

# **GENERAL CONDITIONS FOR 3" Fire Hydrant Meters Lead-Free Standards**

## **I. CONTRACT PERIOD**

The period of this contract will be for One Year from date bid is awarded. This contract may be renewed for up to **THREE (3) Years** from the initial award date upon the agreement of both parties. Bid price will remain firm during the period of the contract.

## **II. DELIVERY**

Deliveries shall be made within seven (7) working days from the date of order. The vendor shall notify Water Plant Operator or Shelby County Water Services personnel (the person who ordered the product) of any problems in meeting the mandatory seven (7) working day deadline and the vendor must schedule specific delivery day and time with personnel if the deadline is not met. Excessive failure to deliver within seven (7) working days shall be grounds for rejection of the vendor for future purchases, at the sole discretion of Shelby County.

Rejection of an unacceptable delivery method shall not excuse the vendor from the seven (7) working day delivery requirement.

All quoted prices shall include delivery charges (including, but not limited to, shipping charges and surcharges). Deliveries shall be made to the following addresses:

Shelby County Field Operations – Westover  
82 Big Oak Circle  
Westover, AL 35185

Shelby County Field B2 Office  
10610 Old Hwy 280  
Chelsea, AL 35043

## **III. BILLING**

Invoice payments shall be based solely on quantity of items received and the vendors stated bid price. Product shall be billed in **items received** and all prices shall include shipping. ***Shelby County Water Services does require a Purchase Order for every order placed.*** Shelby County Water Services is tax exempt (tax exempt #63-6001694).

All invoices shall be billed to:

Shelby County Water Services  
200 West College Street, Room 145  
Columbiana, AL 35051  
[ap-water-landfill@shelbyal.com](mailto:ap-water-landfill@shelbyal.com)

#### IV. **ESTIMATED ANNUAL USE**

Products will be ordered on an *AS NEEDED* basis. Estimated quantities for products are on attached bid documents.

#### V. **BID QUALIFICATIONS**

All BIDDERS must submit product information with bids. Information to be submitted must show the product proposed meets all the specifications listed below and list **ALL EXCEPTIONS** to the specifications in a separate document.

## Shelby County Water Services

THE UNDERSIGNED OFFERS THESE PRICES, TERMS, AND DELIVERY AS PER BID  
GENERAL CONDITIONS AND SPECIFICATIONS:

NAME OF COMPANY: \_\_\_\_\_

BY: (Please Print): \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

COMPANY ADDRESS: \_\_\_\_\_

\_\_\_\_\_

PHONE: \_\_\_\_\_

E-MAIL: \_\_\_\_\_

BIDS SUBMITTED ARE FIRM AND NO CLAIMS FOR ERRORS WILL BE MADE AFTER  
BIDS ARE OPENED AND SUBSEQUENT THEREOF.

Sworn to and subscribed before me this

the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

\_\_\_\_\_, Notary Public

My Commission Expires: \_\_\_\_\_

## SHELBY COUNTY WATER SERVICES BID FOR 3" FIRE HYDRANT METERS

BID ITEM	MAKE OR MANUFACTURER	MODEL #	ESTIMATED ANNUAL QUANTITY NEEDED	UNIT PRICE EACH (DELIVERED)	TOTAL COST
3" Badger Recordall Turbo Series Model 450 Fire Hydrant Meter or Approved Equal			10		
Endpoint Guard for Model 450 Fire Hydrant Meter or Approved Equal			10		

In the event of discrepancies, Unit Prices shall govern.

# BID SPECIFICATIONS FOR 3" FIRE HYDRANT METER

## SECTION 1 – SCOPE

This specification covers 3" Fire Hydrant Meters and the materials and workmanship employed in their fabrication. The meter shall be of in-line horizontal-axis high velocity type per AWWA Class II and designed for mobile use in metering flow from fire hydrants. Meters will meet and exceed all standards of the latest revision of AWWAC701.

