



MODEL VF-30
 VERTICAL UPFLOW TEE TUBE METER
 SEALED METER MECHANISM – MAGNETIC DRIVE
 INDICATOR – TOTALIZER
 SIZES 4" thru 20"

SPECIFICATIONS

METER shall be a velocity propeller type, magnetic drive, sealed housing, vertical tee tube meter for 150 psi working pressure. It shall comply with the applicable provisions of AWWA, except for the higher standard required in this specification. In the event of conflict, the specification herein shall prevail. The meter shall be a **WATER SPECIALTIES** _____ inch **MODEL VF-30** with a sealed indicator having a range of 0 to _____ and shall be equipped with a six digit totalizer reading in units of _____ and shall be accurate within $\pm 2\%$ of true flow within a range of _____ to _____ GPM or an approved equal. The meter assembly shall be constructed as follows:

METER TUBE shall be fabricated steel pipe and use 150 lb. AWWA Class "D" flat face steel flanges on the flanged bottom and side outlets. The internal and external of the meter tube and meter head shall be blasted to near white metal and coated with 12-15 mils of fusion epoxy coating, applied by the fluidized bed method. Meter tubes shall have a constant nominal inside diameter to offer minimum obstruction to the flow and shall be furnished with four straightening vanes.

METER HEAD shall be connected to the tube by means of a flanged, o-ring sealed connection with stainless steel bolts. The meter head shall be designed for easy removal of water wetted parts from the tube for inspection or repair without having to remove the complete tube. Water wetted meter components that are permanently attached to the tube will not be accepted. To allow interchangeability, all size meters will use the same meter head.

DROP-PIPE AND SEPARATOR shall be stainless steel and a factory sealed unit. The drive mechanism shall be magnetically driven from the propeller through a ceramic sleeve magnetic coupling, and be isolated from the water flow by means of an o-ring sealed housing. A rigid stainless steel vertical shaft is required from the separator to the totalizer drive magnet, flexible cables will not be accepted.

PROPELLER shall utilize a water lubricated ceramic sleeve and spindle bearing system. The stainless steel/ceramic spindle on which the propeller is mounted shall be parallel to the direction of the water flow in the pipe. Dual ceramic thrust bearings shall be standard on all meters to handle flows in both the forward and reverse directions. Ball bearings or other types of sleeve bearings will not be accepted. The propeller shall be a conical shaped, three bladed propeller, injection molded of thermoplastic material, resistant to normal water corrosion and deformity due to high flow velocities. Propellers, which have been trimmed, shaved or require varying change gears for the same size meters, will not be accepted.

INDICATOR-TOTALIZER shall have a full 4" diameter indicator dial having a range of 0 to _____ (specify indicator range and units) and shall be equipped with a six digit, straight reading type totalizer with black numbers on white wheels at least 3/16" high. The totalizer shall read in units of _____ (specify totalizer units) and shall have a test hand to check the accuracy of the indicator. The indicator drive mechanism shall be temperature compensated, so the indicator hand shall be accurate and linear within $\pm 1\%$ at all points on the dial when the unit is operated within the temperature range of 32°- 140° F. The unit shall be equipped with change gears to facilitate easy change of registration without removing pressure from the line or removing the meter head from the meter tube. The indicator-totalizer shall be protected by an o-ring sealed bonnet made from injection molded 20% glass filled engineered grade of thermoplastic. The bonnet shall be attached to the meter head by screws located under the hinged lid, which has a padlock hasp.

PARTS & SERVICE: Supplier must have test facilities, spare parts, personnel to maintain, instruct, train or whatever is necessary to assure meters will be maintained throughout the guarantee period. Facilities must be located within _____ miles of the location of the meter.

VOLUMETRIC TESTING of all meters must be performed and approved prior to shipment. The complete meter head assembly must be accuracy tested in the same pipe size and same type tube that the meter will be mounted in. **PROPELLER TESTING ON A HORIZONTAL LINE IS NOT ACCEPTABLE.** The test shall be at near minimum, intermediate, and maximum manufacturers specified flow ranges of the meter. The amount of water used to conduct the test must be left on the totalizer. Prior to shipping, a tag shall be attached to the meter showing the totalizer reading after the test. The facility must be certified annually to an accuracy of $\pm 0.2\%$ and be traceable to the National Institute of Standards and Technology. If desired, the test shall be witnessed by the customer or their selected agent and a copy of the certified accuracy test record must be furnished to the customer, if requested.

ONE MANUFACTURER shall make all meter sizes and styles required for this contract. The meters shall be manufactured and tested in the U.S.A. and shall be of a design in production in the U.S.A. for at least 5 years.