have a shutoff valve. The shutoff valve shall be located at a maximum depth of 48 inches and the valve box must be straight, centered, and flush with the finished grade. Where applicable the valve shall have a 90-degree stop. No valve shall be located in/under any concrete of asphalt surface (sidewalk, apron, driveway, etc.).
6. The valve box shall be inspected after the finish grade, seed, and/or sod have been installed. Call for final inspection.

BACKFLOW PREVENTION

1. All structures shall have a backflow prevention device on the water lateral.
2. The backflow prevention device shall be installed immediately inside the structure and prior to any point of usage. **The City does not provide or install the backflow prevention device.**
3. An ASSE 1013backflow prevention device must be provided.
4. The backflow prevention device must be tested at the time of installation and annually thereafter.
5. All test results must be forwarded to the Springboro Water Department.

PRESSURE REGULATOR

A pressure regulator shall be installed. **The City does not provide or install the required pressure regulator.**

IRRIGATION SYSTEM

1. All irrigation systems require a permit. Permits shall be obtained at the Springboro Building Dept.
2. All irrigation connections must be installed after the water meter and shut off valve but may be installed prior to the pressure regulator.
3. All irrigation systems must have an ASSE 1013 backflow prevention device installed immediately after the connection to the domestic waterline.
4. The backflow prevention device must be tested at the time of installation and annually thereafter.
5. All test results must be forwarded to the Springboro Water Department.

METRON Spectrum JET

Large Commercial Jet Spectrum Meters

Product Datasheet

Spectrum Jet 175D

Spectrum Jet 500D

Spectrum Jet 1000D

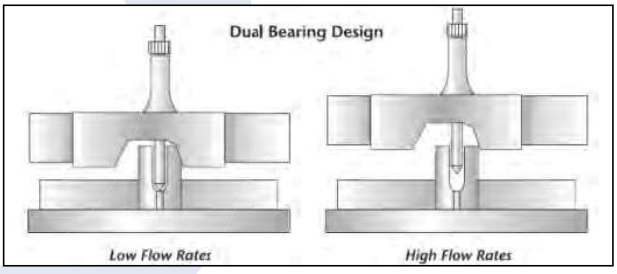
Applications

The Spectrum Jet single-jet meter is the widest ranged, single measuring element meter available to U.S. utilities. The operation of the single jet element allows the meter to be applied in the vast majority of potable cold water, reclaim water and well applications. Coupled with the advanced Prism registers, the Spectrum Jet single-jets are the meter of choice for your revenue assurance and water loss programs.

The large Spectrum Jet meters come in a selection of configurations for 3-inch, 4-inch and 6-inch applications. The meter has a very wide range so there is no compromise at either low or high flows. All Spectrum Jet Model-D meters are top-loading, chamber designs which allow for field maintenance and repairs.

Operations

Incoming water rotates a suspended impeller that is magnetically linked to the register. A low friction tungsten carbide bearing supports the impeller at low flow rates while a tungsten carbide thrust bearing provides the support at high flow rates. This unique “dual bearing” design provides unparalleled accuracy and durability at both high and low flows.



To maintain accuracy, the meter must be installed horizontally (±10°) in the direction of water flow. Each of the meters come with an integral test port on the outlet flange. Although regular maintenance is not required, the Spectrum Jet Model D meters have a top-loading measurement chamber for simple access without removing the meter from service. The chamber is bolted to the meter body and secured with a tamper seal.

All Spectrum Jet Model D meters utilize Prism registers. These sealed electronic registers provide a high resolution interface to the meter and have multiple cellular, AMR, AMI and SCADA outputs. All registers are attached with a robust tamper-resistant housing.

Design Features

- High accuracy below AWWA standards
- Wide range—1000:1 turndown
- Superior low flow registration
- Compact and light
- Convenient options for various lengths and connections
- Low pressure drop
- No regular maintenance
- Excellent performance in adverse water conditions
- Unaffected by sand or small debris in line
- No straight pipe requirements – upstream or downstream
- No strainer requirement
- 5-year flange-to-flange warranty
- 20-year warranty on meter body
- Compatible with all Prism registers and associated AMR/AMI capabilities.

Materials

All Spectrum Jet Model-D meters are designed and manufactured to meet or exceed AWWA C712 standard design and performance specifications. All Models are maintained with NSF-61G lead-free certifications.

Standards

AWWA C712 – Single-Jet Meters

NSF-61G – Drinking Water System Components Health Effects

Mechanical Specifications

Spectrum Jet 175D - 3” (80mm)

Flanges	Lay Length	Dimensions	Weight	Z-Plate Strainer*	SS Spacer Spools	Test Port
Round 4-bolt	11.8” (300mm)	See Drawing	32lb (14.5kg)	Available (6” LL)	Hard-flanged or adjustable	Integral 1” NPT Threads

Spectrum Jet 500D - 3” (80mm)

Flanges	Lay Length	Dimensions	Weight	Z-Plate Strainer*	SS Spacer Spools	Test Port
Round 4-bolt	13.75” (349mm)	See Drawing	41lb (18.6kg)	Available (6” LL)	Hard-flanged or adjustable	Integral 1” NPT Threads

Spectrum Jet 500D - 4” (80mm)

Flanges	Lay Length	Dimensions	Weight	Z-Plate Strainer*	SS Spacer Spools	Test Port
Round 8-bolt	13.75” (349mm)	See Drawing	48lb (21.7kg)	Available (7.5” LL)	Hard-flanged or adjustable	Integral 1” NPT Threads

Spectrum Jet 1000D - 4” (100mm)

Flanges	Lay Length	Dimensions	Weight	Z-Plate Strainer*	SS Spacer Spools	Test Port
Round 8-bolt	17.75” (349mm)	See Drawing	78lb (35.4kg)	Available (7.5” LL)	Hard-flanged or adjustable	Integral 1” NPT Threads

Spectrum Jet 1000D - 6” (150mm)

Flanges	Lay Length	Dimensions	Weight	Z-Plate Strainer*	SS Spacer Spools	Test Port
Round 8-bolt	17.75” (349mm)	See Drawing	89 lb (40.4kg)	Available (8.9” LL)	Hard-flanged or adjustable	Integral 1” NPT Threads

*Contact Metron for information on brass spools and couplers.

Materials

Body & Top-plate	Impeller	Impeller Bearings	Impeller Shaft	Register Housing
ASTM C875 - Lead Free Bronze	Polypropylene	Tungsten Carbide	AISI 303, Tungsten Carbide Tip	Thermoplastic

Tamper Features

Meter Body	Register
Wire + Lead Seal Between Meter Body and Top-Plate	Tamper-resistant Screw

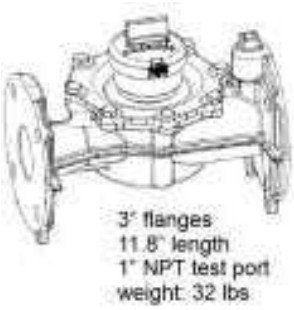
Markings

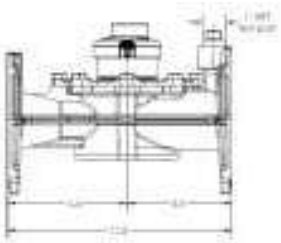
Engraved on Meter Body:

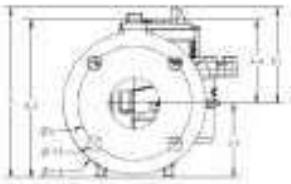
- Model
- Serial Number
- Date of Manufacture
- NSF-61G
- Direction of Flow

