



4545 W Brown Deer Road  
PO Box 245036  
Milwaukee, Wisconsin 53224-9536  
414-355-0400 | 800-876-3837  
[www.badgermeter.com](http://www.badgermeter.com)

June 26, 2020

Ms. Doris Abraham  
Jefferson Parish Purchasing Department  
200 Derbigny Street, Suite 4400  
Gretna, LA 70053

**RE: A purchase of water meters for the Jefferson Parish Water Westbank Warehouse  
Bid due: June 29, 2020 at 11:00 AM**

Dear Ms. Abraham:

This letter is attached to and becomes part of the above-referenced bid.

Payment terms are net 30 days.

Prices quoted in this bid, if awarded to Badger Meter, will remain firm for six months, through December 28, 2020, if acceptance is made within 45 days.

Please note that the High Resolution Encoder (HR-E®) is available with a polymer shroud and bronze lid and is bid with this configuration as noted on page 5 of the bid form.

We provide certification files to help manage meter and endpoint inventory and to maintain meter accuracy data. The standard method of delivery for this format is via electronic mail. Any deviations from our standard format, or any custom file formats, will be considered on a time and material basis.

A copy of the bid tabulation, for our records, is appreciated. Electronic results can be emailed to [bids@badgermeter.com](mailto:bids@badgermeter.com).

In the event you have any questions regarding this correspondence, I can be reached by telephone at 800-876-3837 ext. 16220 or via email at [bids@badgermeter.com](mailto:bids@badgermeter.com). Additionally, you may contact your Account Manager, Brent Bennett, via email at [bbennett@badgermeter.com](mailto:bbennett@badgermeter.com) or by phone at 225-305-3079.

We appreciate the opportunity to support your metering needs.

Sincerely,

BADGER METER, INC.

A handwritten signature in blue ink that reads 'Rebecca L. Loomans'.

Rebecca L. Loomans  
Assistant Secretary



4545 W Brown Deer Road  
PO Box 245036  
Milwaukee, Wisconsin 53224-9536  
414-355-0400 | 800-876-3837  
www.badgermeter.com

CERTIFICATION  
OF SIGNATURE AUTHORITY

I certify as follows:

By Board Resolution adopted by the Board of Directors of Badger Meter, Inc. and in full force and effect as of this date:

The following *elected executive officers* are, among other things, hereby authorized to execute, amend, and cancel bids and contracts for the sale of products, distributor and representative agreements, bid bonds, surety bonds, contracts, leases and certain other legally binding documents in the ordinary course of business, in the name of Badger Meter, Inc.

Kenneth C. Bockhorst Chairman, President and Chief Executive Officer  
Robert A. Wrocklage Senior Vice President - CFO  
Kimberly K. Stoll Vice President – Sales and Marketing  
William R. A. Bergum Vice President – General Counsel & Secretary

The following *elected non-executive officers* are hereby authorized to execute, amend, and cancel bids, bid-related contracts and documents, requests for proposals and quotes, and all other bid-related documentation in the name of Badger Meter, Inc.

Charla D. Dury Assistant Secretary Proposal Specialist – Bid and Contract Administration  
Frank J. Fenton Assistant Secretary Director – Utility Sales  
Korrine L. Fleming Assistant Secretary Manager – Bid and Contract Administration  
Nathaniel R. Hawley Assistant Secretary Director – Distribution Operations  
Rebecca L. Loomans Assistant Secretary Proposal Lead – Bid and Contract Administration  
Christopher D. Washington Assistant Secretary Supervisor - Bid and Contract Administration  
Maikou Yang Assistant Secretary Proposal Lead – Bid and Contract Administration

BY:

William R. A. Bergum,  
Vice President - General Counsel & Secretary  
Badger Meter, Inc.

June 29, 2020

Date





**CENTRALBIDDING**  
FROM CENTRAL AUCTION HOUSE

**5000131413 PURCHASE OF WATER METERS FOR THE JEFFERSON  
PARISH WESTBANK WAREHOUSE**  
Jefferson Parish Government

Project documents obtained from [www.CentralBidding.com](http://www.CentralBidding.com)  
19-Jun-2020 02:07:00 PM

INVITATION TO BID  
THIS IS NOT AN ORDER

Page: 1

DATE: 6/19/2020

BID NO.: 50-00131413

**JEFFERSON PARISH**  
PURCHASING DEPARTMENT  
P.O. BOX 9  
GRETNA, LA. 70054-0009  
504-364-2678

VENDOR: 27118 BLANK BID COPY VENDOR

BUYER: RSCOTT@jeffparish.net

**Bids will be received until 11:00 AM, 6/29/2020 via online at [www.jeffparishbids.net](http://www.jeffparishbids.net) or by hand delivery, USPS mail or other courier service to Purchasing Department, 200 Derbigny Street (General Government Building), Suite 4400, Gretna, LA 70053. For convenience, bidders may also submit bids in the East Bank Purchasing Department, Suite 404, Jefferson Parish Joseph S. Yenni Building, 1221 Elmwood Park Blvd., Jefferson LA 70123. However, if submitting bids on the day of bid opening, bidders must submit at the West Bank location only.**

All bids submitted are subject to these instructions and general conditions and any special conditions and specifications contained herein, all of which are made part of this bid proposal reference. By submitting a bid, vendor agrees to comply with all provisions of Louisiana Law, as well be in compliance with the Jefferson Parish Code of Ordinances, Louisiana Code of Ethics, applicable Jefferson Parish ethical standards and Jefferson Parish Resolution No. 113646 and/or Resolution No. 113647. A copy of these resolutions may be obtained from the Office of the Parish Clerk, Suite 6700, Jefferson Parish General Government Building, 200 Derbigny Street, Gretna, LA 70053. You may also obtain a copy by visiting the Purchasing Department webpage at [purchasing.jeffparish.net](http://purchasing.jeffparish.net) and clicking on On-line forms.

All vendors submitting bids should register as a Jefferson Parish vendor if not already yet registered. Registration forms may be downloaded from <http://purchasing.jeffparish.net> and by clicking on Vendor Information. Current W-9 forms with respective Tax Identification numbers and vendor applications may be submitted at any time; however, if your company is not registered and/or a current W-9 form is not on file, vendor registration is mandatory. Vendors may experience a delay in payment if your company is not a registered vendor with Jefferson Parish.

As per LSA-RS 47:301 et seq., all governmental bodies are excluded from payment of sales taxes to any Louisiana taxing body. Quotations shall be based on F.O.B. Delivered, anywhere within the Parish as designated by the Purchasing Department. JEFFERSON PARISH WILL ACCEPT ONE BID ONLY FROM EACH VENDOR. Items bid must meet specifications. JEFFERSON PARISH will accept one price for each item unless otherwise indicated. Two or more prices for one item will result in bid rejection. Bidders are required to complete, sign and return the bid form and/or complete and return the associated line item pricing forms as indicated. The price quoted for work shall be stated in figures. In the event there is a difference in unit prices and totals, the unit prices shall prevail.

JEFFERSON PARISH reserves the right to award contracts or place orders on a lump sum or individual item basis, or such combination, as shall in its judgment be in the best interest of JEFFERSON PARISH. Every contract or order shall be awarded to the LOWEST RESPONSIVE and RESPONSIBLE BIDDER, taking into consideration the CONFORMITY WITH THE SPECIFICATIONS and the DELIVERY AND/OR COMPLETION DATE

PROTESTS: Only those vendors that submit bids in response to this solicitation may protest any element of the procurement, in writing to the Director of the Purchasing Department. Written protest must be received within 48 hours of the release of the bid tabulation by the Purchasing Department. After consultation, the Parish Attorney's Office will then respond to protests in writing. (For more information, please see Chapter 2, Article VII, Division 2, Sec. 2-914.1 of the Jefferson Parish Code of Ordinances.)

JEFFERSON PARISH reserves the right to cancel all or any part of an order if not shipped promptly. No charges will be allowed for parking or cartage unless specified in the quotation. The order must not be filed at a higher price than quoted. JEFFERSON PARISH reserves the right to cancel at any time and for any reason by issuing a THIRTY (30) day written notice to the contractor.

JEFFERSON PARISH requires all products to be new (current) and all work must be performed according to standard practices for the project. Unless otherwise specified, no aftermarket parts will be accepted. Unless otherwise specified, all workmanship and materials must have at least one (1) year guaranty, in writing, from the date of delivery and/or acceptance of the project. Any deviations or alteration from the specifications must be indicated on the bid form for each item and upon request, product data for same must be submitted by the time specified by the Purchasing Department.

If this bid requires a pre-bid conference (see Additional Requirements section), bidders are advised that such conference will be held to allow bidders the opportunity to identify any discrepancies in the bid specifications and seek further clarification regarding instructions. The Purchasing Department will issue a written response to bidders' questions in the form of an Addendum.

All formal Addenda require written acknowledgment on the bid form by the bidder. Failure to acknowledge an Addendum on the bid form shall cause the bid to be rejected; JEFFERSON PARISH reserves the right to award bid to next lowest responsive and responsible bidder in this event.

USE OF BRAND NAMES AND STOCK NUMBERS: Where brand names and stock numbers are specified, it is for the purpose of establishing certain minimum standards of quality. Bids may be submitted for products of equal quality, provided brand names and stock numbers are specified. Complete product data may be required prior to award.