## SECTION 2 – OPERATING CHARACTERISTICS

The capacity of the meter in terms of normal operating range, maximum loss of head, and maximum continuous flow shall be as shown below:

Size	Normal Operating Range (gpm)	Max Head Loss at Cont. Flow (psi)	Max Cont. (gpm)	Max Capacity (gpm)	Extended Low Flow (gpm)
3"	5 – 660 <i>Accuracies: <math>\pm 1.5\%</math></i>	37 w/ integral strainer	450	660 <i>Accuracies: <math>\pm 1.5\%</math></i>	4 <i>Accuracies: <math>+2\%/-5\%</math></i>

## SECTION 3 – SIZE

The size of the meter shall be determined by the nominal size (in inches) of the opening in the inlet and outlet flanges. Overall lengths of the meter shall be as follows:

Size	Laying Length	Max. Meter Height from Bottom to Top of Handles
3"	12" less couplings 17" with couplings	9"

## SECTION 4 – METER CONSTRUCTION

- A. External casing bolts shall be made of 316 stainless steel.
- B. Maincase shall be equipped with a standard brass female swivel fire hose coupling assembly on the inlet side and a brass close nipple mounted to the outlet side of the meter with a 2" gate valve and a standard brass male hose coupling
- C. Case and Cover
  - a. The maincase shall be cast aluminum and the cover of the head assembly cast bronze. The size, model, manufacturer's trademark, statement "AWWA Class II", and arrows indicating direction of flow shall be cast in raised characters on both sides of the maincase.
  - b. The size and arrows indicating direction of flow shall be cast in raised characters on the housing cover. The cover shall contain a calibration mechanism for the purpose of calibrating the turbine measuring element while in-line and under pressure. The calibration mechanism shall be mounted under the register and be covered by a protective cap.
  - c. The case shall be equipped with replaceable dual handles for ease of carrying, installation and maintenance.
- D. Registers

- a. All meters shall be so designed as to permit, at purchaser's option; the use of either a straight reading permanently sealed local register or an absolute encoder register for connection to a Touch Read metering system. The registration reading shall be U.S. gallons. The register shall not be in contact with the water being measured. The register device shall be so designed to permit removal and exchange without removal of the meter from the service installation or interruption of service water supply. The register shall be tamper protected through the use of a tamper-resistant Torx® seal screw or optional proprietary tamper-proof screw that requires a special drive bit to remove the screw. Plastic push pin or plastic tamper devices that need to be destroyed in order to remove the register will not be accepted.
- b. High Resolution Absolute Encoder Register
  - i. The high resolution absolute encoder shall consist of an 8-dial mechanical local register combined with frictionless light emitting diode (LED) technology to sense the position of the eight numbers wheels for electronic reading purposes. The high resolution encoder shall utilize the industry standard ASCII protocol for connectivity to an approved endpoint.
  - ii. The encoder's electronic reading shall be obtained through a frictionless form of encoding technology that utilizes optical sensing to determine the position of each number wheel. Absolutely no slide wires, contacts or load fire spring mechanisms will be allowed.
  - iii. The encoder output shall provide an eight digit reading for AMR/AMI endpoints (number of digits sent to the reading software is dependent on the endpoint that is connected). The encoder output for touch applications shall have the factory-programmed option of 4, 5, 6, 7 or 8 digits. The electronic output of the encoder should be factory programmable to a 5 dial reading to meet the reading resolution of the utility.
  - iv. Signal output shall be the industry standard ASCII format and signal type shall be three- wire synchronous for AMR/AMI endpoints or two-wire asynchronous for touch endpoints. The wiring shall have a twist-tight connector factory installed.
  - v. Encoder shall provide meter size and unit of measure and factory programmed serial number as part of the encoder message.
  - vi. The high resolution encoder shall not be in contact with the water being measured. The encoder shall be designed to assemble to the meter with a four-position bayonet and seal screw fastening. The bayonet mount positions the encoder in any of four orientations on a water meter for visual reading convenience. The high resolution encoder shall be designed to permit removal and exchange without removal of the meter from the service installation or interruption of service water supply.
  - vii. The encoder shall be tamper protected through the use of a tamper-resistant Torx® seal screw or optional proprietary tamper-proof screw that requires a special drive bit to remove the screw. Plastic push pin or plastic tamper devices that need to be destroyed in order to remove the encoder will not be accepted. The encoder shall be designed to assemble to the meter with a four-position bayonet and seal screw fastening. The encoder

must be provided with a factory installed Twist Tight connector compatible with Touch pad endpoint or a standard fixed base/cellular endpoint as provided by the meter manufacturer. Twist tight connector shall provide a waterproof connection between the encoder and the Touch pad or other endpoints.