Dimensions

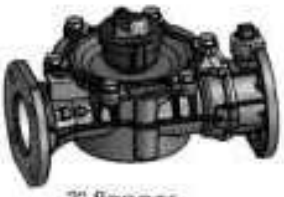
Spectrum Jet 175D - 3” Model

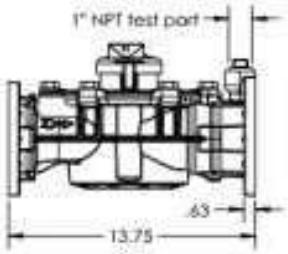


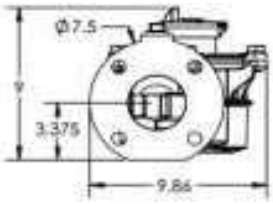




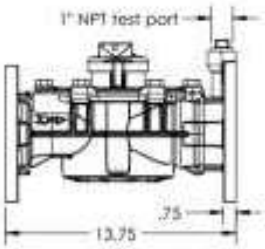
Spectrum Jet 500D - 3” Model

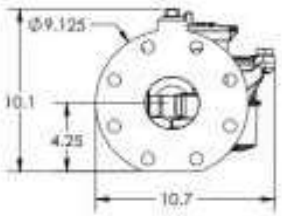




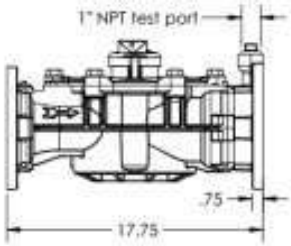


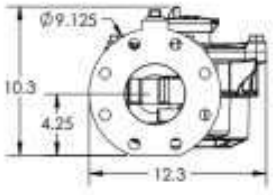
Spectrum Jet 500D - 4” Model



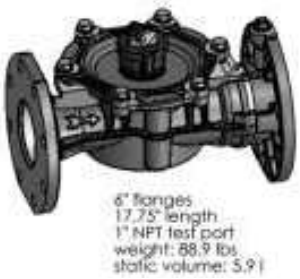


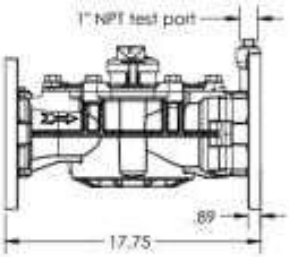
Spectrum Jet 1000D - 4” Model

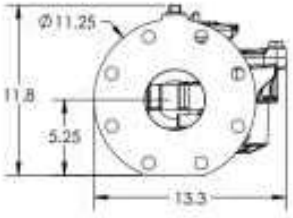




Spectrum Jet 1000D - 6” Model







Flow & Pressure Specifications

Spectrum Jet 175D - 3” Models

Operating Range (98.5 to 101.5%)	0.75 to 350 gpm	0.34 to 113.5 m³/hr
Low Flow (95% min)	0.5 gpm	0.17 m³/hr
Max Continuous Flow[1]	175 gpm	79.5 m³/hr
Max Intermittent Flow[2]	245 gpm	113.5 m³/hr
Peak Test Flow[3]	350 gpm	136 m³/hr
Pressure Loss at Max Continuous	7.25 psi	0.5 bar
Max Operating Pressure	230 psi	15.9 bar
Max Operating Temperature	120° F	48.9° C

Spectrum Jet 500D - 3” and 4” Models

Operating Range (98.5 to 101.5%)	1.5 to 500 gpm	0.34 to 113.5 m³/hr
Low Flow (95% min)	0.75 gpm	0.17 m³/hr
Max Continuous Flow[1]	350 gpm	79.5 m³/hr
Max Intermittent Flow[2]	500 gpm	113.5 m³/hr
Peak Test Flow[3]	600 gpm	136 m³/hr
Pressure Loss at Max Continuous	7.25 psi	0.5 bar
Max Operating Pressure	230 psi	15.9 bar
Max Operating Temperature	120° F	48.9° C

Spectrum Jet 1000D - 4” and 6” Models

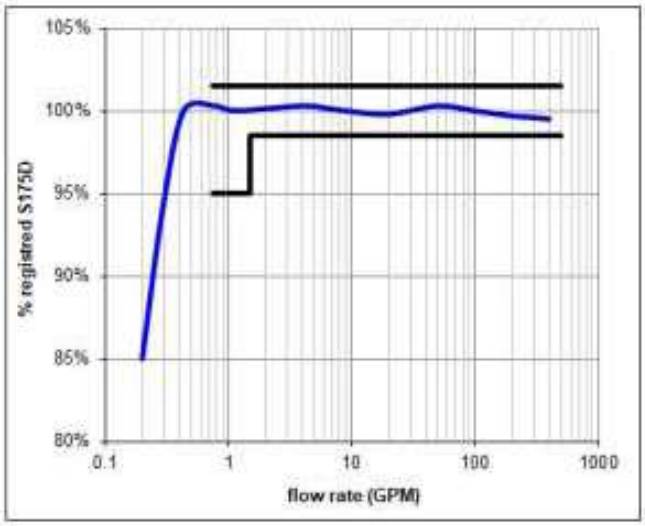
Operating Range (98.5 to 101.5%)	2.0 to 1000 gpm	0.34 to 113.5 m³/hr
Low Flow (95% min)	1.0 gpm	0.17 m³/hr
Max Continuous Flow[1]	600 gpm	79.5 m³/hr
Max Intermittent Flow[2]	1000 gpm	113.5 m³/hr
Peak Test Flow[3]	1100 gpm	136 m³/hr
Pressure Loss at Max Continuous	7.25 psi	0.5 bar
Max Operating Pressure	230 psi	15.9 bar
Max Operating Temperature	120° F	48.9° C

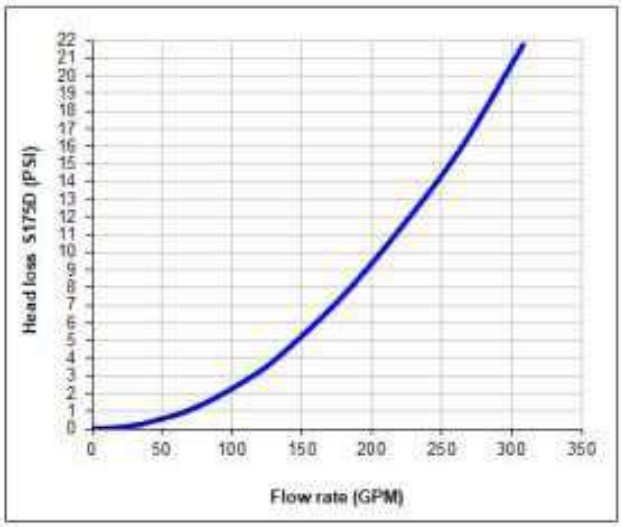
Notes:

1. Max Continuous defined by AWWA as flow rate which can be maintained 24 hrs/day x 7 days/week
2. Max Intermittent defined as flow rate which can be maintained 1 hr/day average
3. Peak Test flow defined as absolute max flow rate which can be maintained for brief periods under stable conditions while maintaining a minimum of 20 psi downstream of the meter.

