

**DESCRIPTION**

**APPLICATIONS:** For use in measurement of potable cold water from a fire hydrant or other non-permanent installation where flow is in one direction only.

**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 Badger Recordall Turbo Series 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:** Badger Recordall Turbo Series 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 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:** Badger Recordall Turbo Series 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 offers various maintenance and meter component exchange programs to fit the needs of the utility.

**HOSE COUPLINGS:** The meter is available with standard (2½"-7 NST) fire hose swivel couplings as standard equipment unless otherwise specified. Complete thread specifications (listed on back page) must be furnished for special fire hose fittings.

**OPTIONS:** 2" gate valve, 2½" gate valve, check valve.

Recordall® is a registered trademark of Badger Meter, Inc. TORX® is a registered trademark of Camcar, Division of Textron, Inc.



**Turbo 450 with  
Optional  
Connections**

**SPECIFICATIONS**

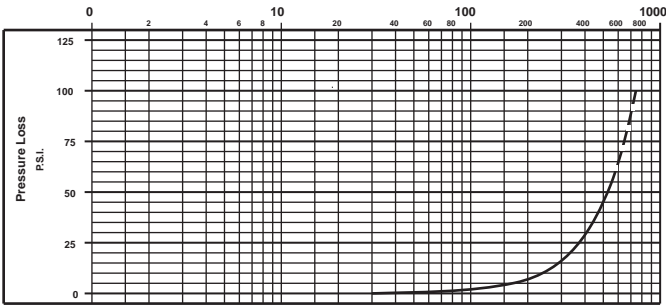
<b>Typical Operating Range (100%±1.5%)</b>	5 - 660 GPM (1.1 to 150 m³/h)
<b>Maximum Continuous Flow</b>	450 GPM (102 m³/h)
<b>Maximum Intermittant Flow</b>	660 GPM (150 m³/h)
<b>Typical Low Flow (Min. 95%)</b>	4 GPM (0.9 m³/h)
<b>Pressure Loss at Maximum Continuous Operation</b>	37 PSI @ 450 GPM (2.55 bar @ 102 m³/h) (standard couplings with orifice and screen) Note: 23 PSI @ 350 GPM
<b>Maximum Operating Pressure</b>	150 PSI (10 bar)
<b>Standard Hose Coupling</b>	2½" - 7½ NST threads (78P-3.4mm) (National standard fire hose coupling thread)
<b>Register</b>	Straight reading, permanently sealed magnetic drive standard.
<b>Registration</b>	100,000,000 Gallons 100 gallons/sweep hand revolution. 10,000,000 Cubic Feet 10 cubic ft./sweep hand revolution. 1,000,000 m³ 1 m³/sweep hand revolution.
<b>Flow Restriction (Orifice)</b>	Limits flow through the meter to 660 GPM at 85 PSI system pressure with standard couplings. (150 m³/h at 5.9 bar)

**MATERIALS**

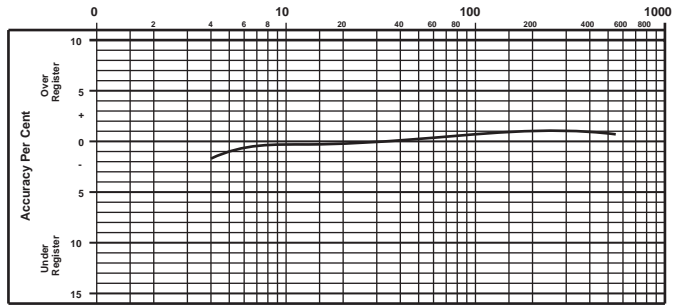
<b>Housing</b>	Heat treated aluminum alloy
<b>Nose Cone and Straightening Vanes</b>	Thermoplastic
<b>Rotor</b>	Thermoplastic
<b>Rotor Radial Bearings</b>	Lubricated Thermoplastic
<b>Rotor Thrust Bearings</b>	Sapphire Jewels
<b>Rotor Bearing Pivots</b>	Passivated 316 Stainless Steel
<b>Calibration Mechanism</b>	Stainless Steel and Thermoplastic
<b>Flow Restriction Orifice</b>	Heat Treated Aluminum Alloy
<b>Magnet</b>	Ceramic
<b>Register Cover</b>	Bronze
<b>Options</b>	2" Gate Valve, 2½" Gate Valve, Check Valve, Bronze
<b>Trim</b>	Stainless Steel
<b>Inlet Screen</b>	Stainless Steel with Elastomer



