

**BOARD OF WATER WORKS OF PUEBLO, COLORADO**

**PURCHASING DEPARTMENT**

719/584-0201 - Phone

719/584-0202 - Fax

**I. INVITATION TO BID:**

Sealed bids will be accepted at the Board of Water Works' Purchasing Department, 319 W. 4th Street, P.O. Box 400, Pueblo, Colorado 81002-0400, until:

**2:00 p.m. on Friday, August 6, 2010**

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Material/ equipment/services to be purchased:

**ANNUAL CONTRACT FOR TURBINE WATER METERS**

Price quoted shall include any charges for packaging, containers, freight and delivery to:

**Warehouse, 707 W. 3<sup>rd</sup> Street, Pueblo, CO 81003**

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**II. INSTRUCTIONS TO BIDDERS:**

1. Any bid received after the time and date specified above will not be considered. Bid responses must be enclosed in sealed envelope and clearly marked on the outside "Bid for Turbine Water Meters".
2. Proposals shall be typewritten or written in ink on the form prepared by the Board of Water Works. Officials of Corporations shall designate their official title; partners or sole owners shall so state. The person signing the bid shall initial all corrections or erasures.
3. Bidder shall not stipulate in the proposal any conditions not contained in the specifications unless specifically required by special instructions. Any proposal which fails to comply with the literal letter of these instructions and the specifications may be rejected.
4. When approximate quantities are stated, the Board of Water Works reserves the right to increase or decrease the quantity as best fits its needs.
5. Whenever requested, samples or descriptive material shall be filed with the bid/proposal.
6. The Purchasing Agent reserves the right to reject any and all bids for any or all items covered in the bid request, to waive informalities or defects in bids or to accept such bids as shall be deemed in the best interest of the Board of Water Works.
7. In determining the lowest responsible bid, the Purchasing Agent will consider all acceptable bids on a basis of the net price to be paid after deduction of any discount specified by the bid. Discounts will be figured from the date of receipt of invoice, subsequent to delivery, or in the case of incorrect invoice, from the date of receipt of corrected invoice.

8. The Board of Water Works will allow use of fax equipment for receiving bids and has developed the following guidelines:
  - a) Bids received on fax equipment will not be reviewed or evaluated upon receipt. The bid will be sealed until the designated bid opening date and time.
  - b) The Board of Water Works does not guarantee the availability or reliability of fax equipment; bidders choosing to use fax equipment do so at their own risk. Bidders should allow enough time prior to scheduled bid opening for access to fax equipment.
  - c) The Board will only accept bids that are fully received prior to the scheduled bid opening. Any bid that is printing at the bid opening time will be considered late and unacceptable.
  - d) Any bid received via fax equipment must be confirmed with an original copy including original signature within two business days of bid opening. Quotes not confirmed within this time period will be considered unacceptable. New or varied information will not be accepted in the follow-up original.
  - e) Purchasing Department fax number is 719/584-0202.
9. In submitting the proposal, vendor agrees that acceptance of any or all bids by the Purchasing Agent within a reasonable time period constitutes a contract. No delivery shall become due or be accepted unless a purchase order has been issued by the Purchasing Department.
10. All goods shall remain the property of the seller until delivered to and accepted by the Board of Water Works.
11. When a date is set for delivery, the material will be delivered on or before the specified date(s) or the Board of Water Works will have the right to cancel the contract for purchase of the material and proceed with purchase of equivalent material at market prices for immediate delivery and hold the bidder liable for any increase in price over and above the prices offered herein.
12. Seller agrees to defend and hold harmless the Purchaser, its customers and users of the material provided, against all loss, expense and damages, arising from bodily injury to any person, including death there from, and damage to property caused by any defective products supplied hereunder by the negligence or by the willful acts of seller, its agents or employees engaged in the manufacture, installation, delivery, erection, repair or operation of any equipment or material covered hereunder.
13. The successful bidder shall indemnify and save harmless the Board of Water Works against all claims for damages and any loss or expense, including attorney's fees, sustained by reasons of royalties, patent, trademark, or copyright infringement which may be involved in the manufacture or use of the material to be furnished.