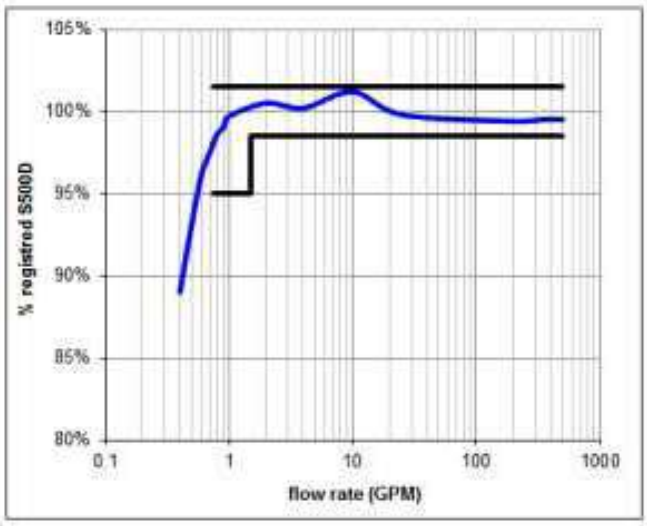
Flow & Pressure Specifications

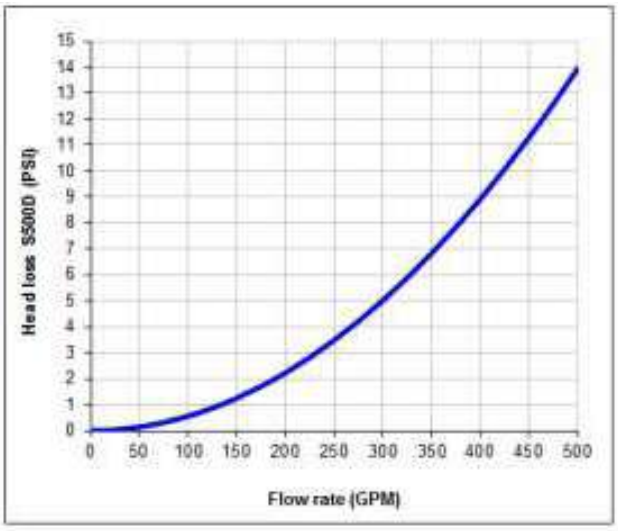
Spectrum Jet 175D



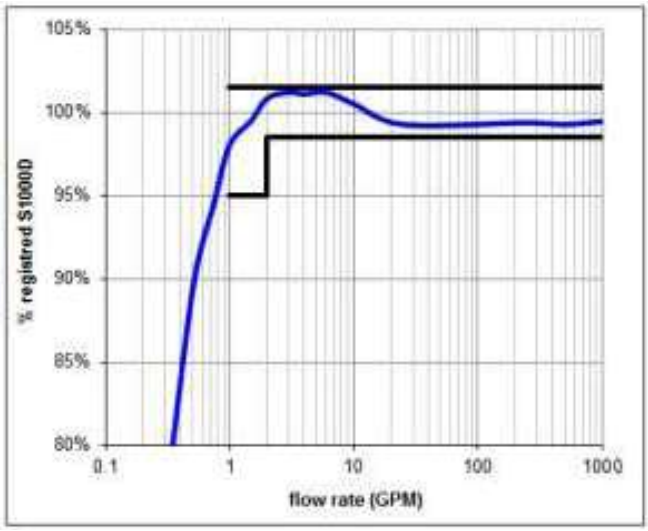


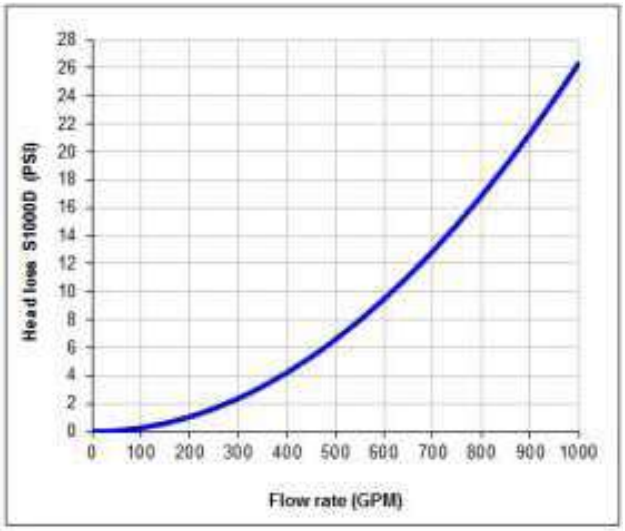
Spectrum Jet 500D





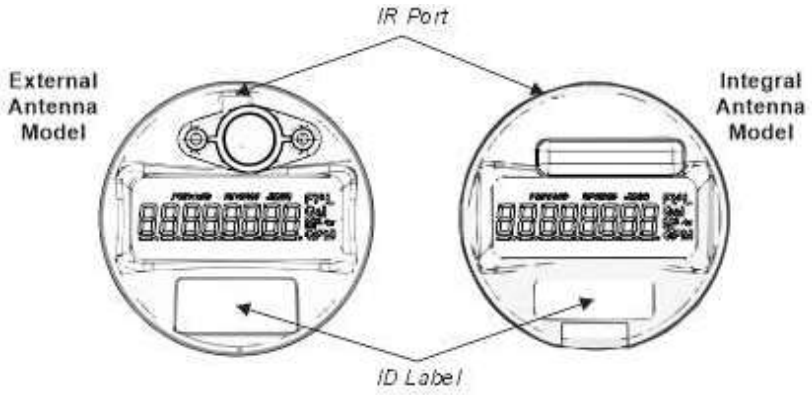
Spectrum Jet 1000D

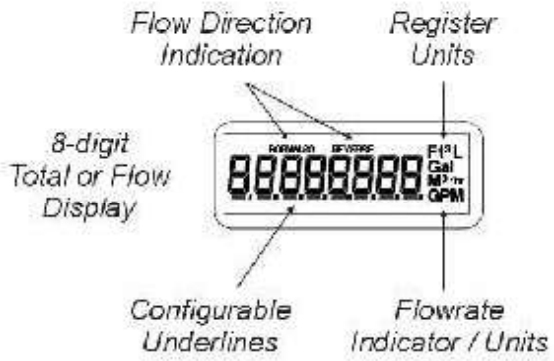




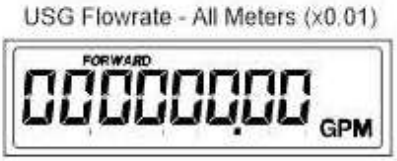
Registers

The Prism electronic register is the water industry's new standard for register performance. The Prism offers maximum resolution, a multitude of standard features, on-board datalogging and a variety of cellular, AMI, AMR and SCADA output options. The Prism is designed for all environments and incorporates the largest battery available for utility applications. The Prism can be deployed on any Metron Spectrum Jet water meter.

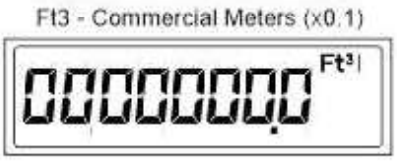


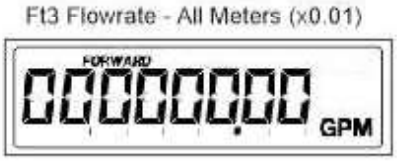


USG Configuration
1 Gallon Resolution

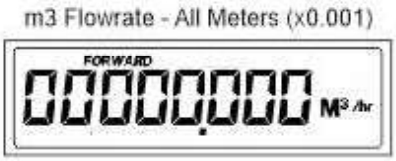


Ft3 Configuration
0.1 Ft3 Resolution





m3 Configuration
0.01 m3 Resolution



Warranty

Please contact your Metron representative for formal warranty certificates.

Legal

Due to updated regulations and product improvements, Metron-Farnier reserves the right to change the product specifications without notice.

METRON Spectrum JET

Small Commercial Spectrum Jet Meters

Product Datasheet

Spectrum 88DL

Spectrum 88DLT

Spectrum 130D

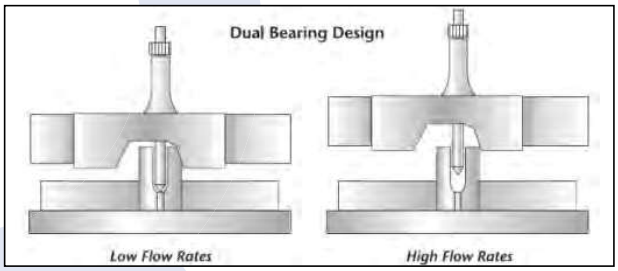
Applications

The Spectrum Jet single-jet meter is the widest ranged, single-measuring element meter available to U.S. utilities. The operation of the single jet element allows the meter to be applied in the vast majority of potable cold water, small commercial applications. These meters are designed with a very high range, including low flow performance equaling or exceeded all other metering technologies. Coupled with the advanced Prism registers, the Spectrum Jet single-jets are the meter of choice for your revenue assurance and water loss programs.

The Spectrum Jet Model-D meters are top-loading, chamber designs which allow for field maintenance and repairs.

Operations

Incoming water rotates a suspended impeller that is magnetically linked to the register. A low friction tungsten carbide bearing supports the impeller at low flow rates while a tungsten carbide thrust bearing provides the support at high flow rates. This unique “dual bearing” design provides unparalleled accuracy and durability at both high and low flows.



To maintain accuracy, the meter must be installed horizontally (±10°) in the direction of water flow. The Spectrum Jet 88DL and 88 DLT come with an integral test port on the outlet. Although regular maintenance is not required, the Spectrum Jet Model D meters have a top-loading measurement chamber for simple access without removing the meter from service. The chamber is bolted to the meter body and secured with a tamper seal.

All Spectrum Jet Model D meters utilize Prism registers. These sealed electronic registers provide a high resolution interface to the meter and have multiple cellular, AMR, AMI and SCADA outputs. All registers are attached with a robust tamper-resistant housing.

Design Features

- High accuracy below AWWA standards
- Wide range—1000:1 turndown
- Superior low flow registration
- Compact and light
- Convenient options for various lengths and connections
- Low pressure drop
- No regular maintenance
- Excellent performance in adverse water conditions
- Unaffected by sand or small debris in line
- No straight pipe requirements – upstream or downstream
- No strainer requirement
- 5-year flange-to-flange warranty
- 20-year warranty on meter body
- Compatible with all Prism registers and associated AMR/AMI capabilities.

Materials

All Spectrum Jet Model-D meters are designed and manufactured to meet or exceed AWWA C712 standard design and performance specifications. All models are maintained with NSF-61G lead-free certifications.