Quantities listed are for bidding purposes only. Actual requirements may be more or less than quantities listed.

Bidders are not to exclude from participation in, deny the benefits of, or subject to discrimination under any program or activity, any person in the United States on the grounds of race, color, national origin, or sex; nor discriminate on the basis of age under the Age Discrimination Act of 1975, or with respect to an otherwise qualified handicapped individual as provided in Section 504 of the Rehabilitation Act of 1973, or on the basis of religion, except that any exemption from such prohibition against discrimination on the basis of religion as provided in the Civil Rights Act of 1964, or Title VI and VII of the Act of April 11, 1968, shall also apply. This assurance includes compliance with the administrative requirements of the Revenue Sharing final handicapped discrimination provisions contained in Section 51.55 (c), (d), (e), and (k)(5) of the Regulations. New construction or renovation projects must comply with Section 504 of the 1973 Rehabilitation Act, as amended, in accordance with the American National Standard Institute's specifications (ANSI A117.1-1961).

Jefferson Parish and its partners as the recipients of federal funds are fully committed to awarding a contract(s) to firm(s) that will provide high quality services and that are dedicated to diversity and to containing costs. Thus, Jefferson Parish strongly encourages the involvement of minority and/or woman-owned business enterprises (DBE's, including MBE's, WBE's and SBE's) to stimulate participation in procurement and assistance programs.

**INSTRUCTIONS FOR BIDDERS AND GENERAL CONDITIONS**

**IN ACCORDANCE WITH STATE REGULATIONS JEFFERSON PARISH OFFERS ELECTRONIC PROCUREMENT TO ALL VENDORS**

This electronic procurement system allows vendors the convenience of reviewing and submitting bids online. This is a secure site and authorized personnel have limited read access only. Bidders are encouraged to submit electronically using this free service; while the website accepts various file types, one single PDF file containing all appropriate and required bid documents is preferred. Bidders submitting uploaded images of bid responses are solely responsible for clarity. If uploaded images/documents are not legible, then bidder's submission will be rejected. Please note all requirements contained in this bid package for electronic bid submission.

Please visit our E-Procurement Page at [www.jeffparishbids.net](http://www.jeffparishbids.net) to register and view Jefferson Parish solicitations. For more information, please visit the Purchasing Department page at <http://purchasing.jeffparish.net>.

**ADDITIONAL REQUIREMENTS FOR THIS BID**

PLEASE MATCH THE NUMBERS PRINTED IN THIS BOX WITH THE CORRESPONDING INSTRUCTIONS BELOW.

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1. All bidders must attend the MANDATORY pre-bid conference and will be required to sign in and out as evidence of attendance. In accordance with LSA R.S. 38:2212(I), all prospective bidders shall be present at the beginning of the MANDATORY pre-bid conference and shall remain in attendance for the duration of the conference. Any prospective bidder who fails to attend the conference or remain for the duration shall be prohibited from submitting a bid for the project.
2. Attendance to this pre-bid conference is optional. However, failure to attend the pre-bid conference shall not relieve the bidder of responsibility for information discussed at the conference. Furthermore, failure to attend the pre-bid conference and inspection does not relieve the successful bidder from the necessity of furnishing materials or performing any work that may be required to complete the work in accordance with the specification with no additional cost to the owner.
3. Contractor must hold current applicable JEFFERSON PARISH licenses with the Department of Inspection and Code Enforcement. Contractor shall obtain any and all permits required by the JEFFERSON PARISH Department of Inspection and Code Enforcement. The contractor shall be responsible for the payment of these permits. All permits must be obtained prior to the start of the project. Contractor must also hold any and all applicable Federal and State licenses. Contractor shall be responsible for the payment of these permits and shall obtain them prior to the start of the project.
4. A LA State Contractor's License will be required in accordance with LSA R.S. 37-2150 et. seq. and such license number will be shown on the outside of the bid envelope. Failure to comply will cause the bid to be rejected. Additionally if submitting the bid electronically, then the license number must be entered in the appropriate field in the Electronic Procurement system. Failure to comply will cause the bid to be rejected.
5. It is the bidder's responsibility to visit the job site and evaluate the job before submitting a bid.
6. Job site must be clean and free of all litter and debris daily and upon completion of the contract. Passageways must be kept clean and free of material, equipment, and debris at all times. Flammable material must be removed from the job site daily because storage will not be permitted on the premises. Precautions must be exercised at all times to safeguard the welfare of JEFFERSON PARISH and the general public.

**INSTRUCTIONS FOR BIDDERS AND GENERAL CONDITIONS**

7. PUBLIC WORKS BIDS: All awards for public works in excess of \$5,000.00 will be reduced to a formal contract which shall be recorded at the contractor's expense with the Clerk of Court and Ex-Officio Recorder of Mortgages for the Parish of Jefferson. A price list of recordation costs may be obtained from the Clerk of Court and Ex-Officio Recorder of Mortgages for the Parish of Jefferson. All awards in excess of \$25,000.00 will require both a performance and a payment bond. Unless otherwise stated in the bid specifications, the performance bond requirements shall be 100% of the contract price. Unless otherwise state in the bid specifications, the payment bond requirements shall be 100% of the contract price. Both bonds shall be supplied at the signing of the contract.
8. NON-PUBLIC WORKS BIDS: A performance bond will be required for this bid. The amount of the bond will be 100% of the contract price unless otherwise indicated in the specifications. The performance bond shall be supplied at the signing of the contract.
9. NON-PUBLIC WORKS BIDS: A payment bond will be required for this bid. The amount of the bond will be 100% of the contract price unless otherwise indicated in the specifications. The payment bond shall be supplied at the signing of the contract.
10. All bidders must comply with the requirements stated in the attached "Standard Insurance Requirements" sheet attached to this bid solicitation. Failure to comply with this instruction will result in bid rejection.
11. A bid bond will be required with bid submission in the amount of 5% of the total bid, unless otherwise stated in the bid specifications. Acceptable forms shall be limited to cashier's check, certified check, or surety bid bond. All sureties must be in original format (no copies). If submitting a bid online, vendors must submit an electronic bid bond through the respective online clearinghouse bond management system(s) as indicated in the electronic bid solicitation on Central Auction House. No scanned paper copies of any bid bond will be accepted as part of the electronic bid submission.
12. This is a requirements contract to be provided on an as needed basis. JEFFERSON PARISH makes no representations on warranties with regard to minimum guaranteed quantities unless otherwise stated in the bid specifications.
13. Freight charges should be included in total cost when quoting. If not quoted FOB DELIVERED, freight must be quoted as a separate item. Bid may be rejected if not quoted FOB DELIVERED or if freight charges are not indicated on bid form.
14. PUBLIC WORKS BIDS - Completed, Signed and Properly Notarized Affidavits Required; This applies to all solicitations for construction, alteration or demolition of public buildings or projects, in conformity with the provisions contained in LSA-RS 38:2212.9, LSA-RS 38:2212.10, LSA-RS 38:2224, and Sec 2-923.1 of the Jefferson Parish Code of Ordinances. For bidding purposes, all bidders must submit with bid submission COMPLETED, SIGNED and PROPERLY NOTARIZED Affidavits, including: Non-Conviction Affidavit, Non-Collusion Affidavit, Campaign Contribution Affidavit, Debt Disclosures Affidavit and E-Verify Affidavit. For the convenience of vendors, all affidavits have been combined into one form entitled PUBLIC WORKS BID AFFIDAVIT. This affidavit must be submitted in its original format, and without material alteration, in order to be compliant and for the bid to be considered responsive. A scanned copy of the completed, signed and properly notarized affidavit may be submitted with the bid, however, the successful bidder must submit the original affidavit in its original format and without material alteration upon contract execution. Failure to comply will result in the bid submission being rejected as non-responsive. The Parish reserves the right to award bid to the next lowest responsive and responsible bidder in this event.
15. NON PUBLIC WORK BIDS - Completed, Signed and Properly Notarized Affidavits Required in conformity with the provisions contained in LSA – RS 38:2224 and Sec 2-923.1 of the Jefferson Parish Code of Ordinances. For bidding purposes, all bidders must submit with bid submission COMPLETED, SIGNED and PROPERLY NOTARIZED Affidavits, including: Non-Collusion Affidavit, Debt Disclosures Affidavit and Campaign Contribution Affidavit. For the convenience of vendors, all affidavits have been combined into one form entitled NON PUBLIC WORKS BID AFFIDAVIT. This affidavit must be submitted in its original format, and without material alteration, in order to be compliant and for the bid to be considered responsive. A scanned copy of the completed, signed and properly notarized affidavit may be submitted with the bid, however, the successful bidder must submit the original affidavit in its original format and without material alteration upon contract execution. Failure to comply will result in the bid submission being rejected as non-responsive. The Parish reserves the right to award bid to the next lowest responsive and responsible bidder in this event.
16. The ensuing contract for this bid solicitation may be eligible for FEMA reimbursement and/or Federal funding/reimbursement. As such, the referenced appendix will be applicable accordingly and shall be considered a part of the bid documents. All applicable certifications must be duly completed, signed and submitted with bid submission. Failure to submit applicable certifications with bid submission will result in bid rejection.