BILL OF MATERIAL

**TURBINE WATER METERS**  
Annual Contract Bid Proposal

	<u>EST. USAGE</u> <u>(12 MONTH)</u>	<u>UNIT PRICE</u>	<u>TOTAL PRICE</u>
2" Turbine Water Meter Flg w/strainer and electronic encoder register	15	_____	_____
3" Turbine Water Meter Flg w/strainer and electronic encoder register	10	_____	_____
4" Turbine Water Meter Flg w/strainer and electronic encoder register	12	_____	_____
6" Turbine Water Meter Flg w/strainer and electronic encoder register	6	_____	_____
8" Turbine Water Meter Flg w/strainer and electronic encoder register	2	_____	_____
		GRAND TOTAL \$	_____
3" Turbine Fire Hydrant Meter, without connections  _____	7	_____	_____

Alternate 1, 12-month guarantee **exchange** value, brass cased meters:

2"	_____	/each exchange value
3"	_____	/each exchange value
3" Fire Hyd	_____	/each exchange value
4"	_____	/each exchange value
6"	_____	/each exchange value
8"	_____	/each exchange value

PLEASE STATE THE FOLLOWING:

Manufacturer & Model: \_\_\_\_\_

Terms of Sale: \_\_\_\_\_  
(Unless a discount for early payment is offered, the Board's standard payment terms are net 30 days.)

Delivery: \_\_\_\_\_

Exceptions: \_\_\_\_\_

Have you included the 12 month guaranteed price list for replacement parts?      YES \_\_\_\_\_

**The Board of Water Works reserves the right to award this contract separately for the lowest bid on each item listed above and to include either the exchange value for meters shown below in Alternate #1. The Board will also consider warranty, performance, and maintenance history in determining the low acceptable quote.**

SPECIFICATIONS FOR  
**TURBINE WATER METERS**

GENERAL

All turbine type meters shall conform to AWWA "Standard Specifications" C701-07, or latest revision thereto, Class II except as noted herein.

AFFIDAVIT OF COMPLIANCE

The manufacturer shall test each meter in accordance with the AWWA Procedure for Testing Cold Water Meters C701-07 or latest revisions thereto. Each meter shall be tested at the specified maximum, intermediate, and minimum rates of flow and shall be within the recommended accuracy limits for new meters. The manufacturer shall submit an affidavit of compliance and certificate of testing for accuracy and capacity of each meter to the Board of Water Works of Pueblo, Colorado, hereafter called "Board".

CONSTRUCTION FEATURES

Size, Capacity, and Length

The operating and physical characteristics shown in Table 1 and Table 2 shall determine the normal size of the meters.

The nominal capacity ratings and related pressure loss limits shall be the same as those shown in Table 1 for the safe maximum operating capacities.

The length of the meters shall be the face to face dimension of the spuds or flanges shown in Table 2. A filler piece may be used to increase the length of a shorter meter if required. Meter width and height shall not be greater than shown in Table 2.

Casings

All meters shall have an outer casing with separate, removable measuring elements.

The meters shall be so designed to permit the easy removal of all interior working parts without disturbing the connection of the pipe line.

The size, model, and direction of flow shall be indicated on all meter main casings.

Serial Number

The manufacturer's meter serial number shall be imprinted on BOTH THE LID OF THE REGISTER BOX AND ON THE BODY OF THE METER; **BOTH IMPRINTINGS ARE NECESSARY !**

All meters shall have flow-straightening vanes.

All meters shall be so designed as to permit the use of a remote reader type of register.

### External Casing Fasteners, Bolts, Nuts, and Washers

All external casing fasteners, bolts, nuts, and washers shall be designed for easy removal after long service.

### Connections for 2" Meter

Meter case connections for 2" meters shall be elliptical flanges for class 125.

Flanges shall be faced and drilled in accordance with AWWA C110/A21.10-98 with the following additions. The drilling shall be on the horizontal axis. The number of bolt holes and the bolt circle shall be as shown for companion flanges in Table 3.

Elliptical companion flanges, gaskets, bolts, and nuts shall be provided for 2" meters if required by Board's supplemental specifications (see Bill of Material). Companion flanges shall be faced, drilled, and tapped in conformance with ANSI B2.1. Dimensions shall be those shown in Table 3.