Standards

AWWA C712 – Single-Jet Meters

NSF-61G – Drinking Water System Components Health Effects

Mechanical Specifications

Spectrum Jet 88DL - 1 ½" (40mm)

Flanges	Lay Length	Dimensions	Weight	Test Plug	Test Port
Oval 2-bolt	13" (330mm)	See Drawing	9.95lb (4.5kg)	1" Integral	Integral 1" NPT Threads

Spectrum Jet 88DLT - 1 ½" (40mm)

Connection	Lay Length	Dimensions	Weight
Female 1 ½" / 11 ½ NPT Integral Threads	12 ⅝" (319mm)	See Drawing	8.15lb (3.69kg)

Spectrum Jet 130D - 2" (50mm)

Flanges	Lay Length	Dimensions	Weight	Test Plug	Test Port
Oval 2-bolt	9¾" (300mm)	See Drawing	13lb (5.8kg)	Available on Spool	Lead-free Flanged Spools for 15 ¼" & 17" LL

*Contact Metron for information on brass spools and couplers.

Materials

Body & Top-plate	Impeller	Impeller Bearings	Impeller Shaft	Register Housing
ASTM C874 - Lead Free Bronze	Polypropylene	Nylon with Carbon Fiber	AISI 303, Tungsten Carbide Tip	Thermoplastic

Tamper Features

Meter Body	Register
Wire + Lead Seal Between Meter Body and Top-Plate	Tamper-resistant Screw

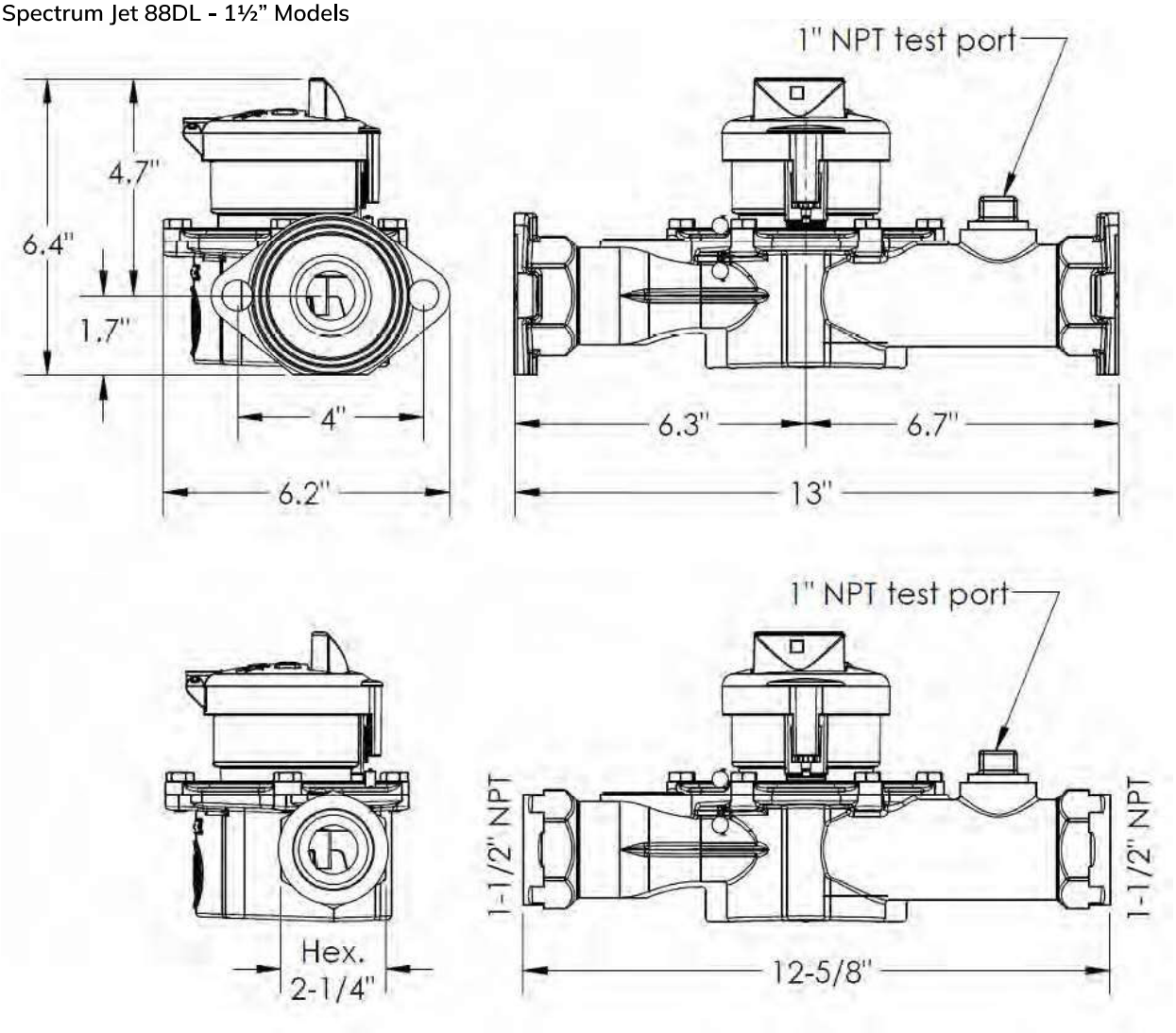
Markings

Engraved on Meter Body:

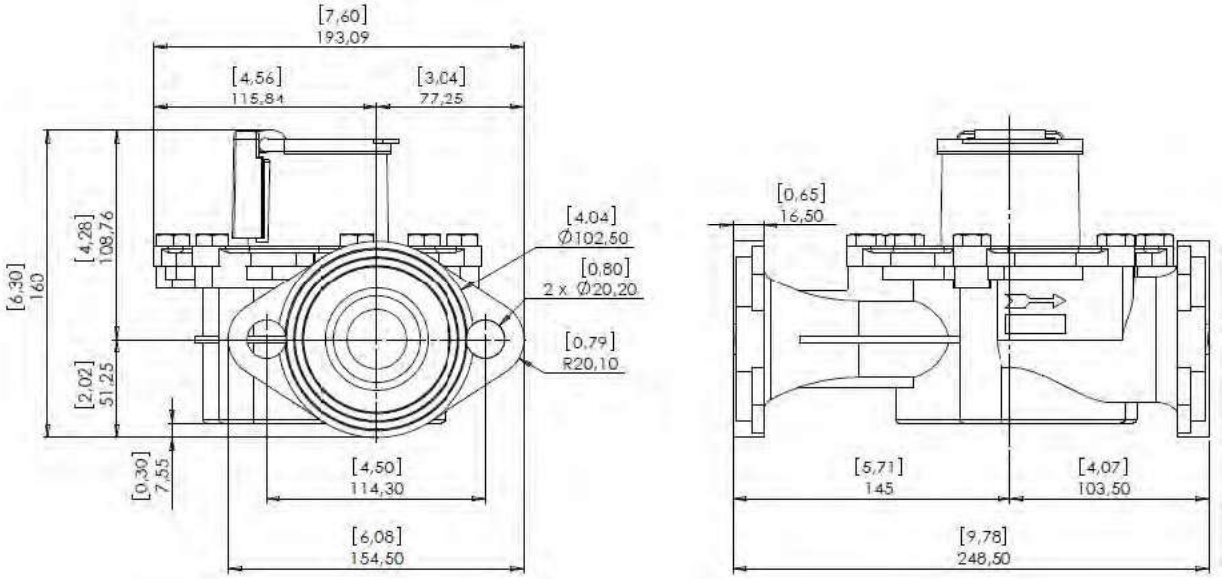
- Model
- Serial Number
- Date of Manufacture
- NSF-6
- Direction of Flow