**It shall be the duty of every parish officer, employee, department, agency, special district, board, and commission: and the duty of every contractor, subcontractor, and licensee of the parish, and the duty of every applicant for certification of eligibility for a parish contract or program, to cooperate with the Inspector General in any investigation, audit, inspection, performance review, or hearing pursuant to JPCO 2-155.10(19). By signing this document, every corporation, partnership, or person contracting with PARISH, whether by cooperative endeavor, intergovernmental agreement, bid, proposal, application or solicitation for a parish contract, and every application for certification of eligibility for a parish contract or program, attests that it understands and will abide by all provisions of JPCO 2-155.10.**

DATE: 6/19/2020

INVITATION TO BID  
THIS IS NOT AN ORDER

Page: 4

BID NO.: 50-00131413

**JEFFERSON PARISH**

PURCHASING DEPARTMENT  
P.O. BOX 9  
GRETNA, LA. 70054-0009  
504-364-2678

VENDOR: 27118 BLANK BID COPY VENDOR Badger Meter, Inc.

BUYER: RSCOTT

As per LSA-RS 47:301 et seq., all governmental bodies are excluded from payment of sales taxes to any Louisiana taxing body. Quotations shall be based on F.O.B. Agency warehouse or jobsite, anywhere within the Parish as designated by the Purchasing Department.

JEFFERSON PARISH reserves the right to cancel all or any part of an order if not shipped promptly. No charges will be allowed for parking or cartage unless specified in quotation. The order must not be filled at a higher price than quoted. JEFFERSON PARISH reserves the right to cancel at any time and for any reason by issuing a THIRTY (30) day written notice to the contractor.

JEFFERSON PARISH is expecting all products to be new and all work to be done in workman-like manner, according to standard practices. Any deviations or alteration from the specifications must be indicated on the bid form for each item and upon request, product data for same must be submitted by the time specified by the Purchasing Department.

<b>DELIVERY: FOB JEFFERSON PARISH</b>	
INDICATE DELIVERY DATE ON EQUIPMENT AND SUPPLIES	<u>25 days After Receipt of Order</u>
INDICATE STARTING TIME (IN DAYS) FOR CONSTRUCTION WORK	<u>not applicable</u>
INDICATE COMPLETION TIME (IN DAYS) FOR CONSTRUCTION WORK	<u>not applicable</u>

In the event that addenda are issued with this bid, bidders MUST acknowledge all addenda on the bid form. Bidder must acknowledge receipt of an addendum on the bid form as indicated. Failure to acknowledge any addendum on the bid form will result in bid rejection.

Acknowledge Receipt of Addenda: NUMBER: \_\_\_\_\_  
 NUMBER: \_\_\_\_\_  
 NUMBER: \_\_\_\_\_  
 NUMBER: \_\_\_\_\_

LOUISIANA CONTRACTOR'S LICENSE NO.: (if applicable) not applicable, supply contract

<b>*** ALL BIDDERS MUST COMPLETE SECTION BELOW ***</b>	
FIRM NAME: <u>Badger Meter, Inc.</u>	
SIGNATURE: (Must be signed here) <u>Rebecca L. Loomans</u>	TITLE: <u>Assistant Secretary</u>
PRINT OR TYPE NAME: <u>Rebecca L. Loomans</u>	
ADDRESS: <u>4545 West Brown Deer Road</u>	
CITY, STATE: <u>Milwaukee, WI</u>	ZIP: <u>53224</u>
TELEPHONE: <u>(800) 876-3837 x16220</u>	FAX: <u>(414) 371-5981</u>
EMAIL ADDRESS: <u>bids@badgermeter.com</u>	

TOTAL PRICE OF ALL BID ITEMS: \$ \$25,515.00

INVITATION TO BID FROM JEFFERSON PARISH - continued

BID NO.: 50-00131413

SEALED BID

ITEM NUMBER	QUANTITY	U/M	DESCRIPTION OF ARTICLES	UNIT PRICE QUOTED	TOTALS
1	300.00	EA	<p>Purchase of water meters for the                      Jefferson Parish Westbank Warehouse                      Recordall Model 25 lead-free bronze housing and bottom, HR-E with                      bronze lid/plastic shroud with 5' Itron in-line connector cable</p> <p>0010 - METER,WATER,5/8 IN X 3/4 IN,                      NO LEAD BRONZE HOUSING,SHROUD AND LID,                      POSITIVE DISPLACEMENT,25 GPM,S/S DISC                      SPINDLES,CERAMIC MAGNET, WITH ITRON                      CONNECTOR,BADGER RCDLM25,                      SK# 00-0382190</p> <p>MARK MCDONALD                      504-349-5155 SHIP CODE: 6404                      CONTRACT IS CURRENTLY TAP OUT                      1500 RIVER PARK BLVD BRIDGE CITY, LA                      70094</p>	\$85.05	\$25,515.00

Due to continuous improvements and redesign of Badger Meter products and technology solutions, Badger Meter reserves the right to provide our newest product solutions as an alternative to the proposed products provided they are in conformance with the requirements of the specifications and do not exceed the prices quoted.



**CENTRALBIDDING**  
FROM CENTRAL AUCTION HOUSE

**5000131413 PURCHASE OF WATER METERS FOR THE JEFFERSON  
PARISH WESTBANK WAREHOUSE**  
Jefferson Parish Government

Project documents obtained from [www.CentralBidding.com](http://www.CentralBidding.com)  
19-Jun-2020 02:20:34 PM

Bid delivery shall include all freight and delivery costs to Jefferson Parish warehouse locations on the East and West Banks of Jefferson Parish.

### **Technical Specifications:**

All meters shall be compatible to the **Itron ERT 100 W** automated meter reading system. All meter registers must be Itron ERT ready with the "Itron Inline Connector" included on the register. Meter registers must use an encoder technology with mechanical odometer. Pulse technology will not be accepted. Registers should be magnetic-driven, easily read with unobstructed number wheels. LCD displays are not accepted unless otherwise specified. Itron Inline Connectors shall be 5 feet in length for meters 1 inch and smaller and 25 feet in length for meters 2 inch and larger.

The encoder register shall send data in ASCII format (American Standard Code for Information Interchange) to the endpoint. The encoder register shall transmit the complete odometer wheel reading, with a minimum of 8 digits and all 8 positions. An 8-digit register identification number that has been factory set and never duplicated shall also be sent to the reading device. A locating chip or other suitable device shall be affixed in such a way that when the 100W Endpoint interrogates the encoder register, the microprocessor shall determine the true position of each odometer wheel, encode the reading and send it to the Endpoint. The locating device shall not make contact with the odometer wheel or any other part of the register in order to prevent wear and corrosion of said connection. The use of Optical Character Recognition or Light Emitting Diodes is not an acceptable means of providing odometer wheel position.

Meter register resolution shall be 8 dial type.

Meter manufacturers must guarantee the complete sealed register for a period of not less than ten (10) years for satisfactory operating performance and against fogging. If the sealed register fogs and/or does not operate satisfactorily, as determined by the Department of Water, the meter manufacturer shall replace the unit at no cost to the Jefferson Parish Water Department during the warranty period.

Each meter shall meet new meter accuracy standards during the first year of operation. The meter manufacturer must further guarantee all internal working meter parts for a period of not less than ten (10) years. During this period, measuring chambers shall meet the repaired meter accuracy standards of AWWA Manual M-6. Chambers which do not meet the aforementioned accuracy warranty shall be replaced by the manufacturer at no cost to the Jefferson Parish Water Department.

### **Group 1. Positive Displacement Meters (Sizes $\frac{5}{8}$ " x $\frac{3}{4}$ " & 1"):**

Meters to be furnished shall meet or exceeds the American Water Works Associations Standards C-700-09 or latest revision.

Meters shall comply with the lead-free requirements as defined by NSF/ANSI Standard 61, Annex G (NSF 372) and 2014 provisions of the Safe Drinking Water Act.

Meters shall be nutating disc type and shall not exceed maximum number of nutations allowed under AWWA C-700-09. The thrust roller of the disc shall operate on a stainless steel roller.

The register assembly shall be permanently encased and rolled sealed in a stainless steel can with a glass lens. The glass lens must be heavy duty, scratch resistant, molded glass for readability, and shall be as near to unbreakable as possible.

The main case bottom cover shall be lead free bronze and attached with a minimum of four (4) stainless steel or bronze bolts of the cap screw type. Exterior trim bolts, nuts, and screws shall be bronze or stainless steel to insure long service life.

Laying lengths shall be as follows:

METER SIZE	LAYING LENGTH
5/8" X 3/4"	7-1/2"
1"	10-3/4"

**Note:** There can be no change in these measurements as new meters must fit in the same space as the existing installations.

### Operating Characteristics

Meter Size	Low Flow (98.5% Min.)	Typical Operating Range	Maximum Continuous Flow	Pressure Loss (Not to Exceed)
5/8" X 3/4"	0.25 GPM	0.50 to 25 GPM	15 GPM	2.8 PSI @ 15 GPM
1"	0.75 GPM	1.25 to 70 GPM	50 GPM	6.5 PSI @ 50 GPM

Flow ratings shall be 25 GPM for 5/8"x 3/4" meters and 70 GPM for 1" meters.

Meters shall be a Badger Recordall® Disc Meter or an approved equal.