### Connections for 3", 4", 6", and 8" Meters

All meter case connections for 3", 4", 6", and 8" meters shall be round flanges, faced, and drilled in conformance with AWWA C110/ANSI A21.10-98 or ANSI B16.1.

Companion flanges, gaskets, bolts, and nuts shall be provided if required by Board's supplemental specifications (see Bill of Material). Companion flanges shall be faced, drilled, and tapped in conformance with ANSI B2.1 and shall conform to the applicable requirements of AWWA C110/ANSI A21.10-98 or ANSI B16.1. Dimensions shall conform to those shown in Table 3.

### Registers

Registers shall be straight reading, hermetically sealed and shall read in U.S. gallons. They shall not be in contact with the water being measured.

All meters shall be equipped with a straight reading register of the center-sweep test hand type with the test circle located on the periphery of the register dial and graduated in 100 equal parts, each tenth graduation numbered. The quantity indicated by a single revolution of the test hand shall be that shown in Table 4 for the initial dial. The sweep hand shall be painted red and the numerals painted black with white background.

The numerals on the number wheels of straight reading registers shall be not less than 3/16" in height and should be readable at a 45-degree angle from the vertical.

The register lock and side gears shall be an integral part of the number seal discs and hubs. The tumbler pinions shall mesh accurately with the lock and side gears of adjacent number wheels at turnover positions. Both main and pinion shaft shall be so secured in the register from and/or register side plates that they cannot get out of position. The pinion shaft shall be so designed

### Registers - Continued

that there is no possibility of its bending and allowing the pinion to skip at the turn-over point.

The rotor revolutions shall be transmitted by magnetic coupling through the wall of the register enclosure. The magnetic coupling shall be comprised of a ceramic magnet permanently fixed to the rotor, through the register enclosure, to a ceramic follower magnet, in the hermetically sealed enclosure which transmits the rotation to the intermediate and register gearing.

Gears and pinions shall run free on fixed shafts or be fixed on shafts that run free in the register frame and/or register plates, and shall be so constructed that they cannot become unmeshed.

The maximum indication of digits appearing on the first number wheel and the minimum capacity of the register shall be those given in Table 4.

### Electronic Encoder Registers (EER)

All turbine meters must be equipped with a factory installed electronic encoder that can operate under a minimum of ten (10) feet of water. All reading units must be compatible with touch read, telephone, cellular phone and radio frequency meter reading technology. All EER sending units must include twenty (20') feet of 3-wire cable for initial meter pit touch read operation.

### Register Boxes

The serial number of the meter shall be imprinted on the lid of the register box and on the body of the meter. The lid shall be recessed and overlay the register.

### Operating Assembly

The operating assembly, from rotor through register, shall be easily removable as a complete unit from the meter main casing or body. The operating assembly shall include the rotor assembly comprised of the rotor, rotor magnet, rotor sleeve bearing, rotor end stone thrust bearing, endstone holder, back-up pad and rotor tip. The operating assembly shall also include the rotor bearing spindle assembly comprised of the mounting shaft and ceramic bearing spindle. The rotor bearing shall be assembled to the rotor cage and head cover which shall also provide for the mounting and assembly of the hermetically sealed register and associated register lid and retaining ring which shall be included as a part of the operating assembly.

### Rotors

Rotors shall have easily replaceable bearings. The bearings shall consist of a sleeve bearing and endstone thrust bearing which rotate about a spindle rigidly assembled to a one piece removable head cover and rotor cage.

### Seal Wire Holes

Register box screws shall be drilled with seal wire holes not less than 3/32" in diameter.

Main Casings - Main casings may be made of bronze containing not less than 75 percent copper.

Rotors - Rotors shall be made of a suitable synthetic polymer having sufficient rigidity and strength to operate at the maximum rated capacity of the meter. Rotors together with their bearings shall be as nearly the specific gravity of water as possible. The rotors shall be of sufficient dimensional stability to retain operating clearances at working temperatures up to 120-degrees F and shall not warp or deform when exposed to 120-degrees F maximum temperatures.

Flow Straightening Vanes - Flow straightening vanes shall be of corrosion resisting stainless steel. Self adjusting flow straightening vanes may be of a suitable synthetic polymer where applicable.