Dimensions

Spectrum Jet 88DL - 1½" Models



Spectrum Jet 130D - 2" Model



Flow & Pressure Specifications

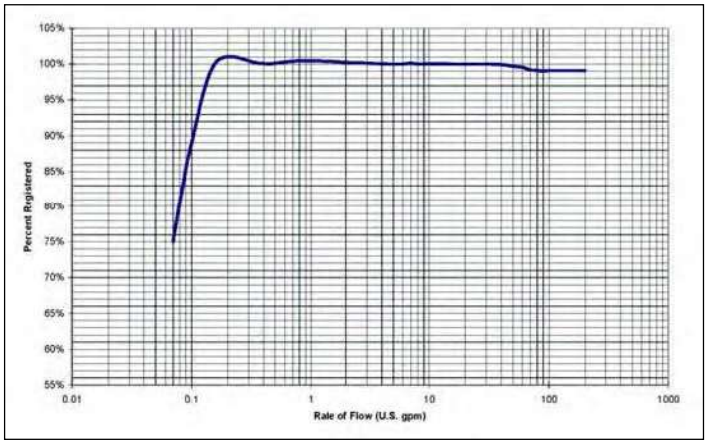
Spectrum Jet 88DL / 88DLT - 1 ½" Models

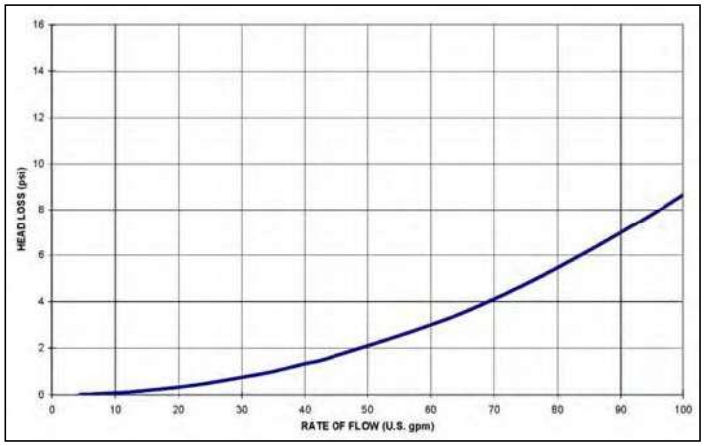
Operating Range (98.5 to 101.5%)	0.5 to 105 gpm	0.11 to 24 m³/hr
Low Flow (95% min)	0.25 gpm	0.057 m³/hr
Max Continuous Flow[1]	88 gpm	20 m³/hr
Max Intermittent Flow[2]	105 gpm	24 m³/hr
Pressure Loss at Max Continuous	7.25 psi	0.5 bar
Max Operating Pressure	230 psi	15.9 bar
Max Operating Temperature	120° F	48.9° C

Spectrum Jet 130D - 2" Model

Operating Range (98.5 to 101.5%)	0.75 to 165 gpm	0.17 to 37.5 m³/hr
Low Flow (95% min)	0.25 gpm	0.057 m³/hr
Max Continuous Flow[1]	130 gpm	29.5 m³/hr
Max Intermittent Flow[2]	165 gpm	37.5 m³/hr
Pressure Loss at Max Continuous	7.25 psi	0.5 bar
Max Operating Pressure	230 psi	15.9 bar
Max Operating Temperature	120° F	48.9° C

Spectrum Jet 88DL / 88 DLT



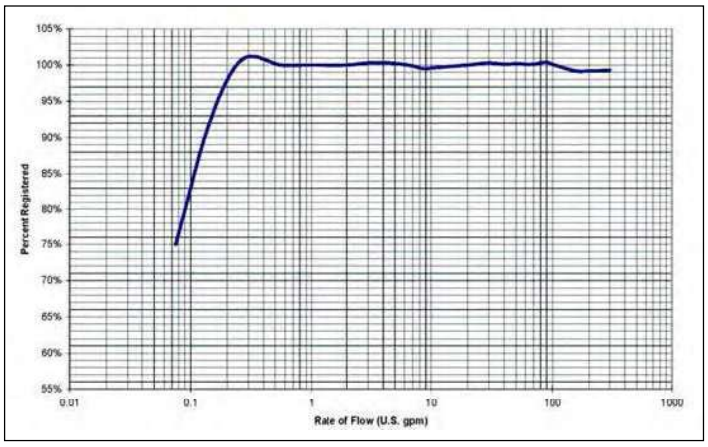


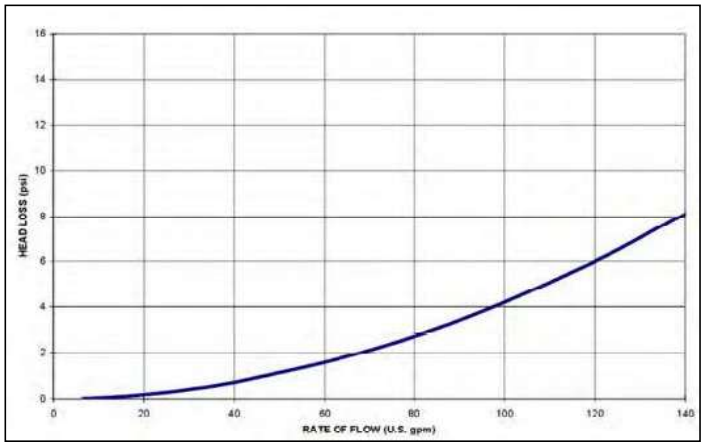
Notes:

1. Max Continuous defined by AWWA as flow rate which can be maintained 24 hrs/day x 7 days/week
2. Max Intermittent defined as flow rate which can be maintained 1 hr/day average

Flow & Pressure Specifications

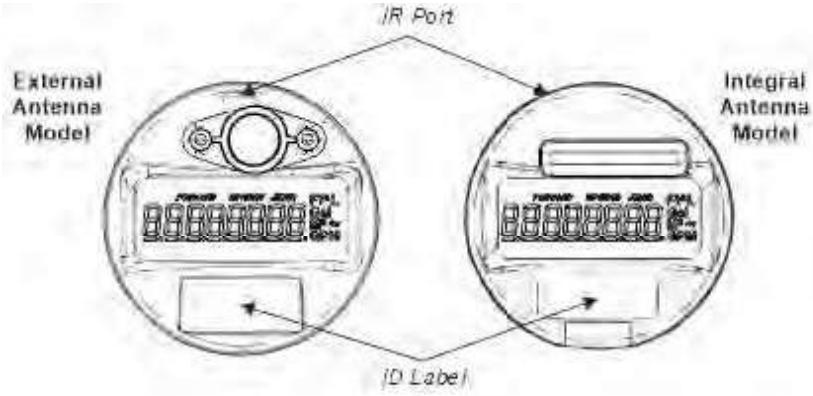
Spectrum Jet 130D

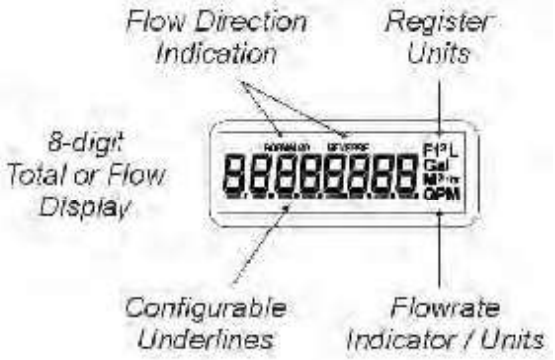


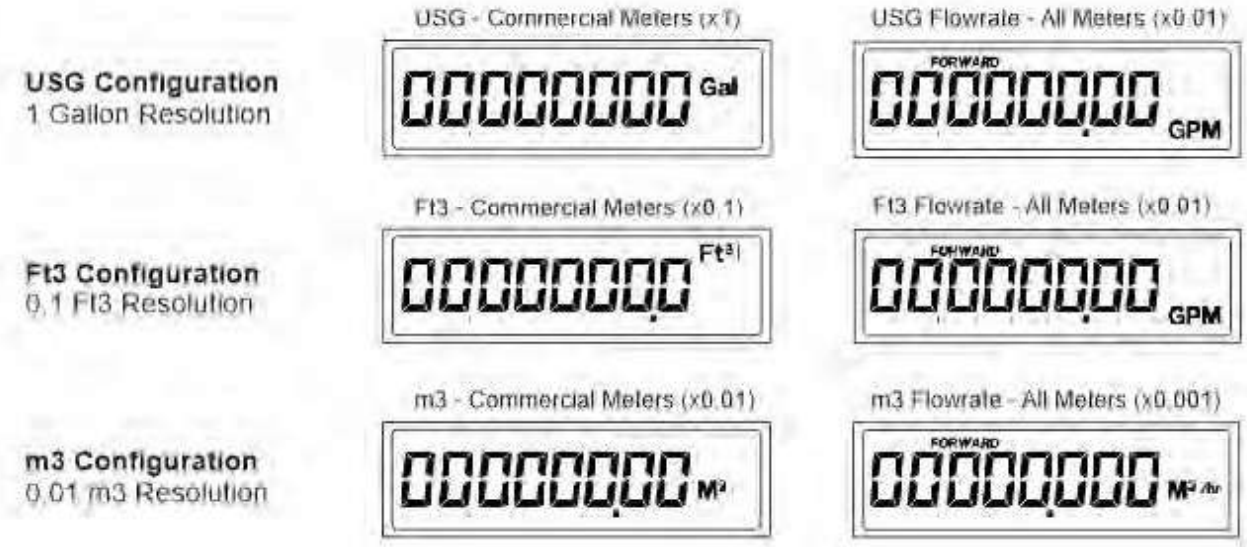


Registers

The Prism electronic register is the water industry's new standard for register performance. The Prism offers maximum resolution, a multitude of standard features, on-board datalogging and a variety of cellular, AMI, AMR and SCADA output options. The Prism is designed for all environments and incorporates the largest battery available for utility applications. The Prism can be deployed on any Metron Spectrum Jet water meter.