### Group 1. Commercial Turbine Meters (Sizes 2" & 12"):

Turbine meters shall be magnetically driven through coupling of a magnet in the sealed register and a magnet within the main case which operates to transmit the revolutions of the turbine rotor to the sealed register. Turbine meters shall meet or exceed the most recent revision of the American Water Works Standard C-701-12 for Class II turbines.

To assure the turbine meter to be tamper resistant it will be necessary to have the sealed register secured to the main case cover and/or the rotor measuring assembly with a manufacturer installed stainless steel nut, bolt or screw. Jefferson Parish will not accept field modified or second party modified meters as meeting specifications. Locking pin, break off screw, or seal wires will not be acceptable as equal.

The meter manufacturer must guarantee the turbine (for all meter sizes) hermetically sealed registers for a period of not less than five (5) years for satisfactory operating performance and against fogging or other defects. All internal working parts including flow tube, rotor, radial bearings, thrust bearings and magnets shall be guaranteed for a period of not less than five (5) years at no extra cost to the Jefferson Parish Department of Water. These guarantees shall not apply to the mechanical failure or damages to meters as a result of external abuse, hot water or water quality.

Laying lengths shall be as follows:

METER SIZE	LAYING LENGTH
2"	10"
12"	19-11/16"

**Note:** There can be no change in these measurements as new meters must fit in the same space as the existing installations.

### Operating Characteristics

Meter Size	Low Flow (95% Min.)	Typical Operating Range	Maximum Continuous Flow	Pressure Loss (Not to Exceed)
2"	2.5 GPM	4 to 310 GPM	200 GPM	3.1 PSI @ 200 GPM
12"	65 GPM	90 to 8800 GPM	6200 GPM	0.8 PSI @ 6200 GPM

Flow ratings shall be 310 GPM for 2" meters and 8800 GPM for 12" meters.

Meters shall be a Badger Recordall® Turbo Series Meter or an approved equal.



**Badger Meter**

## Recordall® Disc Meters

Lead-Free Bronze Alloy, Sizes 5/8, 5/8 x 3/4, 3/4 & 1 inch  
NSF/ANSI Standards 61 and 372 Certified



**Model 25**—5/8 in., 5/8 x 3/4 in.



**Model 35**—3/4 in.



**Model 55**—1 in.



**Model 70**—1 in.

### DESCRIPTION

The Recordall Disc Series meters meet or exceed the most recent revision of AWWA Standard C700 and are available in a lead-free bronze alloy. The meters comply with the lead-free provisions of the Safe Drinking Water Act, are certified to NSF/ANSI Standards 61 and 372 (Trade Designations: M25-LL, M35-LL, M55-LL, M70-LL) and carry the NSF-61 mark on the housing. All components of the lead-free bronze alloy meter (housing, measuring element, seals, and so on) comprise the certified system.

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

**Operation:** Water flows through the meter's strainer and into the measuring chamber where it causes the disc to nutate. The disc, which moves freely, nutates on its own ball, guided by a thrust roller. A drive magnet transmits the motion of the disc to a follower magnet located within the permanently sealed register. The follower magnet is connected to the register gear train. The gear train reduces the disc nutations into volume totalization units displayed on the register or encoder face.

**Operating Performance:** The Recordall Disc Series meters meet or exceed registration accuracy for the low flow rates (95%), normal operating flow rates (100 ±1.5%), and maximum continuous operation flow rates as specifically stated in AWWA Standard C700.

**Construction:** Recordall Disc meter construction, which complies with ANSI/AWWA standard C700, consists of three basic components: meter housing, measuring chamber and permanently sealed register or encoder. The meter is available in a lead-free bronze alloy with externally threaded spuds. A corrosion-resistant engineered polymer material is used for the measuring chamber.

**Magnetic Drive:** Direct magnetic drive, through the use of high-strength magnets, provides positive, reliable and dependable register coupling for straight-reading or AMR/AMI meter reading options.

**Tamper-Proof Features:** Unauthorized removal of the register or encoder is inhibited by the option of a tamper detection seal wire screw, TORX® tamper-resistant seal screw or the proprietary tamper-resistant keyed seal screw. Each can be installed at the meter site or at the factory.

**Maintenance:** Badger Meter Recordall Disc Series 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.

To simplify maintenance, the register, measuring chamber, and strainer can be replaced without removing the meter housing from the installation. No change gears are required for accuracy calibration. Interchangeability of parts among like-sized meters and meter models also minimizes spare parts inventory investment. The built-in strainer has an effective straining area of twice the inlet size.

**Connections:** Tailpieces/Unions for installations of meters on various pipe types and sizes, including misaligned pipes, are available as an option.

### Meter Spud and Connection Sizes

Model	Size Designation (in.)	×	"L" Laying Length (in.)	"B" Bore Dia. (in.)	Coupling Nut and Spud Thread (in.)	Tailpiece Pipe Thread (NPT) (in.)
25	5/8	×	7-1/2	5/8	3/4 (5/8)	1/2
	5/8 x 3/4	×	7-1/2	5/8, 3/4	1 (3/4)	3/4
35	3/4	×	7-1/2	3/4	1 (3/4)	3/4
	3/4	×	9	3/4	1 (3/4)	3/4
	3/4 x 1	×	9	3/4	1-1/4 (1)	1
55	1	×	10-3/4	1	1-1/4 (1)	1
70	1	×	10-3/4	1	1-1/4 (1)	1

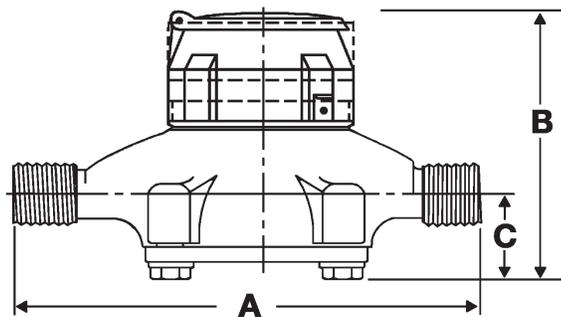
## SPECIFICATIONS

	<b>Model 25</b> <b>(5/8 in. &amp; 5/8 x 3/4 in.)</b>	<b>Model 35</b> <b>(3/4 in.)</b>	<b>Model 55</b> <b>(1 in.)</b>	<b>Model 70</b> <b>(1 in.)</b>
<b>Typical Operating Range</b> <b>(100% ±1.5%)</b>	0.5...25 gpm (0.11...5.7 m <sup>3</sup> /hr)	0.75...35 gpm (0.17...7.9 m <sup>3</sup> /hr)	1...55 gpm (0.23...12.5 m <sup>3</sup> /hr)	1.25...70 gpm (0.28...16 m <sup>3</sup> /hr)
<b>Low Flow</b>	0.25 gpm (0.057 m <sup>3</sup> /hr) Min. 98.5%	0.375 gpm (0.085 m <sup>3</sup> /hr) Min. 97%	0.5 gpm (0.11 m <sup>3</sup> /hr) Min. 95%	0.75 gpm (0.17 m <sup>3</sup> /hr) Min. 95%
<b>Maximum Continuous Operation</b>	15 gpm (3.4 m <sup>3</sup> /hr)	25 gpm (5.7 m <sup>3</sup> /hr)	40 gpm (9.1 m <sup>3</sup> /hr)	50 gpm (11.3 m <sup>3</sup> /hr)
<b>Pressure Loss at Maximum Continuous Operation</b>	<b>5/8 in. size:</b> 3.5 psi @ 15 gpm (0.24 bar @ 3.4 m <sup>3</sup> /hr) <b>5/8 x 3/4 in. size:</b> 2.8 psi @ 15 gpm (0.19 bar @ 3.4 m <sup>3</sup> /hr)	5 psi @ 25 gpm (0.37 bar @ 5.7 m <sup>3</sup> /hr)	3.4 psi @ 40 gpm (0.23 bar @ 9.1 m <sup>3</sup> /hr)	6.5 psi @ 50 gpm (0.45 bar @ 11.3 m <sup>3</sup> /hr)
<b>Maximum Operating Temperature</b>	80° F (26° C)			
<b>Maximum Operating Pressure</b>	150 psi (10 bar)			
<b>Measuring Element</b>	Nutating disc, positive displacement			
<b>Meter Connections</b>	<i>Available in NL bronze and engineered polymer to fit spud thread bore diameter sizes:</i>			
	<b>5/8 in. size:</b> 5/8 in. (DN 15 mm) <b>5/8 x 3/4 in. size:</b> 3/4 in. (DN 15 mm)	3/4 in. (DN 20 mm)	1 in. (DN 25 mm)	1 in. (DN 25 mm)

## MATERIALS

	<b>Model 25</b> <b>(5/8 in. &amp; 5/8 x 3/4 in.)</b>	<b>Model 35</b> <b>(3/4 in.)</b>	<b>Model 55</b> <b>(1 in.)</b>	<b>Model 70</b> <b>(1 in.)</b>
<b>Meter Housing</b>	Lead-free bronze alloy			
<b>Housing Bottom Plates</b>	Cast iron, lead-free bronze alloy, engineered polymer	Cast iron, lead-free bronze alloy		
<b>Measuring Chamber</b>	Engineered polymer			
<b>Disc</b>	Engineered polymer			
<b>Trim</b>	Stainless steel			
<b>Strainer</b>	Engineered polymer			
<b>Disc Spindle</b>	Stainless steel	Stainless steel	Engineered polymer	Stainless steel
<b>Magnet</b>	Ceramic	Ceramic	Ceramic	Ceramic
<b>Magnet Spindle</b>	Engineered polymer	Stainless steel	Engineered polymer	Stainless steel
<b>Register Lid and Shroud</b>	Engineered polymer, bronze			

