

DESCRIPTION

The Badger Meter Model 450 fire hydrant meter is designed for use in measuring cold water from a fire hydrant or other non-permanent installation where flow is in one direction.

Operation

Water flows into the meter's measuring element where 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 the vertical transmission spindle. A ceramic magnet on the spindle rotates around the vertical axis. Through the magnetic coupling, rotor rotation is transmitted to a follower magnet which transmits rotation to the register gearing.

Operating Performance

The Model 450 fire hydrant meters meet or exceed registration accuracy for the low flow rate, normal operating flow rate, and maximum continuous operation flow rate as specifically stated in AWWA Standard C701.

Construction

The Model 450 fire hydrant meter construction consists of three basic components: meter housing, measuring element, and permanently sealed register. The housing is light-weight heat treated aluminum alloy, compact and easy to handle. The measuring element consists of the transmission coupling, measuring element insert, rotor, straightening vane, and calibration vane assembly. The straightening vanes minimize swirl from piping arrangements upstream.

Magnetic Drive

Direct magnetic drive, through the use of high-strength magnets, provides positive, reliable and dependable register coupling.

Restriction Plate

A permanent orifice, positioned in the outlet side of the meter housing, limits the maximum flow of water through the meter. This is provided to protect the measuring element from overspeeding when the meter discharges to atmosphere.

Sealed Register

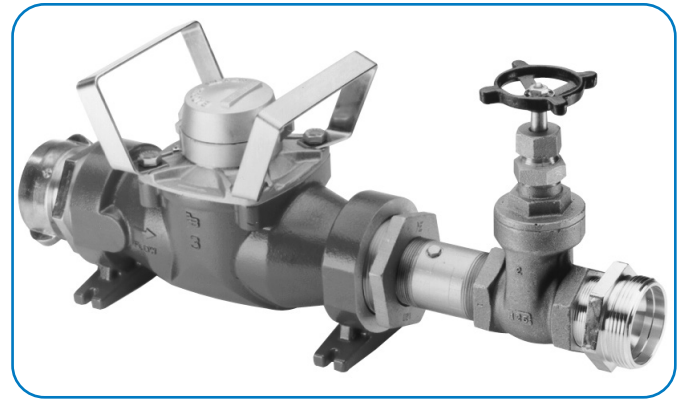
The standard register consists of a straight-reading odometer-type totalization display, 360° test circle with center sweep hand and flow finder to detect leaks. Register gearing consists of self-lubricating thermoplastic gears to minimize friction and provide long life. Permanently sealed; dirt, moisture, tampering and lens fogging problems are eliminated. Multi-position register simplifies meter installation and reading.

Tamper-Resistant Features

Removal of the register to obtain free water is prevented when the tamper detection seal wire screw or TORX® tamper-resistant seal screw is added to the meter. A tamper-resistant calibration plug seal provides protection from unauthorized personnel use.

Strainer

A compression fit double layer stainless steel strainer is installed in the inlet housing tube. The strainer insures optimum long-term field performance.



Maintenance

The Model 450 fire hydrant meters are designed and manufactured to provide long-term service with minimal maintenance. When maintenance is required, it can be performed easily either at the meter installation or at any other convenient location. As an alternative to repair by the utility, Badger Meter offers various maintenance and meter component exchange programs to fit the needs of the utility.

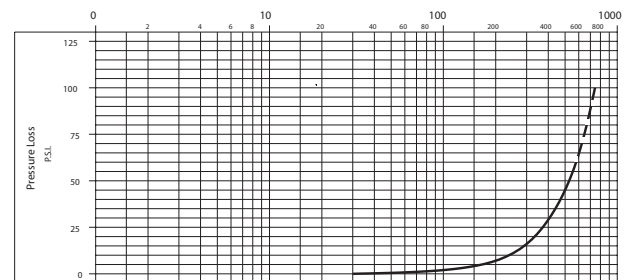
Hose Couplings

The meter is available with standard (2-1/2 in. – 7-1/2 NST) fire hose swivel couplings, unless otherwise specified. Complete thread specifications (listed on the back page of this document) must be furnished for special fire hose fittings.

Options: 2 in. or 2-1/2 in. gate valve, check valve.