Warranty

Please contact your Metron representative for formal warranty certificates.

Legal

Due to updated regulations and product improvements, Metron-Farnier reserves the right to change the product specifications without notice.

METRON Spectrum HEAVY

Spectrum Heavy Meters

Product Datasheet

Spectrum Heavy 2800D 6” & 8”
Spectrum Heavy Extended Range (ER) 6” & 8”

Applications

The Spectrum Heavy 6” and 8” water meters are single element, wide range industrial meters. They utilize a top-loading chamber to insert a small diameter Spectrum Jet meter within the flow stream. This unique system allows for unparalleled accuracy and durability at both high and low flows within a compact meter body. The Spectrum Heavy meters are an ideal solution for most industrial metering applications.

Operations

Water enters the meter passing over an in-line water conditioner that directs the water through a small diameter Spectrum Jet meter that proportionally measures the total water flow. This incoming water rotates a suspended impeller in the measuring chamber. A low friction pivot bearing supports the impeller at low flow rates while an upper thrust bearing provides the support at high flow rates. The impeller has an attached magnet at its top for the register interface.

All bearing materials are fortified for minimal wear during high-flow stress. The impeller shaft utilizes tungsten tips to minimize wear and ensure long-term accuracy. The Spectrum Heavy meters come with integral flanges (either 6” or 8”).

To maintain accuracy, the meter must be installed horizontally (±10°) in the direction of water flow. Spectrum Heavy meters come with an integral test port on the outlet. Although regular maintenance is not required, the meters have a top-loading measurement chamber for simple access without removing the meter from service.

All Spectrum Heavy meters utilize Prism registers. These sealed electronic registers provide a high resolution interface to the meter and have multiple output options. All registers are attached with a robust tamper-resistant housing.

Design Features

- High accuracy
- Wide range – 1000:1 turndown
- Superior low flow registration
- Minimal pressure loss
- Long-term durability
- Low and high flow models to accommodate variety of industrial applications
- No regular maintenance
- Small, compact design for simple installations
- Excellent performance in adverse conditions
- Unaffected by sand or small debris in line
- No straight pipe requirements upstream or downstream of meter
- Strainers available for FM Fire Service
- 5-year flange-to-flange warranty

Materials

All Spectrum Heavy meters are designed and manufactured to meet or exceed AWWA C712 standards design specifications. They also meet or exceed AWWA C701 standards Class II turbine meter performance.

Standards

AWWA C712 – Single-Jet Meters

NSF-61G – Drinking Water System Components Health Effects

Mechanical Specifications

Spectrum Heavy 2800	6-inch (150mm)	8-inch (200 mm)
Flanges	Round 8-bolt	Round 8-bolt
Lay Length	24” (610 mm)	24” (610 mm)
Dimensions	See drawing	See drawing
Weight	121 lb (54.88 kg)	142 lb (64.4 kg)
Test Port	Integral 2” NPT threads	Integral 2” NPT threads

Spectrum Heavy 3600	6-inch (150mm)	8-inch (200 mm)
Flanges	Round 8-bolt	Round 8-bolt
Lay Length	24” (610 mm)	24” (610 mm)
Dimensions	See drawing	See drawing
Weight	121 lb (54.88 kg)	142 lb (64.4 kg)
Test Port Integral	2” NPT threads Integral	2” NPT threads

Strainers: Fireflow-rated strainers available. Contact Metron for additional information

MATERIALS

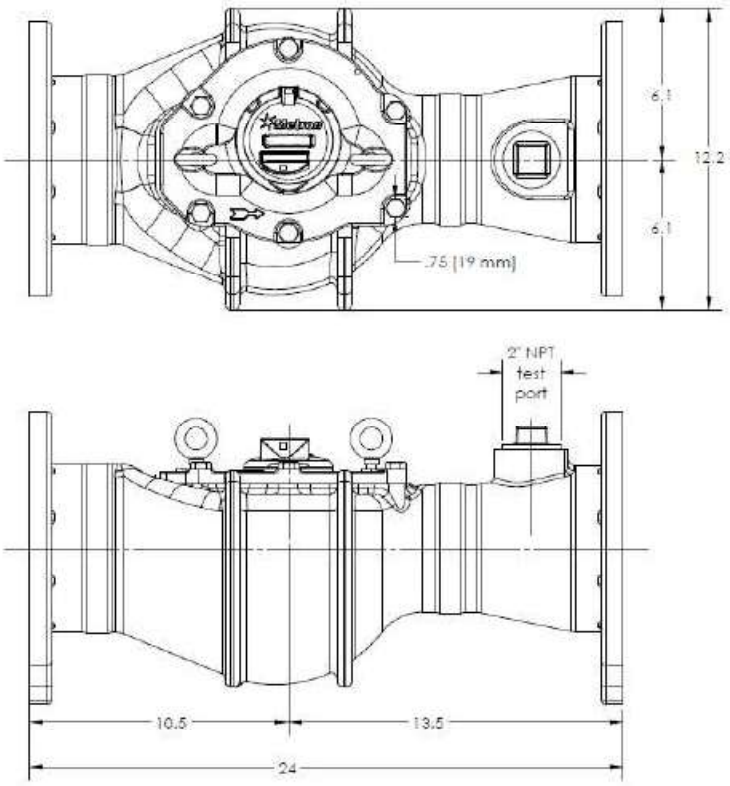
Body & Top-plate:	ASTM C917 - Lead Free Brass
Impeller:	Polypropylene
Impeller Bearings:	Tungsten Carbide
Impeller Shaft:	AISI 303, Nivaflex tip
Register Housing:	Thermoplastic

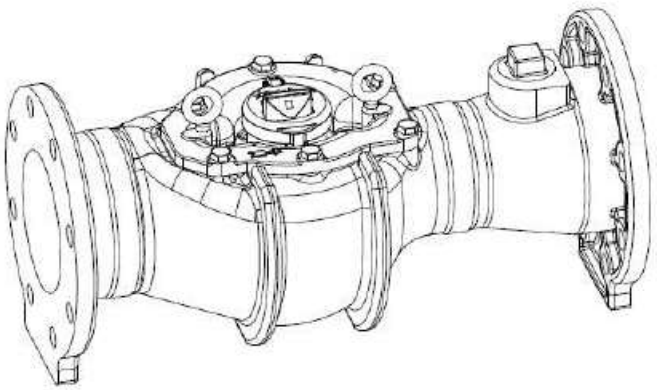
MARKINGS

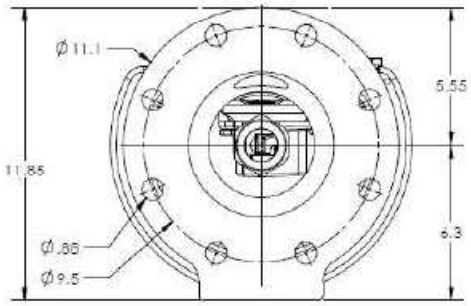
Engraved on meter body: Model, Serial Number, Date of Manufacture, NSF-61G, Direction of Flow arrow