**DIMENSIONS**



Meter Size	Model	A Laying Length	B Height Reg.	C Centerline Base	Width	Approx. Shipping Weight
5/8 in. (15 mm)	25	7-1/2 in. (190 mm)	4-15/16 in. (125 mm)	1-11/16 in. (42 mm)	4-1/4 in. (108 mm)	4-1/2 lb (2 kg)
5/8 in. x 3/4 in. (15 mm)		7-1/2 in. (190 mm)	4-15/16 in. (125 mm)	1-11/16 in. (42 mm)	4-1/4 in. (108 mm)	4-1/2 lb (2 kg)
3/4 in. (20 mm)	35	7-1/2 in. (190 mm)	5-1/4 in. (133 mm)	1-5/8 in. (41 mm)	5 in. (127 mm)	5-1/2 lb (2.5 kg)
3/4 in. (20 mm)		9 in. (229 mm)	5-1/4 in. (133 mm)	1-5/8 in. (41 mm)	5 in. (127 mm)	5-3/4 lb (2.6 kg)
3/4 in. x 1 in. (20 mm)		9 in. (229 mm)	5-1/4 in. (133 mm)	1-5/8 in. (41 mm)	5 in. (127 mm)	6 lb (2.7 kg)
1 in. (25 mm)	55	10-3/4 in. (273 mm)	6 in. (152 mm)	2-1/32 in. (52 mm)	6-1/4 in. (159 mm)	8-3/4 lb (3.9 kg)
1 in. (25 mm)	70	10-3/4 in. (273 mm)	6-1/2 in. (165 mm)	2-5/16 in. (59 mm)	7-3/4 in. (197 mm)	11-1/2 lb (5.2 kg)

**REGISTERS / ENCODERS**

**Standard—Sweep-Hand Registration**

The standard register is a straight-reading, permanently sealed magnetic drive register. Dirt, moisture, tampering and lens fogging problems are eliminated. The register has a six-odometer wheel totalization display, 360° test circle with center sweep hand, and flow finder to detect leaks. Register gearing is made of self-lubricating engineered polymer, which minimizes friction and provides long life. The multi-position register simplifies meter installation and reading. The register capacity is 10,000,000 gallons (1,000,000 ft<sup>3</sup>, 100,000 m<sup>3</sup>).

A Model 25 register is used in the following example:



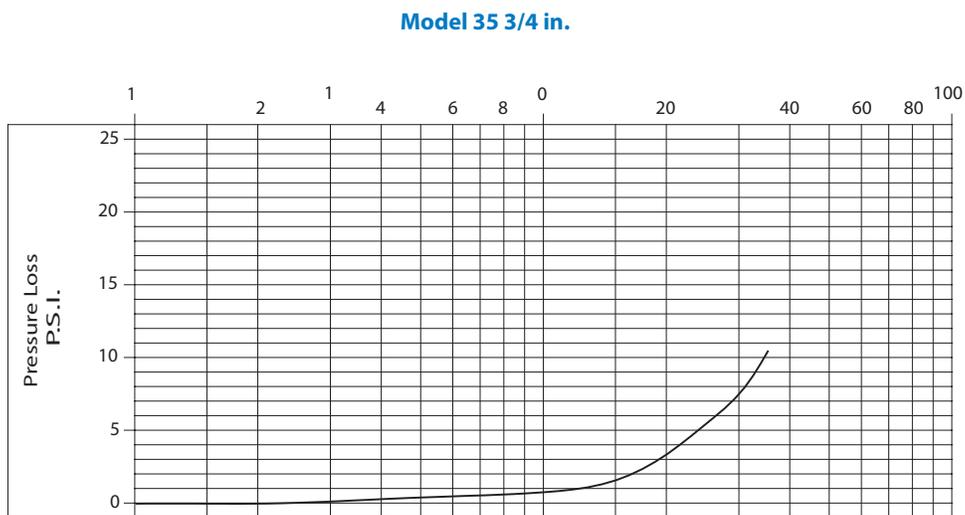
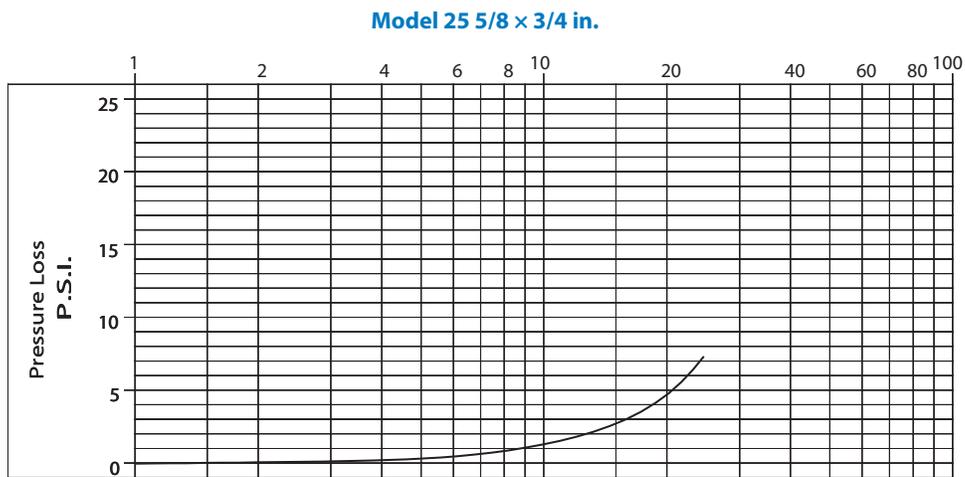
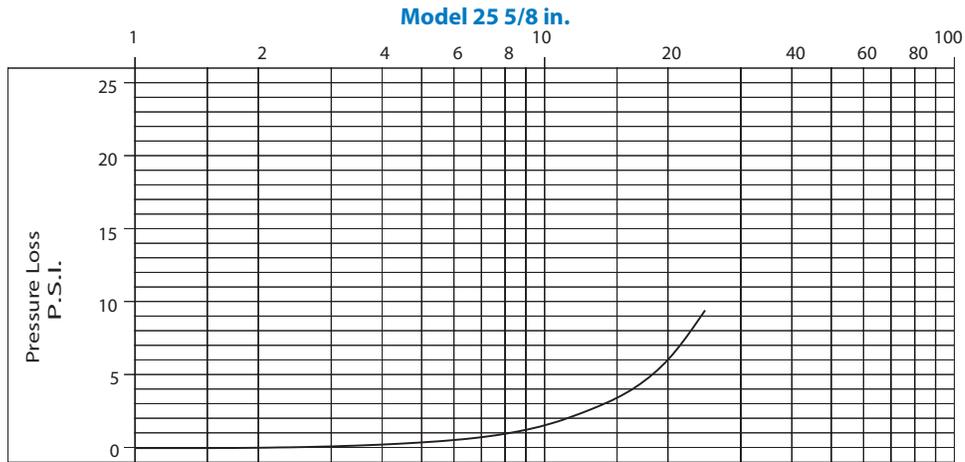
Model	Gallon	Cubic Feet	Cubic Meter
25 (5/8 in.)	10	1	0.1/0.01
25 (5/8 x 3/4 in.)	10	1	0.1/0.01
35	10	1	0.1
55	10	1	0.1
70	10	1	0.1

**Optional—Encoders for AMR/AMI Reading Solutions**

AMR/AMI solutions are available for all Recordall Disc Series meters. All reading options can be removed from the meter without disrupting water service. Badger Meter encoders provide years of reliable, accurate readings for a variety of applications. See details at [www.badgermeter.com](http://www.badgermeter.com).

