

# Model FSAA-01

4" Model FSAA-01  
FM Approved - 175 PSI Flanged  
UL Listed, Fire Series Meter Assembly  
with Strainer, Turbine Meter, Detector  
Check Valve and By-Pass Meter

# Technical Brief

## DESCRIPTION

**MODEL FSAA-01 FIRE SERIES METER ASSEMBLY** consists of at least a six times open area strainer, a 4" Recordall® Turbo Series Meter with AWWA class II measuring chamber, a Check Valve with by-pass piping, valves, and a 2" Recordall Turbo Series Meter. The Fire Series Meter Assembly is designed to measure both low flow domestic use and high volume usage, such as when a building's fire sprinklers are activated, through a single water supply line.

**INSTALLATION** is made similar to placing a length of flanged end pipe in the line. The 175 lb. AWWA Class "D" steel flanged end design permits use in a wide range of applications. The meter must have a full flow of liquid for proper accuracy. It must be installed in horizontal applications only.

**STRAINER** is at least six times open area and is used exclusively in fire series systems to prevent clogging. The strainer is equipped with a 2" flushing port (or optional valve) for flushing debris from the upstream side of the strainer screen.

**TURBINE METER:** Water flows into the meter's measuring element contacting the multi-vaned rotor. Flow readings are obtained by rotor revolutions transmitted by magnetic drive coupling through the meter's cover plate to the sealed register. Magnetic drive is achieved by a right angle worm drive, coupling the rotor to a vertical transmission spindle, driving a gear set rotating the magnet carrier. A ceramic magnet in a carrier rotates around a vertical axis. Rotor rotation is transmitted to the register gearing through this magnetic coupling.

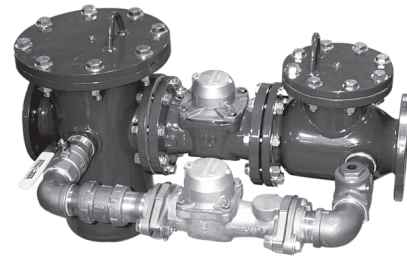
The turbo measuring element is designed to greatly reduce wear by reducing friction potential between the moving parts of the rotor and bearing system. Less wear, in this critical area of the design, provides the utility manager with a lower life cycle cost for meter application. Throughout the normal operating range of the meter, the rotor floats between the thrust bearing system.

**CHECK VALVE** is a spring loaded check valve on the downstream side of the clapper to hold the clapper in a normally closed position. Small water flows by-pass the clapper and are registered on the 2" by-pass meter. This allows for accurate registration of domestic use, leakage or misuse of water intended for wet stand-by fire protection. When a major flow is required, the water pressure will overcome the mechanical advantages of the spring loaded clapper and push it open, permitting full pipe capacity flow during a fire emergency. A small amount of water will continue to flow through the by-pass when the spring loaded clapper is fully open.

**BY-PASS LINE** consists of piping with a 2" Recordall Turbo Series Meter, an isolation valve, and back flow preventing check valve.

## SPECIFICATIONS

<b>TYPICAL OPERATING RANGE</b> (100% ± 1.5%)	4-1250 GPM.
<b>MAXIMUM OPERATING PRESSURE</b>	175 PSI.
<b>MAXIMUM OPERATING TEMPERATURE</b>	120° F (49° C)
<b>TYPICAL LOW FLOW (95% MIN.)</b>	2.5 GPM.
<b>MAXIMUM CONTINUOUS OPERATION</b>	1000 GPM.
<b>MAXIMUM INTERMITTENT FLOW</b>	1250 GPM.



## MATERIALS

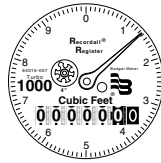
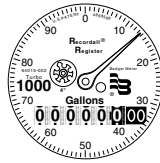
<b>NOSE CONE AND STRAIGHTENING VANES</b>	thermoplastic
<b>ROTOR</b>	thermoplastic
<b>ROTOR RADIAL BEARINGS</b>	lubricated thermoplastic
<b>ROTOR THRUST BEARINGS</b>	sapphire jewels
<b>ROTOR BEARING PIVOTS</b>	passivated 316 stainless steel
<b>CALIBRATION MECHANISM</b>	stainless steel and thermoplastic
<b>MAGNET</b>	ceramic
<b>REGISTER LID AND SHROUD</b>	thermoplastic, bronze
<b>TRIM</b>	stainless steel
<b>STRAINER SCREEN</b>	stainless steel
<b>BY-PASS MEASURING CHAMBER</b>	injection molded thermoplastic
<b>TURBINE SHAFTS &amp; BOLTS</b>	stainless steel
<b>METER HOUSING</b>	fusion bonded epoxy coated ductile cast iron
<b>BY-PASS METER HOUSING</b>	cast bronze (B81), Low Lead Alloy (LL)
<b>CLAPPER</b>	stainless steel
<b>CLAPPER SPRING</b>	stainless steel
<b>CLAPPER HINGE &amp; PINS</b>	stainless steel
<b>CLAPPER SEAL</b>	elastomer, EPDM
<b>VALVE SEAT</b>	cast brass
<b>VALVE &amp; STRAINER COVER PLATE</b>	fusion bonded epoxy coated steel
<b>VALVE &amp; STRAINER COVER PLATE GASKET</b>	elastomer sheet
<b>VALVE BUSHINGS</b>	brass
<b>BY-PASS</b>	Water works brass piping conforming to AWWA C800
<b>VALVE BODY</b>	Stainless steel, coated inside and out with fusion bonded epoxy. Standard flange connections (ANSI B16.1)
<b>STRAINER SCREEN</b>	stainless steel
<b>STRAINER BODY</b>	fusion epoxy coated steel
<b>OPTIONAL EQUIPMENT</b>	Includes transmitters with remote read capabilities, companion flanges, and various pipe sizes are available in CI or bronze.
<b>SHIPPING WEIGHT</b>	<b>312</b> pounds shipped fully assembled.
<b>CERTIFICATION</b>	Valve conforms to UL 312 and FM 1045. Fire Series Meter Assembly conforms to UL 327, FM 1044 and AWWA C703. Strainer conforms to UL 321 and FM 5551. Strainer open area is at least six times the area of the nominal pipe size. Meter measuring chambers are AWWA class II.
<b>ORDERING INFO</b>	Must be specified by the customer and includes: Size, minimum & maximum flow range, totalizer dial units, optional equipment desired. Standard side for by-pass meter is right hand (shown above) unless specified otherwise.