DIMENSIONS

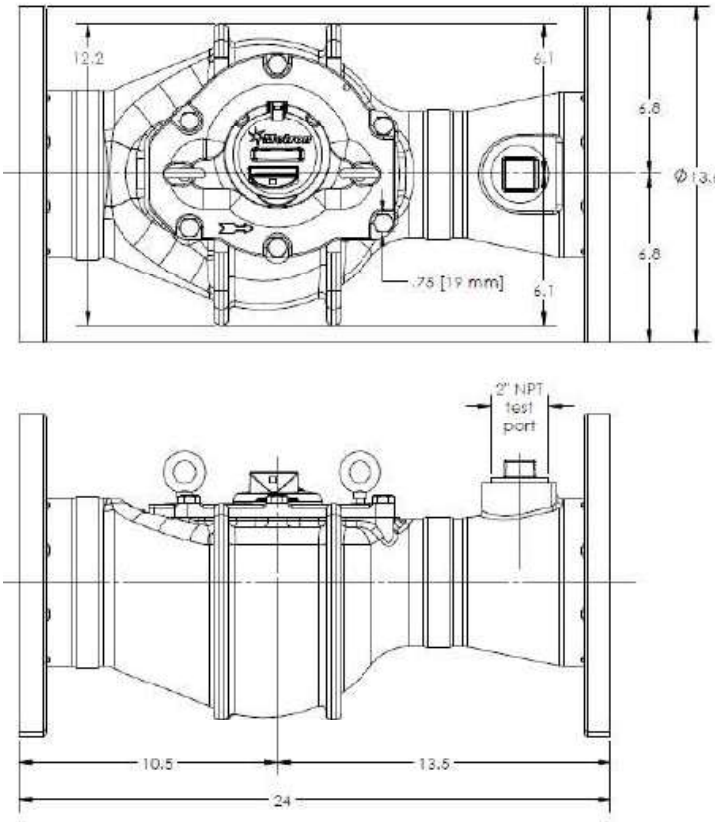
Spectrum Heavy 2800D / 3600D - 6-inch model

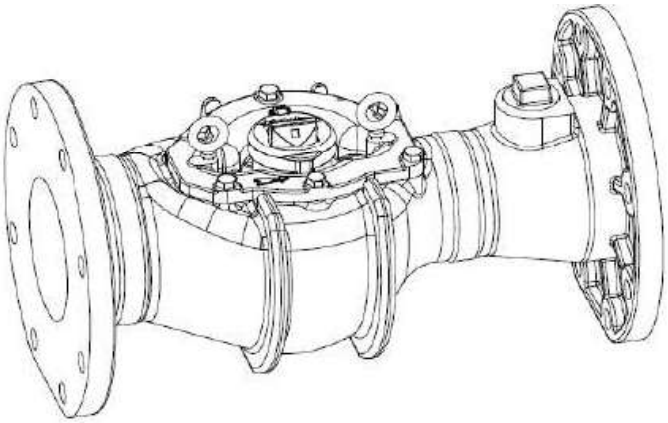


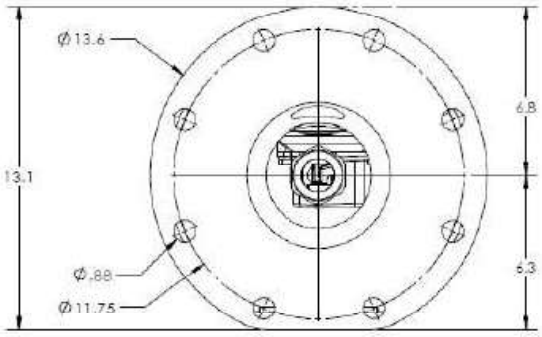




Spectrum Heavy 2800D / 3600D - 8-inch model







Flow & Pressure Specifications

Enduro 2800D– 6” and 8” Model

Operating Range (98.5 to 101.5%)	6 to 2800 gpm	(1.38 to 636 m3/hr)
Low Flow (95% min)	4.4 gpm	(1 m3/hr)
Max Continuous Flow[2]	2400 gpm	(545 m3/hr)
Max Intermittent Flow[3]	2800 gpm	(636 m3/hr)
Pressure Loss at Max Continuous	6.40 psi	(0.44 bar)
Max Operating Pressure	230 psi	(15.9 bar)
Max Operating Temperature	120 °F	(48.9 °C)

Enduro 3600D– 6” and 8” Model

Operating Range (98.5 to 101.5%)	14 to 3600 gpm	(3.2 to 818 m3/hr)
Low Flow (95% min)	8 gpm	(1.82 m3/hr)
Max Continuous Flow[2]	2800 gpm	(636 m3/hr)
Max Intermittent Flow[3]	3600 gpm	(818 m3/hr)
Pressure Loss at Max Continuous	11 psi	(0.76 bar)
Max Operating Pressure	230 psi	(15.9 bar)
Max Operating Temperature	120 °F	(48.9 °C)

Notes

1 Starting flow rate for reference only

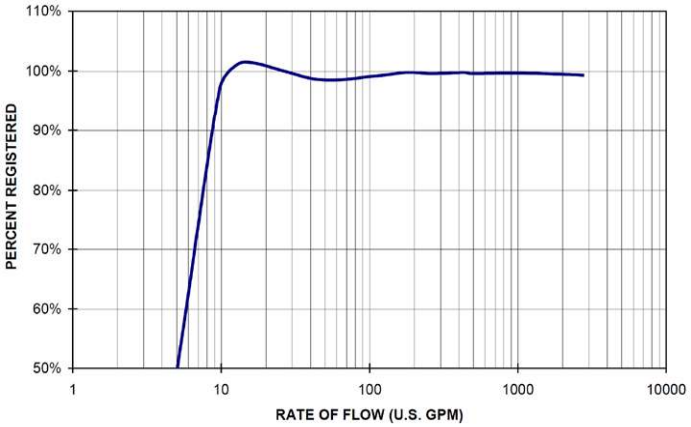
2 Max Continuous defined by AWWA as flow rate which can be maintained 24 hrs/day x 7 days/week

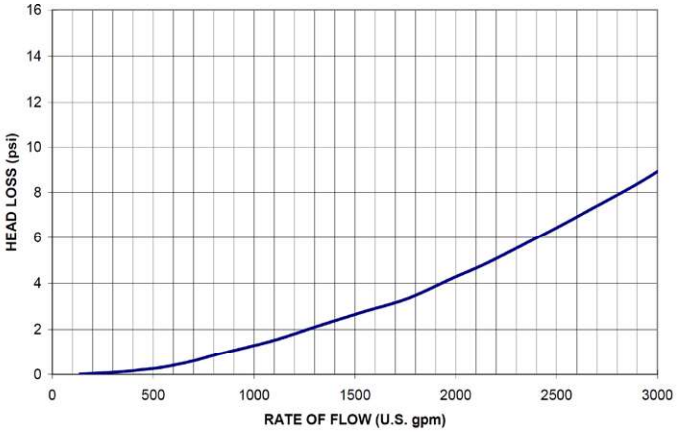
3 Max Intermittent defined as flow rate which can be maintained 1 hr/day average