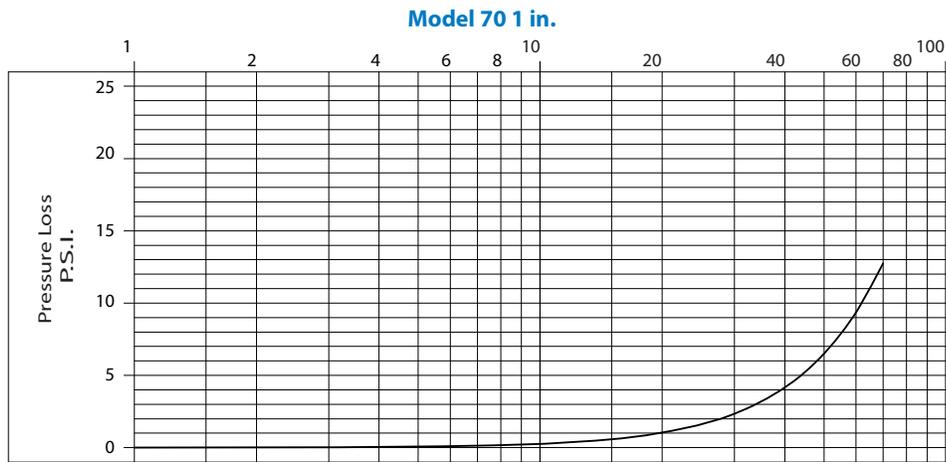
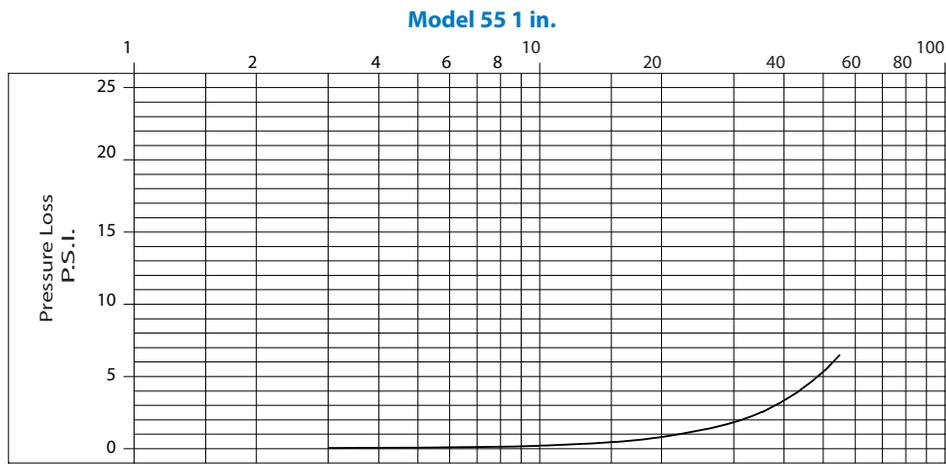
**PRESSURE LOSS CHARTS**

Rate of Flow in Gallons per Minute



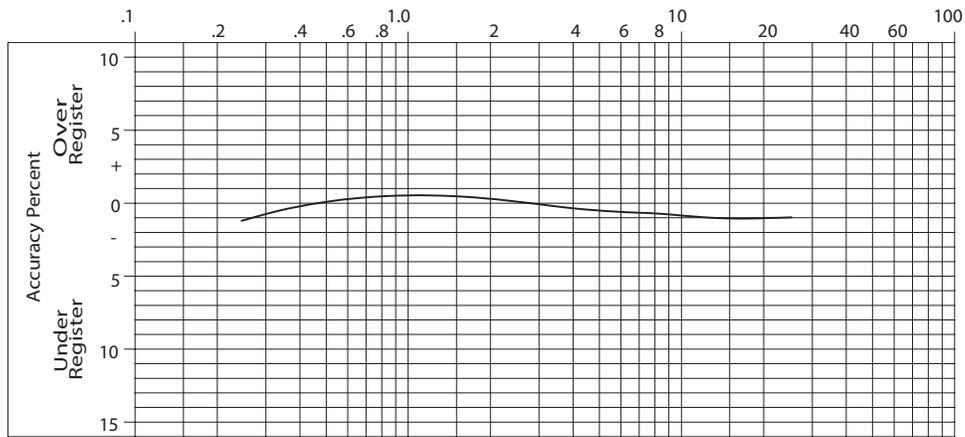
### PRESSURE LOSS CHARTS (CONTINUED)

Rate of Flow in Gallons per Minute

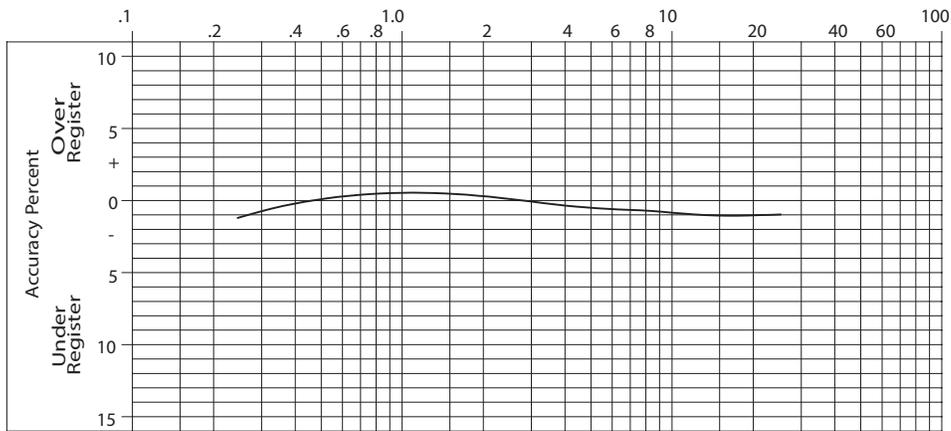


## ACCURACY CHARTS

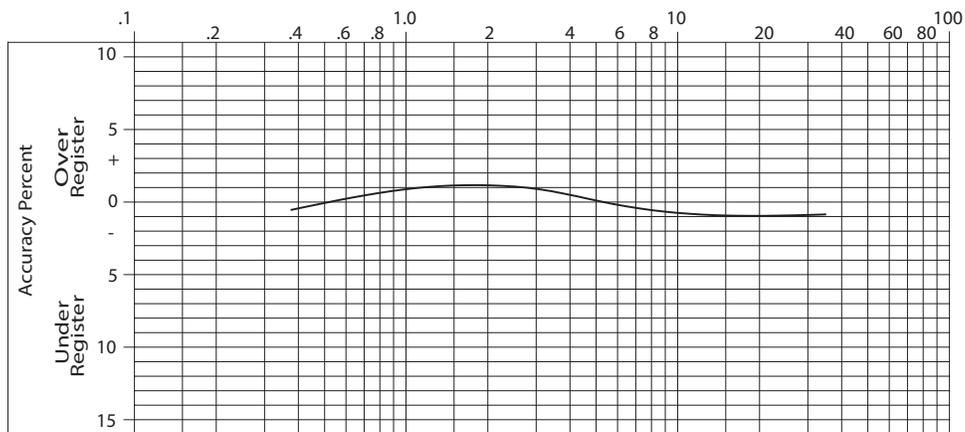
**Model 25 5/8 in.**



**Model 25 5/8 x 3/4 in.**

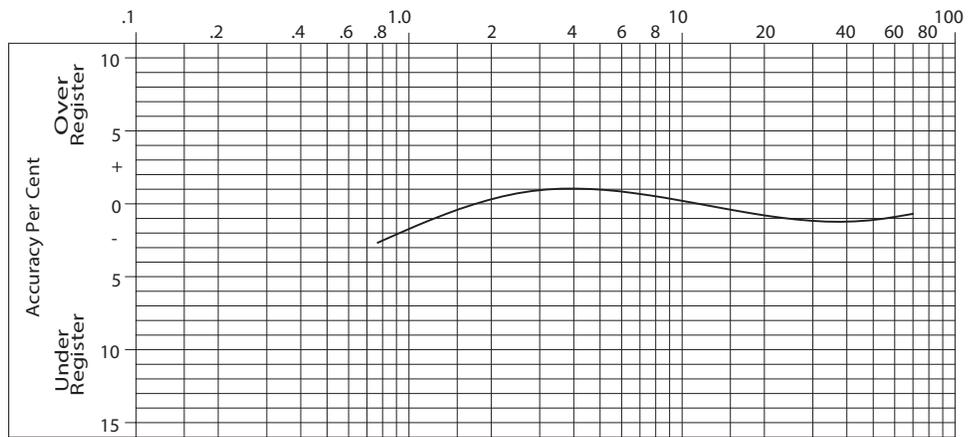


**Model 35 3/4 in.**

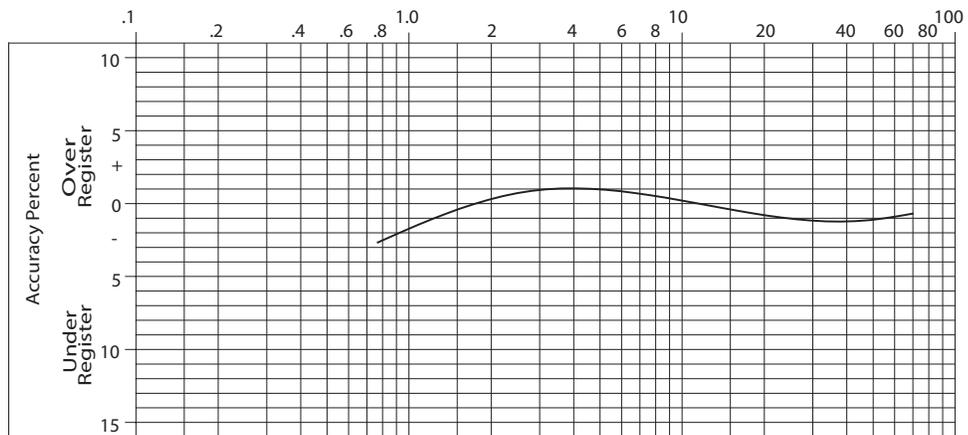


**ACCURACY CHARTS (CONTINUED)**

**Model 55 1 in.**



**Model 70 1 in.**



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[www.badgermeter.com](http://www.badgermeter.com)

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**Badger Meter**

# Lead-Free Bronze Disc Meters

## PRODUCTS COVERED

This warranty shall apply to all Recordall® Lead-Free Bronze Disc Meters, models 25 through 170, when used to measure potable water, including the registers used with these meters (collectively “Product”) sold on or after January 25, 2019. This warranty is extended only to utilities, municipalities, other commercial users and authorized Badger Meter, Inc. distributors, hereafter referred to as “Customer” and does NOT apply to consumers or any person or entity who is not an original customer of Badger Meter or its authorized distributors.