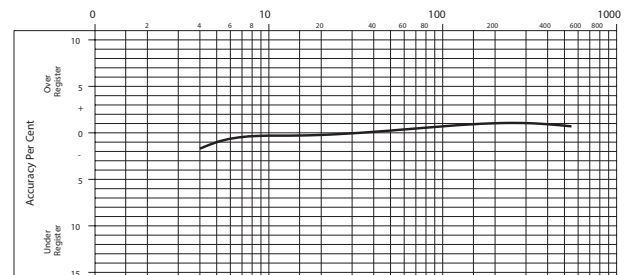
Pressure Loss Chart

Rate of flow in gallons per minute (gpm)



Accuracy Chart

Rate of flow in gallons per minute (gpm)



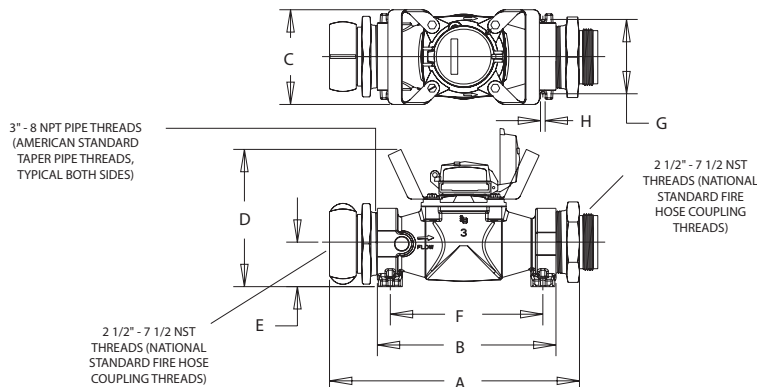
SPECIFICATIONS

Typical Operating Range (100%±1.5%)	5...660 gpm (1.1...150 m ³ /hr)
Maximum Continuous Flow	500 gpm (102 m ³ /hr)
Maximum Intermittant Flow	660 gpm (150 m ³ /hr)
Typical Low Flow (Min. 95%)	4 gpm (0.9 m ³ /hr)
Pressure Loss at Max. Continuous Operation	37 psi @ 450 gpm (2.55 bar @ 102 m ³ /hr) (standard couplings with orifice and screen) Note: 27 psi @ 350 gpm
Maximum Operating Pressure	150 psi (10 bar)
Standard Hose Coupling	2-1/2 in. – 7-1/2 NST threads (78P – 3.4 mm) (National standard fire hose coupling thread)
Register	Straight-reading, permanently sealed magnetic drive standard.
Registration	100,000,000 gallons; 100 gallons/sweep hand revolution. 10,000,000 cubic feet; 10 cubic ft/sweep hand revolution. 1,000,000 m ³ ; 1 m ³ /sweep hand revolution.
Flow Restriction (Orifice)	Limits flow through the meter to 660 gpm @ 85 psi (150 m ³ /hr @ 59 bar) system pressure with standard couplings.

Materials

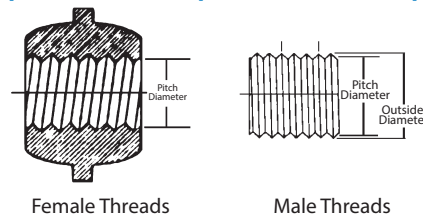
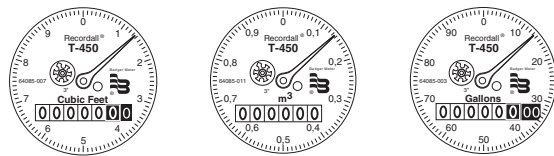
Housing	Heat treated aluminum alloy
Nose Cone and Straightening Vanes	Thermoplastic
Rotor	Thermoplastic
Rotor Radial Bearings	Lubricated thermoplastic
Rotor Thrust Bearings	Sapphire jewels
Rotor Bearing Pivots	Passivated 316 stainless steel
Calibration Mechanism	Stainless steel and thermoplastic
Magnet	Ceramic
Register Cover	Bronze
Options	2 in. gate valve, 2-1/2 in. gate valve, 2 in. check valve, bronze
Trim	Stainless steel
Inlet Screen	Stainless steel with Elastomer

DIMENSIONS



Meter & Pipe Size	Length		Width C	Height D	Ctrline E	F	G	H	Net Weight			Shipping Weight		
	w/coupl. A	w/o coupl. B							w/o Fittings	w/Fittings	w/Valve	w/o Fittings	w/Fittings	w/Valve
3" (DN 80)	17 in. (432 mm)	12 in. (305 mm)	6-3/8 in. (162 mm)	9.0 in. (229 mm)	2-15/16 in. (73 mm)	10-1/4 in. (260 mm)	5 in. (127 mm)	11/32 in. (9 mm)	14.2 lb (6.44 kg)	20.6 lb (9.34 kg)	31.6 lb (14.33 kg)	17.2 lb (7.80 kg)	23.6 lb (10.7 kg)	34.6 lb (15.7 kg)

Specifications for Special Fire Hose Coupling Threads



Required Information

- Number of threads per inch and thread form, if other than American National Standard.
- Outside diameter of male threads.
- Pitch diameter of male threads.
- Pitch diameter of female threads.

SMART WATER IS BADGER METER

Recordall is a registered trademark of Badger Meter, Inc. Other trademarks appearing in this document are the property of their respective entities.

Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2021 Badger Meter, Inc. All rights reserved.

www.badgermeter.com

Legacy Document Number: RTS-T-3FH-EN