External Fasteners - Casing bolts, nuts, studs, and washers shall be made of stainless steel alloy or of steel treated to resist corrosion by a process approved by the purchaser, or of a copper alloy containing not less than 57-percent copper. Fasteners for non-pressure assemblies such as register rings may be made of a suitable synthetic polymer.

Companion Flanges - Companion flanges when required by Board's specifications (see Bill of Material) may be made of cast iron, or of steel, or of a copper alloy containing not less than 75 percent copper.

#### PRESSURE REQUIREMENTS

Meters supplied under this specification shall operate without leakage or damage to any part at a working pressure of 150 psi.

#### GUARANTEE

The manufacturer shall replace, without charge, those parts in which a defect has developed within 18 months from date of shipment or 12 months from date of installation, whichever period is shorter, upon return of the defective parts to manufacturer, or upon proof of defect. This warranty shall not apply, however, if the meter has been modified by the use of replacement parts not made by the manufacturer of the meter.

#### REJECTED METERS

The manufacturer shall, at his expense, replace or satisfactorily correct all meters rejected for failure to comply with this specification.

#### MISCELLANEOUS

The manufacturer (supplier) shall furnish with their bid one copy each of shop drawings, parts lists, material spec's, and operation & maintenance manuals.

MISCELLANEOUS - Continued

Prices quoted shall be F.O.B. Pueblo, Colorado.

The following turbine meters are approved and acceptable to the Board:

- A) Sensus, Series "W" Turbo 2" (W-160), 3" (W-350), 4" (W-1000), 6" (W-2000), & 8" (W-3500-DR)
- B) Badger Recordall Turbo 2", 3", 4", 6" & 8"
- C) Neptune HP Turbine 2", 3" & 4"

All the above to meet Board specifications.

In order to have other turbine meters approved by the Board, the following procedures must be adhered to:

- A) Submission of working samples per Board specifications for testing for a period of two (2) years. For the duration of the testing period, the Board requires the following from the prospective bidder:
  - For 2" approval - two 2" meters
  - For 3" approval - one 3" or one 4" meter
  - For 4" approval - one 3" or one 4" or one 6" meter
  - For 6" approval - one 4" or one 6" or one 8" meter
  - For 8" approval - one 6" or one 8" meter
- B) Detailed shop drawings and material specifications submitted.
- C) List of users in and out of the State of Colorado submitted.
- D) Outline availability, cost of parts and time required for delivery.

FIRE HYDRANT METERS

Three (3") inch turbine fire hydrant meters shall have aluminum main-cases with handles. The meter register shall have a locking hasp.

The following fire hydrant meters are approved by the Board:

- A) Badger Recordall T450 Turbo, without strainer
- B) Sensus Model 125-W, without strainer

STRAINERS

Strainers shall be either an integral part or mechanically attached to the inlet end of the meter. Strainers shall have removable cover plate that allows inspection and maintenance while attached and in place with the meter. Strainer main case or body shall be bronze. Strainer screens shall be stainless steel with flat or V-shaped screen

STRAINERS - Continued

The following meter strainers are approved and acceptable to the Board:

Sensus - Separate AWWA-type or integrated w/Series "W" meters  
in 2", 3", 4" and 6"

Badger - bronze type 2", 3", 4", and 6"; 8" steel fabricated

**TABLE 1 - CLASS II TURBINE METERS FOR MAINLINE APPLICATIONS**

METER SIZE	SAFE MAXIMUM OPERATING CAPACITY GPM	MAXIMUM RATES FOR CONTINUOUS DUTY GPM	MAXIMUM LOSS	NORMAL TEST FLOW LIMITS GPM
			OF HEAD AT SAFE MAXIMUM OPERATING CAPACITY - PSI	
2"	190	160	7.0	4 - 190
3"	435	350	7.0	8 - 435
4"	750	650	7.0	15 - 750
6"	1600	1400	7.0	30 - 1600
8"	2800	2400	7.0	50 - 2800

**TABLE 2 - METER DIMENSIONS**

METER SIZE	LAYING LENGTH OF METER	LAYING LENGTH MTR + STRAINER	MAXIMUM WIDTH	MAXIMUM HEIGHT
2"	10"	17"	6.5"	8"
3"	12"	19"	8.5"	10"
4"	14"	23"	10.0"	12"
6"	18"	27"	12.5"	15"
8"	20"	34"	13.5"	16"