## MATERIALS AND WORKMANSHIP

Badger Meter warrants Product to be free from defects in materials and workmanship appearing within the following time frames and those listed in the table below:

### Housings

Twenty-five (25) years and six (6) months after shipment from Badger Meter.

### Local Registers Supplied with the Meters Listed Herein

Twenty-five (25) years and six (6) months after shipment from Badger Meter.

	<b>AWWA New Meter Accuracy</b>	<b>AWWA Repaired Meter Accuracy (AWWA M6 Manual)</b>	<b>Badger Meter Extended Low Flow Meter Accuracy</b>
<b>Recordall Meter Model, Size</b>	<i>The meter product will meet or exceed new meter accuracy standards set forth in AWWA Standard C700 for the following periods:</i>	<i>The meter product will meet or exceed repaired meter accuracy standards set forth in AWWA Manual M-6, Chapter 5, Table 5.3 for the following periods:</i>	<i>Badger Meter further warrants the meter product to meet or exceed the following extended low flow accuracies in excess of AWWA standard:</i>
<b>Model 25, 5/8 in. and 5/8 x 3/4 in.</b>	Five (5) years from date of shipment or registration of 750,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 2,500,000 gallons, whichever occurs first, with a 25 gpm safe maximum operating capacity and a 15 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 98.5% at a rate of 1/4 gpm and low flow accuracy of 95.0% at a rate of 1/8 gpm for five (5) years from date of shipment or registration of 675,000 gallons, whichever occurs first.
<b>Model 35, 3/4 in.</b>	Five (5) years from date of shipment or registration of 750,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 2,500,000 gallons, whichever occurs first, with a 35 gpm safe maximum operating capacity and a 25 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 97% at a rate of 3/8 gpm for five (5) years from date of shipment or registration of 675,000 gallons, whichever occurs first.
<b>Model 55, 1 in.</b>	Five (5) years from date of shipment or registration of 1,000,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 3,000,000 gallons, whichever occurs first, with a 55 gpm safe maximum operating capacity and a 40 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 95% at a rate of 1/2 gpm for three (3) years from date of shipment or registration of 575,000 gallons, whichever occurs first.
<b>Model 70, 1 in.</b>	Five (5) years from date of shipment or registration of 1,100,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 3,250,000 gallons, whichever occurs first, with a 70 gpm safe maximum operating capacity and a 50 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 95% at a rate of 3/4 gpm for three (3) years from date of shipment or registration of 1,100,000 gallons, whichever occurs first.
<b>Model 120, 1-1/2 in.</b>	Two (2) years from date of shipment or registration of 1,600,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 5,600,000 gallons, whichever occurs first, with a 120 gpm safe maximum operating capacity and a 80 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 95% at a rate of 1-1/4 gpm for two (2) years from date of shipment or registration of 1,440,000 gallons, whichever occurs first.
<b>Model 170, 2 in.</b>	Two (2) years from date of shipment or registration of 2,100,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 10,400,000 gallons, whichever occurs first, with a 170 gpm safe maximum operating capacity and a 100 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 95% at a rate of 1-1/2 gpm for two (2) years from date of shipment or registration of 1,890,000 gallons, whichever occurs first.

## PRODUCT RETURNS

Any Product proved to the satisfaction of Badger Meter to have failed the foregoing warranties will, at the option of Badger Meter, be repaired or replaced without charge to the Customer. Any eligible Product repaired or replaced by Badger Meter will retain the original Product's warranty based on the original Product purchase date, at Badger Meter's sole discretion. The Badger Meter obligation hereunder shall be limited to such repair and replacement and shall be conditioned upon Badger Meter receiving written notice of any alleged defect within ten (10) days after its discovery. This exclusive remedy shall not be deemed to have failed its essential purpose so long as Badger Meter is willing and able to replace defective products or issue a credit to purchaser within a reasonable time of proof to Badger Meter that a defect is involved. Product returns must be shipped by the Customer prepaid F.O.B. to the nearest Badger Meter factory or distribution center. The Customer shall be responsible for all direct and indirect costs associated with removing the original Product and reinstalling the repaired or replacement Product.

## LIMITS OF LIABILITY

This warranty shall not apply to Product repaired or altered by parties other than Badger Meter. The foregoing warranty applies only to the extent that the Product is installed, serviced and operated strictly in accordance with AWWA Standard C700 and AWWA M6 Manual, as applicable. The warranty shall not apply and shall be void with respect to Product exposed to conditions other than those detailed in the Badger Meter Product technical and/or operational literature, or which have been exposed to adverse installation conditions, damaged by any water conditions and/or water quality, including but not limited to foreign matter in the water such as dirt, sand, minerals, debris, deposits, biofilms, extreme corrosivity, or other impurities, or which have been subject to passage of high-speed air slugs, vandalism, negligence, accident, acts of God, alteration, improper installation, operation or repair, or other circumstances which are beyond the reasonable control of Badger Meter. With respect to Product not manufactured by Badger Meter, the warranty obligations of Badger Meter shall in all respects conform and be limited to the warranty extended to Badger Meter by the supplier.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS AND IMPLIED WARRANTIES WHATSOEVER, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (except warranties of Title).

Any description of Product, whether in writing or made orally by Badger Meter or its agents, specifications, samples, models, bulletins, drawings, diagrams, engineering sheets, or similar materials used in connection with any Customer's order are for the sole purpose of identifying Product and shall not be construed as an express warranty. Any suggestions by Badger Meter or its agents regarding use, application or suitability of Product shall not be construed as an express warranty unless confirmed to be such in writing by Badger Meter.

## Exclusion of Consequential Damages and Disclaimer of Other Liability

Badger Meter liability with respect to breaches of the foregoing warranty shall be limited as stated therein. Badger Meter liability shall in no event exceed the contract price.

BADGER METER SHALL NOT BE SUBJECT TO AND DISCLAIMS:

- (1) ANY OTHER OBLIGATIONS OR LIABILITIES ARISING OUT OF BREACH OF CONTRACT OR OF WARRANTY
- (2) ANY OBLIGATIONS WHATSOEVER ARISING FROM TORT CLAIMS (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR ARISING UNDER OTHER THEORIES OF LAW WITH RESPECT TO PRODUCTS SOLD OR SERVICES RENDERED BY BADGER METER, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATING THERETO, AND
- (3) ALL CONSEQUENTIAL, INCIDENTAL AND CONTINGENT DAMAGES WHATSOEVER.

## Making Water Visible®

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Legacy Document Number: RD-W-4-AWWA-EN



**Badger Meter**

# HR-E High Resolution Encoder

## DESCRIPTION

**Applications:** The High Resolution Encoder (HR-E) is designed for use with all current Recordall® Disc, Turbo, Compound, Combo and Fire Series meters and assemblies. The HR-E provides connectivity with Badger Meter ORION® and GALAXY® AMR/AMI endpoints, BadgerTouch® modules and other AMR/AMI technology solutions approved by Badger Meter.

**Electronic Resolution:** Encoder output from the HR-E includes eight-dial resolution to AMR/AMI endpoints and the option of four, five, six, seven or eight-dial resolution for touch applications. Refer to tables on the next page for details.

**Mounting:** The HR-E in its shroud assembly uses a bayonet mount compatible with all Recordall Disc, Turbo, Compound and Fire Series meters and assemblies. The bayonet mount allows positioning of the register in any of four orientations for visual reading convenience. The HR-E can be removed from the meter without disrupting water service.

**Magnetic Drive:** A direct-drive, high-strength magnetic coupling, through the meter body to the wetted magnet, provides reliable and dependable register coupling.

**Local Indication:** The HR-E face features an eight-dial mechanical odometer wheel stack and a flow finder with a calibrated test circle.

**Tamper-Resistant Features:** Unauthorized removal of the HR-E is inhibited by the option of a tamper detection seal wire screw, tamper-resistant TORX® seal screw, or the proprietary tamper-resistant keyed seal screw. Each can be installed at the meter site or at the factory.

**Construction:** The housing of the HR-E is constructed of a strengthened glass lens top and a corrosion-resistant metal bottom. Internal construction materials are thermoplastic for long life and high reliability. The encoder gearing is self-lubricating thermoplastic to minimize friction and provide long, reliable life. The shroud assembly is thermoplastic.

**Temperature:** The operating range of the HR-E is -40...140° F (-40...60° C). The water meter should not be subjected to temperatures below freezing.

**Sealing:** The HR-E encoder is permanently sealed to eliminate the intrusion of moisture, dirt or other contaminants. The HR-E achieves true water resistance due to the unique adhesive technology used to seal the glass dome to the corrosion-resistant metal bottom. Due to this sealing process, the HR-E exceeds all applicable requirements of AWWA Standard C707. With leak rates less than 10-6 cc/sec, as tested by a helium mass spectrometer, the HR-E is suitable for installation in all environments, including meter pits subject to continuous submergence.