**PRESSURE LOSS CHART**  
RATE OF FLOW, GALLONS PER MINUTE



**ACCURACY CHART**  
RATE OF FLOW IN GALLONS PER MINUTE

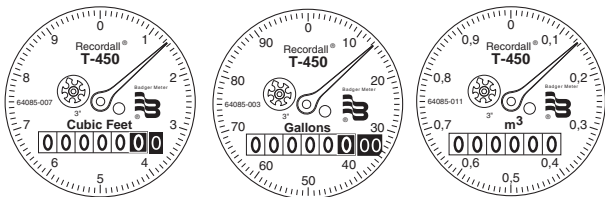
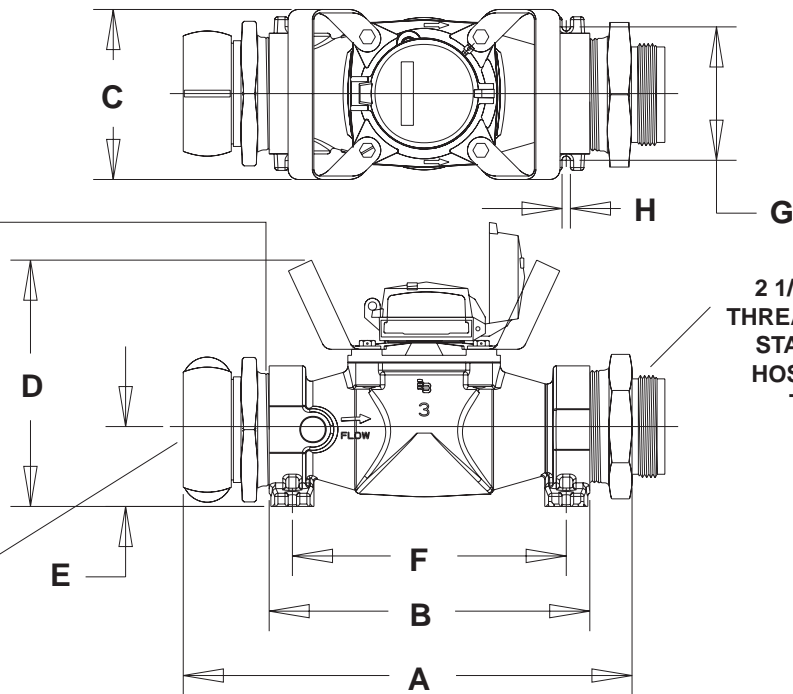


Meter & Pipe Size	DIMENSIONS													
	Length		Width C	Height D	Center-line E	F	G	H	Net Weight			Shipping Weight		
	w/Coupl. A	w/o Coupl. B							w/o Fittings	w/Fittings	w/Valve	w/o Fittings	w/Fittings	w/Valve
3" (DN 80)	17" (432mm)	12" (305mm)	6 3/8" (162mm)	9.0" (229mm)	2 15/16" (73mm)	10 1/4"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

**3" - 8 NPT PIPE THREADS (AMERICAN STANDARD TAPER PIPE THREADS, TYPICAL BOTH SIDES)**

**2 1/2" - 7 1/2 NST THREADS (NATIONAL STANDARD FIRE HOSE COUPLING THREADS)**

**2 1/2" - 7 1/2 NST THREADS (NATIONAL STANDARD FIRE HOSE COUPLING THREADS)**



**SPECIFICATIONS FOR SPECIAL FIRE HOSE COUPLING THREADS**

**REQUIRED INFORMATION**

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



Please see our website at [www.badgermeter.com](http://www.badgermeter.com) for specific contacts.



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