- viii. The meter size and units of registration, U.S. gallons shall be designated on the encoder dial face. Every encoder shall utilize a flow indicator for leak detection and shall display it in red for U.S. Gallons.
  - ix. The encoder shall be encased in a housing, which shall consist of a glass lens and a non-corrosive metal bottom, which are permanently sealed with adhesive material.
  - x. The enclosure must be weatherproof, UV-resistant and permanently sealed to withstand harsh environments and provide moisture resistance in flooded or submerged pit applications. The permanent seal between the glass lens and non-corrosive metal bottom of the encoder enclosure shall utilize an adhesive seal without the use of gaskets and shall meet or exceed all applicable requirements of AWWA Standard C706 and C707. Absolutely no gasketed seals will be allowed. The encoder shall remain fog-free of moisture.
  - xi. The name or logo of the manufacturer shall be permanently molded and the serial number shall be imprinted on the lid of the encoder box. The lid and shroud components shall overlap to protect the lens and optional identification of the serial number inside the lid. Register box enclosures and lids shall be made of engineering thermoplastic or other suitable synthetic polymer.
  - xii. The encoder shall be factory programmed and shall contain a standard or customer specified eight-digit serial number. Electronic read data shall be provided using an industry standard ASCII protocol.
  - xiii. The encoder must be permanently sealed to provide moisture resistance to flooded pit or submerged conditions. The permanent seal between the glass lens and non-corrosive (metal) bottom shall utilize an adhesive seal without the use of gaskets. Absolutely no gasketed seals will be allowed.
  - c. It is the preference of the County that the absolute encoder register offered is constructed of scratch resistant glass face, non-corrosive metal bottom, and adhesive seal. The encoder shall have a lid/shroud that covers the glass face for added protection and optional identification of serial number. Absolutely no oil filled encoder register shall be accepted.
- E. Register boxes and covers shall be of bronze composition. No plastic retainer rings will be acceptable. The name of the manufacturer, manufacturer trademark and the meter serial number shall be clearly identifiable and located on the register box cover.
- F. The register box shall be secured to meter bayonet with a tamper resistant seal screw. Options: Seal wire screw or Torx® seal screw. Register lid must have a locking design.
- G. The meter serial number shall be imprinted on the meter maincase or cover as well as the register box cover.
- H. The turbine measuring chamber shall be a self-contained unit attached to the cover for easy field removal. The turbine spindles shall be stainless steel. The rotor shall balance

or "float" between the turbine spindles throughout the typical operating range.

- I. The intermediate gear train shall be directly-coupled to the rotor spindle and magnetically coupled to the register through the meter cover. The gear train shall be continuously submerged by the use of a vent tube which eliminates entrained air in the cover. All moving parts of the gear train shall be made of a self-lubricating polymer or stainless steel for operation in water.
- J. The fire hydrant meter shall contain a double walled stainless steel screen in the inlet end of the meter housing. The strainer shall be easy to remove for routine cleaning.
- K. The fire hydrant meter shall contain a permanent orifice design built into the outlet end of the meter housing. The orifice shall limit the maximum capacity to 660 gpm for protection of the measuring element.

#### SECTION 5 – PERFORMANCE

Registration accuracy over the normal operating range shall be 98.5% to 101.5%.

#### SECTION 6 – ENDPOINT GUARD

An endpoint guard shall be designed for use with the provided fire hydrant meter. The design shall allow for

#### SECTION 7 – MANUFACTURERS

Standard of quality and performance is Badger Recordall Turbo Series Model 450. Other manufacturer's meters must demonstrate meeting these standards to be considered an approved equal by Shelby County Water Services.