**Electrical:** The electronic circuitry is designed to provide immunity to electrical surges and transients per IEC 1000-4-2, IEC 1000-4-4. Operation of the HR-E is dependent on the wire length limitations of connected AMR/AMI equipment.



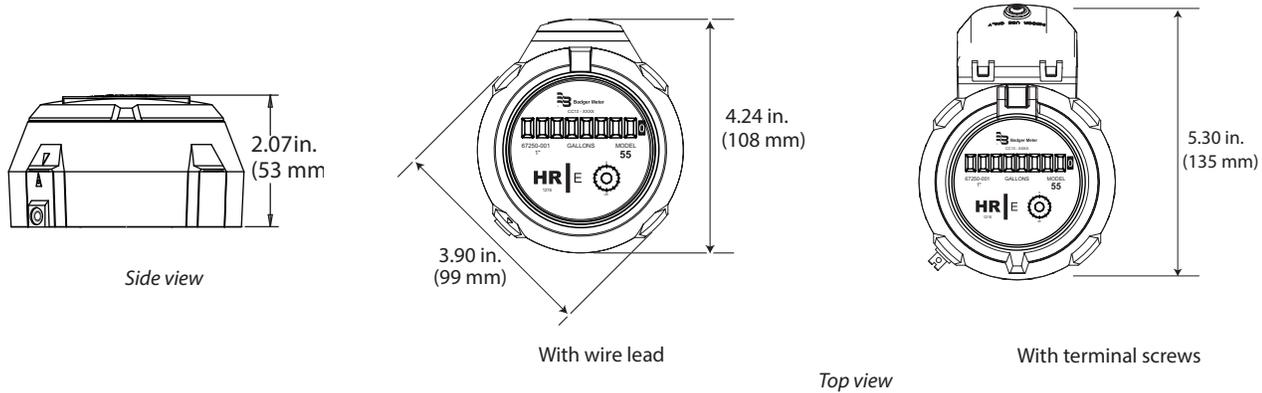
## SPECIFICATIONS

<b>Encoder Type</b>	Straight reading, permanently sealed, magnetic drive
<b>Unit of Measure</b>	U.S. Gallons, Cubic Feet, Cubic Meters, clearly identified on encoder face
<b>Number Wheels</b>	Eight with 5/32 inch high numerals
<b>Test Circle</b>	360° circle with ten major increments, ten divisions each
<b>Weight</b>	10 ounces
<b>Humidity</b>	0...100% condensing when equipped with potted lead wire, 0...95% non-condensing with screw-terminal wire connections
<b>Temperature</b>	-40...140° F (-40...60° C)
<b>Signal Output</b>	Industry Standard ASCII Format
<b>Visual Resolution</b>	1/100th of Test Circle
<b>Electronic Resolution</b>	8-dial resolution for AMR/AMI; 4, 5, 6, 7 or 8-dial resolution for BadgerTouch
<b>Signal Type</b>	3-wire synchronous for AMR/AMI solutions (red=clock/power, black=ground, green=data) 2-wire asynchronous for Touch solutions
<b>Power Source</b>	External

**Operating Characteristics:** The reading obtained by an AMR/AMI device is sensed directly from the position of the encoder's odometer using internal LED light paths to determine the exact position of each number wheel. This technology eliminates electromechanical contacts that could wear out, and provides greater long-term performance.

**Wire Connections:** The HR-E is available with an in-line connector for easy connection and installation to AMR/AMI endpoints. It is also available with a flying lead for a field splice connection or fully prewired to an AMR/AMI endpoint. A terminal screw version of the HR-E is also available. This version features a tamper-resistant cap over the three-wire terminals. The HR-E with terminal screws is designed for indoor installations in protected environments such as residential basements.

## DIMENSIONAL DRAWINGS



## MEASUREMENT RESOLUTION

The minimum electronic resolution of the HR-E is as noted below (8-Dial Reading). To verify the correct resolution for your application, contact Badger Meter Customer Service.

Recordall Disc Series	Size (in.)	8-Dial Resolution (gal)	8-Dial Resolution (ft³)	8-Dial Resolution (m³)
M25/MLP	5/8	0.1	0.01	0.001
M25/MLP	3/4	0.1	0.01	0.001
M35	3/4	0.1	0.01	0.001
M40	1	0.1	0.01	0.001
M55	1	0.1	0.01	0.001
M70	1	0.1	0.01	0.001
M120	1-1/2	1	0.1	0.01
M170	2	1	0.1	0.01

Fire Service Series	8-Dial Resolution (gal)	8-Dial Resolution (ft³)	8-Dial Resolution (m³)
3 in.	1	0.1	0.01
4 in.	1	0.1	0.01
6 in.	10	1	0.1
8 in.	10	1	0.1
10 in.	10	1	0.1

Recordall Turbo Series	Size (in.)	8-Dial Resolution (gal)	8-Dial Resolution (ft³)	8-Dial Resolution (m³)
T160	1-1/2	1	0.1	0.01
T200	2	1	0.1	0.01
T450	3	1	0.1	0.01
T1000	4	1	0.1	0.01
T2000	6	10	1	0.1
T3500	8	10	1	0.1
T5500	10	10	1	0.1
T6200	12	100	10	0.1
T6600	16	100	10	1
T10000	20	100	100	1

Recordall Compound Series	Size (in.)	8-Dial Resolution (gal)	8-Dial Resolution (ft³)	8-Dial Resolution (m³)
High Side T200	2	1	0.1	0.01
Low Side M25	2	0.1	0.01	0.001
High Side T450	3	1	0.1	0.01
Low Side M25	3	0.1	0.01	0.001
High Side T1000	4	1	0.1	0.01
Low Side M35	4	0.1	0.01	0.001
High Side T2000	6	10	1	0.1
Low Side M35	6	0.1	0.01	0.001

Resolution stated as individual high and low readings.

## Making Water Visible®

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**Badger Meter**

**HR-E**

**High Resolution Encoder**

## **PRODUCTS COVERED**

This Badger Meter warranty shall apply to the High Resolution Encoder (HR-E) ("Product"), sold on or after June 3, 2014. This warranty is not transferable and is extended only to utilities, municipalities, other commercial users and authorized distributors, hereafter referred to as "Customer" and does NOT apply to consumers or any person or entity who is not an original customer of Badger Meter or its authorized distributors.

## **MATERIALS AND WORKMANSHIP**

Badger Meter warrants the Product to be free from defects in materials and workmanship appearing within ten (10) years and six (6) months after shipment from Badger Meter.

## **PRODUCT RETURNS**

Any Product proved to the satisfaction of Badger Meter to have failed the foregoing warranties will, at the option of Badger Meter, be repaired or replaced without charge to the Customer. The Badger Meter obligation hereunder shall be limited to such repair and replacement and shall be conditioned upon Badger Meter receiving written notice of any alleged defect within ten (10) days after its discovery. This exclusive remedy shall not be deemed to have failed its essential purpose so long as Badger Meter is willing and able to replace defective products or issue a credit to purchaser within a reasonable time of proof to Badger Meter that a defect is involved. Product returns must be shipped by the Customer prepaid F.O.B. to the nearest Badger Meter factory or distribution center. The Customer shall be responsible for all direct and indirect costs associated with removing the original Product and reinstalling the repaired or replacement Product.

## **LIMITS OF LIABILITY**

This warranty shall not apply to Product repaired or altered by parties other than Badger Meter. The foregoing warranty applies only to the extent that the Product is installed, serviced and operated strictly in accordance with Badger Meter instructions. The warranty shall not apply and shall be void with respect to Product exposed to conditions other than those detailed in the Badger Meter Product technical literature or which have been subject to vandalism, negligence, accident, acts of God, alteration, improper installation, operation or repair, or other circumstances which are beyond the reasonable control of Badger Meter. With respect to Product not manufactured by Badger Meter, the warranty obligations of Badger Meter shall in all respects conform and be limited to the warranty extended to Badger Meter by the supplier.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS AND IMPLIED WARRANTIES WHATSOEVER, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE **(except warranties of Title).**

Any description of Product, whether in writing or made orally by Badger Meter or its agents, specifications, samples, models, bulletins, drawings, diagrams, engineering sheets or similar materials used in connection with any Customer's order are for the sole purpose of identifying Product and shall not be construed as an express warranty. Any suggestions by Badger Meter or its agents regarding use, application or suitability of Product shall not be construed as an express warranty unless confirmed to be such in writing by Badger Meter.

## **Exclusion of Consequential Damages and Disclaimer of Other Liability**

Badger Meter liability with respect to breaches of the foregoing warranty shall be limited as stated therein. Badger Meter liability shall in no event exceed the contract price. BADGER METER SHALL NOT BE SUBJECT TO AND DISCLAIMS: (1) ANY OTHER OBLIGATIONS OR LIABILITIES ARISING OUT OF BREACH OF CONTRACT OR OF WARRANTY (2) ANY OBLIGATIONS WHATSOEVER ARISING FROM TORT CLAIMS (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR ARISING UNDER OTHER THEORIES OF LAW WITH RESPECT TO PRODUCTS SOLD OR SERVICES RENDERED BY BADGER METER, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATING THERETO, AND (3) ALL CONSEQUENTIAL, INCIDENTAL AND CONTINGENT DAMAGES WHATSOEVER.

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