**TABLE 3 - COMPANION FLANGE DIMENSIONS**

METER SIZE	MINIMUM THICKNESS AT BOLT HOLES	DIAMETER OF BOLT CIRCLE	NUMBER OF BOLT HOLES	DIAMETER BOLT HOLES	THICKNESS AT HUB
	(Class 125 Elliptical Flanges)				
2"	5/8"	4-1/2"	2	11/16"Min.	7/8"
	(Class 125 Round Flanges)				
3"	3/4"	6"	4	3/4"	1-3/16"
4"	15/16"	7-1/2"	8	3/4"	1-5/16"
6"	1"	9-1/2"	8	7/8"	1-9/16"
8"	1-1/8	11-3/4"	8	7/8"	1-3/4"

**TABLE 4 - MAXIMUM INDICATION ON INITIAL DIAL AND MINIMUM REGISTER CAPACITY**

METER SIZE	MAXIMUM INDICATION ON INITIAL DIAL-GALLONS	MINIMUM CAPACITY OF REGISTER IN GALLONS
2"	100	100 Million
3"	100	100 Million
4"	1,000	100 Million
6"	1,000	1,000 Million
8"	10,000	1,000 Million

Effective Date: 7/23/09

SPECIAL CONDITIONS  
FOR  
ANNUAL CONTRACT FOR TURBINE WATER METERS

GENERAL

These "Special Conditions" are, by reference, made a part of Bid Proposal.

BIDDING PROCEDURES

All meters shall be bid on a price per unit basis WITH AN ACCOMPANYING TWELVE (12) MONTH GUARANTEED PRICE LISTING FOR REPLACEMENT PARTS. The BOARD reserves the right to reject any offers bid in any other manner. The BOARD specifically reserves the right to award a contract on the basis of the low total bid for each item listed on the "Bill of Material".

CONTRACT PERIOD

Any Contract arising as a direct result of these proceedings shall be binding upon all parties thereto for a period of twelve (12) months, commencing immediately after award of the Contract by the BOARD.

QUANTITIES

Upon award of a Contract, the bidder hereby expressly agrees to furnish any and all water meters and accessories required by the BOARD in each of the sized listed on the "Bill of Material" and for which he has quoted prices, for the duration of the Contract period, and at the prices shown.

The BOARD agrees to purchase all of its requirements of water meters and accessories in each of the sized listed on the "Bill of Material", from the successful bidder, unless the successful bidder does not manufacture a type or size required by the BOARD.

EXPERIENCE TABLE

The Average Usage column of the "Bill of Material" will serve as the Experience Table for the purpose of this Contract and will hereinafter be referred to as the "Experience Table". The units listed on the "Experience Table" represent the average annual anticipated usage for the contract period.

The "Experience Table" is intended for bidder's use as an aid in determining approximate quantities being considered. It is not intended that these figures be used as a final determinant in establishing quantities intended, either expressed or implied.

TABULATION OF BIDS

Tabulation of bids and subsequent award of Contract will be accompanied by multiplying the price per unit offered by the bidder by the total number of units of that size.

SPECIAL CONDITIONS - Continued

ORDERING PROCEDURES

The BOARD will place an F.O.B. delivered basis order with all transportation charges to be prepaid and allowed. Shipments must be made in accordance with the lead time data shown by the bidder on the "Bill of Material".

SHIPPING INSTRUCTIONS

All meters purchased shall be delivered to a location in Pueblo specified by the BOARD. Vendor must notify the Warehouse at 584-0242, at least 16 hours prior to delivery. No shipments accepted on holidays or weekends, unless requested by Purchaser.

BID MAILING INSTRUCTIONS

Bids which are hand carried to the opening are to be delivered to Purchasing Dept, 319 W. Fourth, Pueblo, Colorado 81003. Bids which are mailed to the opening are to be mailed to BOARD OF WATER WORKS OF PUEBLO, COLORADO, ATTN: PURCHASING DEPT, P.O. BOX 400, PUEBLO, CO 81002-0400. Bids must be plainly marked on the outside of the envelope, Bid - Turbine Water Meters.