Turbine Meters (TM)

Data Sheet

Applications - For use in measurement of potable cold water in residential, commercial and industrial services where flow is in one direction only.

General - All cold Turbine water meters conform to the AWWA C701 Cold Water Meters - Turbine Type, for Customer Service standard, latest revision, or as otherwise stated.

Lead Free Main Case - The Turbine Meter (TM) main casing is epoxy coated cast iron. Turbine Meters meet the changes to the Safe Drinking Water Act. The serial number is permanently marked on the drop-in along with the size, direction of flow and manufacturer (RG3).

Measuring Element - The measuring element consists of the measuring element insert, rotator, inlet straightening vanes and the calibration assembly. All of the spindles are stainless steel.

Test Plug - A test plug is incorporated to allow for field accuracy and pressure testing.

Construction -Turbine Meter construction consists of four basic components: main case, measuring element, register housing and permanently sealed register. The measuring element consists of a rotor, straightening vanes, accuracy regulator, spindles, gears and a drive coupling assembly. Rotor rotation is transmitted through magnetic coupling to the register gearing. All bolts are made of stainless steel to prevent corrosion. The register housing is cast bronze for durability.

Maintenance - The Turbine Meter is designed to provide long-term service with minimal maintenance. When maintenance is required, the meter can remain in place and the measuring element with integral straightening vanes can be removed, repaired or replaced. Pre-tested and calibrated measuring elements are available for purchase and exchange.

Characteristics- Meets or exceeds latest revision of AWWA C701 dimensional standards. Rated at 120 ˚F.

Magnetic Drive - Direct magnetic drive registers use high strength magnets to provide positive, reliable and dependable register coupling.

Register Options

Direct Read	Bronze or Plastic Housing
AMR 900 MHz	Tesla 4 TR Integrated Transceiver Register
AMR 900 MHz	Tomahawk Encoder Register with Tesla EXT endpoint
AMI / AMR 450 MHz	Tomahawk Encoder Register with Tesla Solo or Duo endpoint
AMI Cellular Endpoint	Tomahawk Encoder Register with Tesla Duo endpoint

*** Tesla Solo, Tesla Duo, and Tesla EXT have 22' wire options for deep pit and vault applications.**

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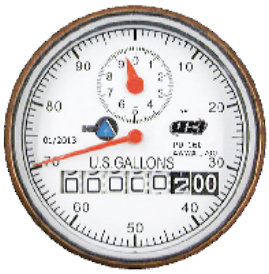
Direct Read Sealed Registers - Direct Read registers are the straight read, magnetic drive, odometer type with a sweep hand and leak detector. Registers are hermetically sealed to prevent fogging. Registers are roll sealed and dry with a 360˚ test view. All direct reading register cups are made of copper to prevent corrosion and covered with a high-strength, impact-resistant glass lens to prevent breakage. The register housings and lids are made of high strength polymer or copper alloy. All registers are secured to the main case by means of a tamper-proof Torx screw to allow for in-line service replacement.

Registers include the following:
- Company name
- Month and year of manufacture
- Center sweep hand
- Large, easy to read numbers
- Size of meter
- Unit of Measure (Example U.S. Gallons, Cubic Feet, or m3)
- Low flow / leak indicator



Tamper-Proof Features - All RG3 registers shall contain a locking device to prevent theft of water usage. Removing the register requires a special tool.

Installation

Turbine Meters can be installed in horizontal, inclined or vertical positions. Ensure the register is installed upright at the top of the installation position. If installed at an incline or vertical position, the water must be flowing up and never down. The meter must be installed in a clean pipeline, free from any foreign materials. The meter should be installed with the direction of flow as indicated by the arrow cast in the meter case.

Turbine measuring elements are designed to measure straight water flow. Eddies, cavitation, turbulence, or jetting in the water flow can cause significant measuring error. Bends, elbows, valves, changes in pipe size and other upstream fittings will create these phenomenon and must not be in close proximity to the meter for proper totalization. Where spiral flows are created by rotary pumps and other fittings, additional distance to dampen the effect is beneficial. Do not install check valves or pressure reducing devices upstream of the meter. Valves immediately upstream of the meter should only be fully open gate valves.

When installing a Turbine Meter of a size smaller than the pipe jetting will occur resulting in over registration. To reduce the effect of jetting caused by the increase in flow velocity, a minimum of 5 pipe diameters of equal pipe size as the meter is required upstream of the meter. Additional length is required if a sharp contraction or an eccentric reducer, rather than a concentric tapered reducer is used.

It is highly recommended that a Z-plate strainer be used to protect the turbine measuring element and to straighten the water flow. Installing a separate flow-straightening device upstream ensures the highest possible accuracy. If a strainer or flow straightener is installed upstream of the meter, the installation must allow for a minimum of 5 pipe diameters of straight pipe after the strainer and 5 diameters of straight pipe downstream. If a separate strainer or flow straightener is not used, the installation must allow for 10 pipe diameters of straight pipe upstream of the meter and 5 pipe diameters of straight pipe downstream to overcome any disturbance in the water flow. Check valves and fully open gate or butterfly valves can be installed immediately downstream of the meter as part of the 5 diameters of straight pipe.

TURBINE METERS MUST OPERATE IN A COMPLETELY FILLED LINE AT ALL TIMES. THE DOWNSTREAM PIPING MUST ALWAYS BE ARRANGED TO PROVIDE SUFFICIENT BACK PRESSURE TO MAINTAIN A FULL LINE AT THE METER. BY ELIMINATING AIR IN THE LINE, AS WELL AS SUDDEN FLOW SURGES, INACCURATE REGISTRATION AND DAMAGE TO THE TURBINE MECHANISM CAN BE AVOIDED.

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Turbine Meters (TM)

Specifications

Model		TM20	TM30	TM40	TM60	TM80	TM10
Size		2”	3”	4”	6”	8”	10”
Start Flow	USGPM	7/8	1 - 1/8	1 - 3/8	7 - 1/2	8	14
Low Flow	USGPM	2	2 -1/2	5	12	20	30
High Flow	USGPM	400	550	1250	2500	4500	7000
Continuous	USGPM	200	450	1000	2000	3500	5500
Max. Pressure	P.S.I.	160	160	160	160	160	160
Max. Temp	Deg.F	120˚	120˚	120˚	120˚	120˚	120˚
Length	Inches	10”	12”	14”	18”	20”	26”
Height	Inches	9-1/2”	10-1/4”	11”	12-7/8”	14 -1/4”	19”
Width	Inches	7”	7-1/2”	9”	11”	13-1/2”	16”
Weight	Pounds	24 lb	32 lb	38 lb	84 lb	126 lb	205 lb
Flange Holes		6 *TM20 fits 4 hole round or 2 hole oval flanges	4	8	8	8	12

* Due to continuous research and product enhancement, RG3 Meter Company reserves the right the change product or system specifications without notice, except to the extent an Outstanding contractual obligation exists.

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