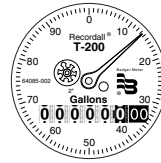
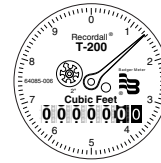
BadgerMeter, Inc.

FSAA-T-04

# 4" MODEL FSAA-01



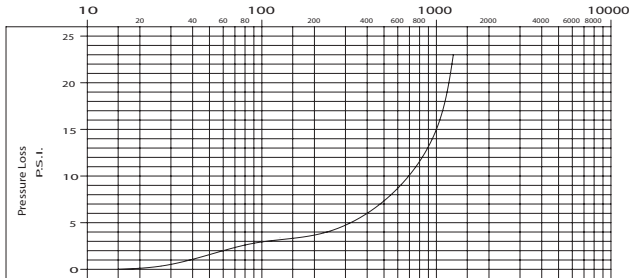
Mainline Registers



By-Pass Registers

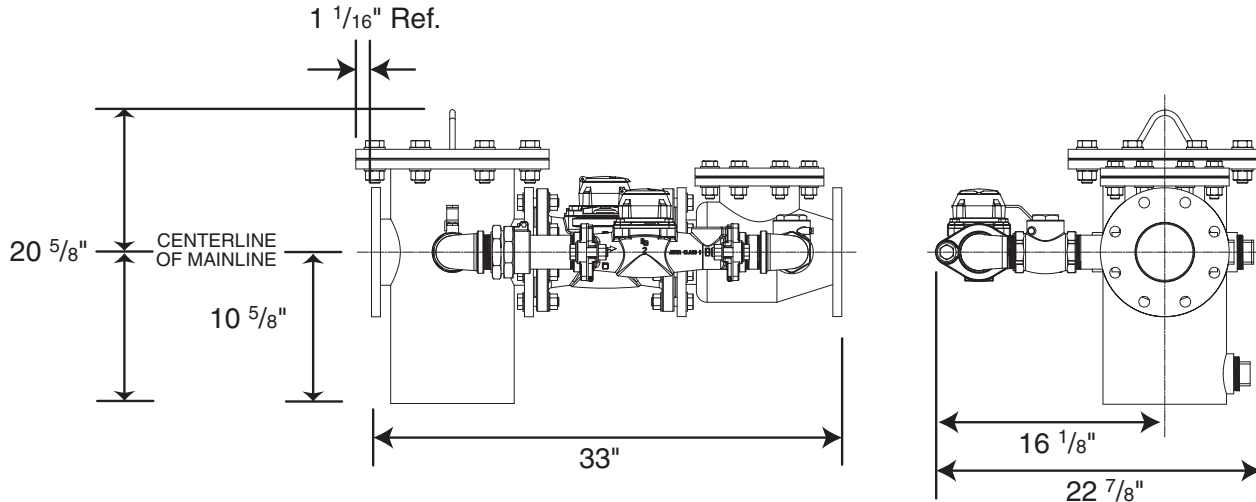
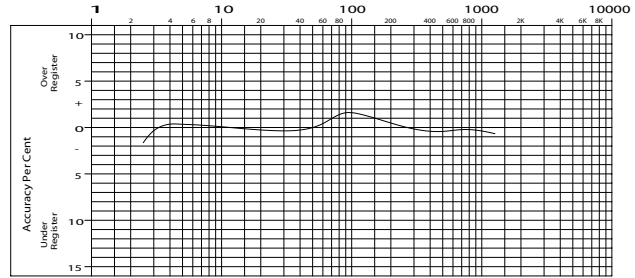
### PRESSURE LOSS CHART

CONSISTS OF CAST IRON TSM MAINLINE, BRONZE 2" TSM BYPASS, WITH AMES SHORT STRAINER AND CHECK VALVE RATE OF FLOW IN GALLONS PER MINUTE



### ACCURACY CHART

CONSISTS OF CAST IRON TSM MAINLINE, BRONZE 2" TSM BYPASS, WITH AMES SHORT STRAINER AND CHECK VALVE RATE OF FLOW IN GALLONS PER MINUTE



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