Flow Accuracy

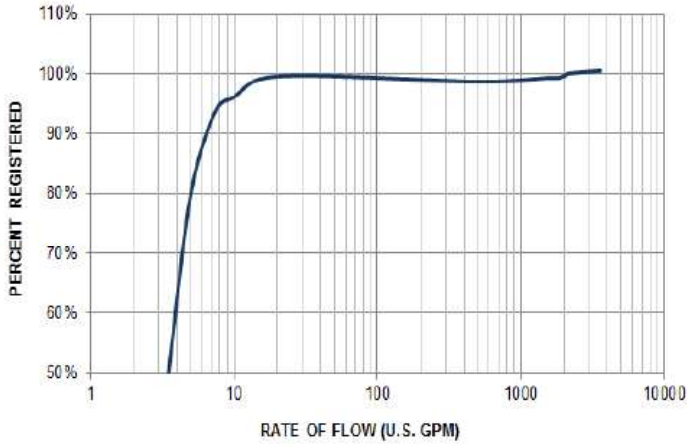
Pressure Drop

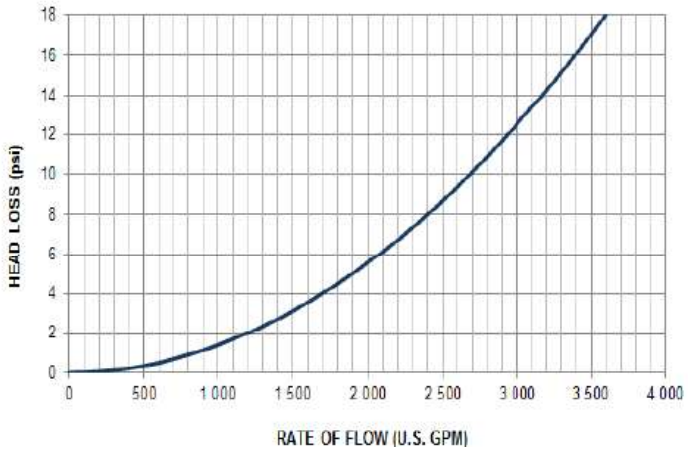
Spectrum Heavy 2800D





Spectrum Heavy 3600D





Registers

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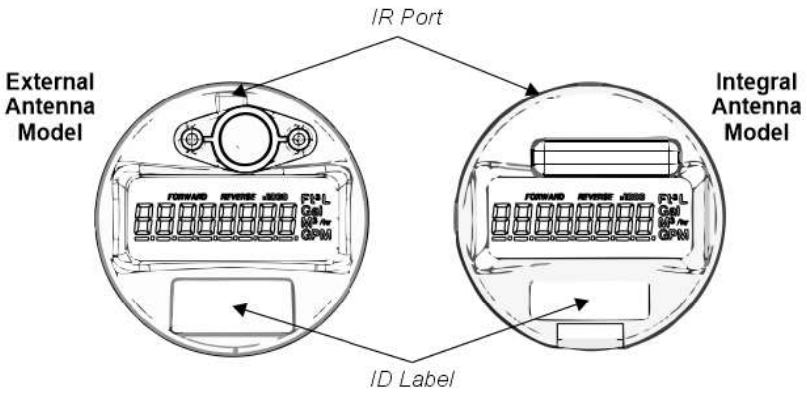
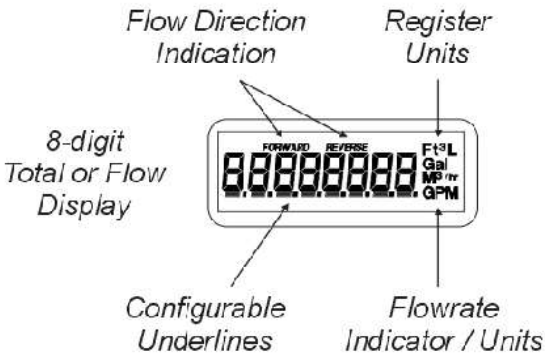
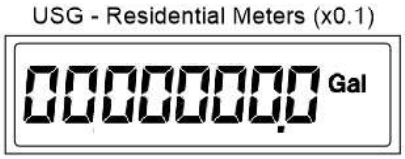
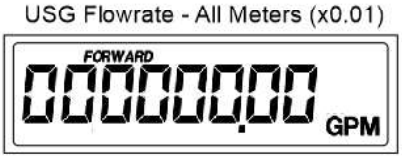


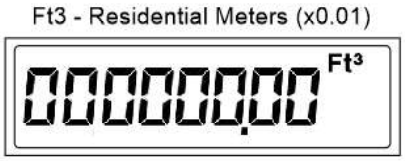


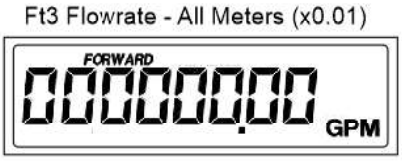
USG Configuration
0.1 Gallon Resolution



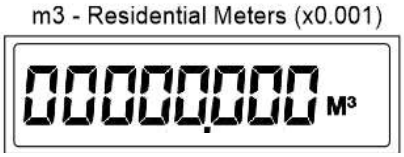


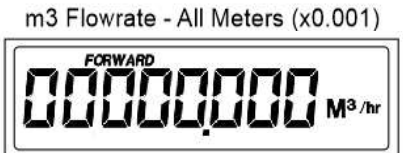
Ft3 Configuration
0.01 Ft3 Resolution





m3 Configuration
0.001 m3 Resolution





Warranty

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Legal

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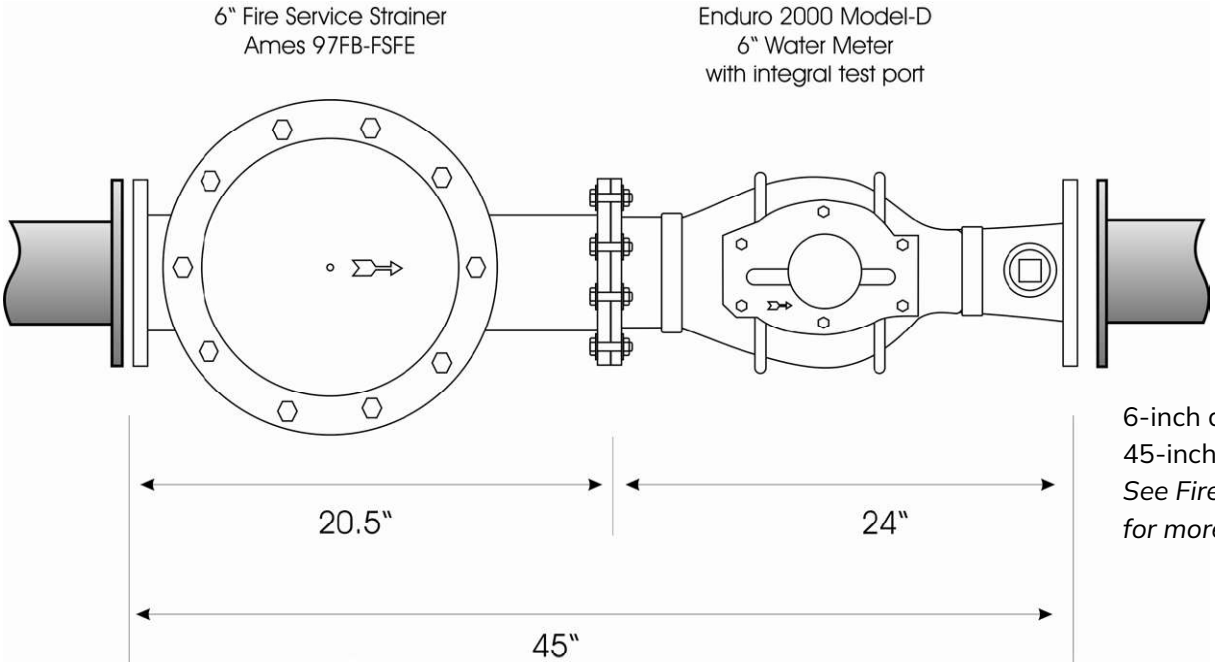
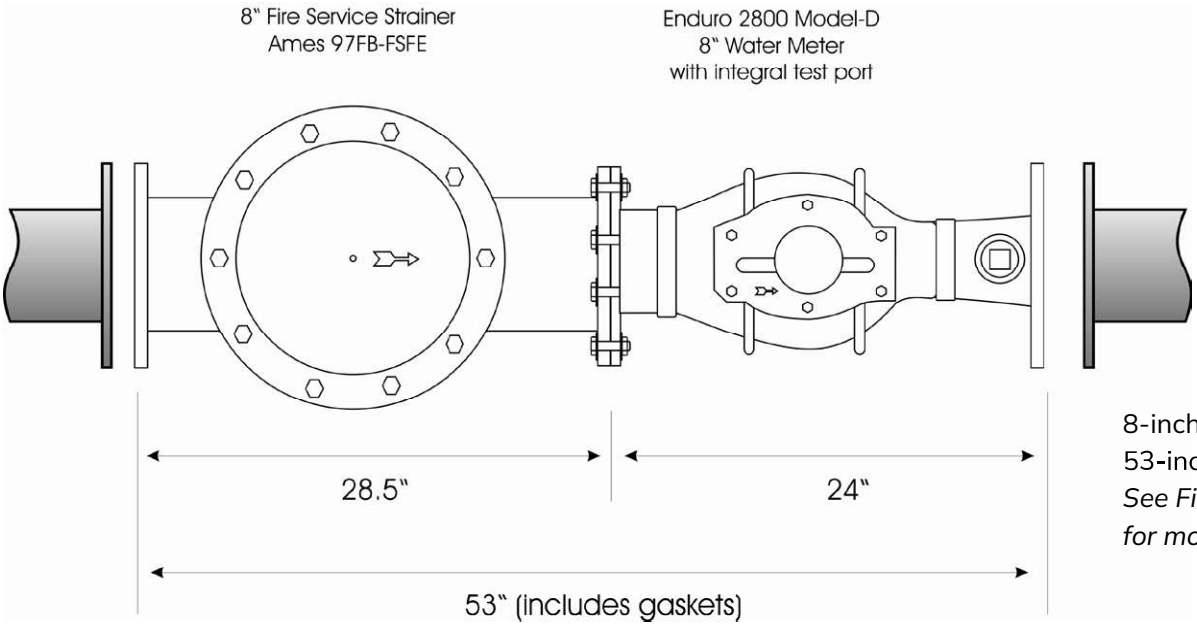
Fire Service Configurations

FSA6



6-inch assembly
45-inch LL
See Fire Service Brochure for more information.

FSA8



8-inch assembly
53-inch LL
See Fire Service Brochure for more information.