

Submit To: CHIEF ENGINEER
Division of Water Resources
Kansas Department of Agriculture
1320 Research Park Drive
Manhattan, Kansas 66502-5000

CERTIFICATION OF WATER FLOWMETERS

(KANSAS ADMINISTRATIVE REGULATION 5-1-12)



State of Kansas

Documentation must be attached to verify information. Attachment of flow meter specifications may answer many of the following questions. See reverse side for further instructions of completion.

1. Water flowmeter manufacturer's name: _____
2. Manufacturer contact person, name and address: _____

3. Flowmeter model name and/or number being certified: _____
4. Number of this model of water flowmeter manufactured annually: _____
5. Number of water flowmeters randomly tested for $\pm 2\%$ accuracy: _____
6. Are the water flowmeter test standards traceable to NIST? Yes _____ No _____
7. When does the certification for NIST-traceable flow laboratory standards expire? _____
8. Is the flowmeter designed and constructed so that accuracy will be maintained over the life of the flowmeter?
Yes _____ No _____ Explain how and why on attachment.
9. Is the serial number of the water flowmeter and the direction of flow clearly indicated on the flowmeter itself?
Yes _____ No _____
10. Is the register weatherproof? Yes _____ No _____
11. Does the totalizer read only in acre-feet, acre-inches, or gallons? Yes _____ No _____
12. How many active digits are there in the totalizer? _____ digits.
13. Is the totalizer memory nonvolatile? Yes _____ No _____
14. Can the totalizer be reset without breaking the manufacturer's seal or obtaining the authorization of the manufacturer or the Chief Engineer?
Yes _____ No _____
15. Are the water flowmeter and register constructed so that they can be sealed by the Chief Engineer? Yes _____ No _____
16. Describe the measuring chamber which will be used with this model of water flowmeter.

17. Describe the design of flow-straightening vanes installed in the measuring chamber.

18. What are the spacing recommendations for this water flowmeter model in terms of pipe diameters of straight pipe required upstream and downstream of the water flowmeter sensor to obtain $\pm 2\%$ accuracy?
Upstream _____ pipe diameters, Downstream _____ pipe diameters
19. What is the normal operating range of this model water flowmeter? Lowest velocity _____ fps, Highest velocity _____ fps.

I warrant and represent that by signing this document I am authorized by the manufacturer to certify that all of the information on, and attached to, this document is true and correct.

Signature & Date: _____

Printed Name: _____

Instructions for Completion of Front Side.
(One certification required for each model of water flowmeter being certified.)

- 1.&2. Water flowmeter manufacturer's name with contact name, address and telephone number. An email address is not required but would be useful.
3. Model name or number of flowmeter being certified. (One certification per identifiable model or model series. Each model must be certified. No limit on number of models, but each model certified must contain a complete response to K.A.R. 5-1-12.)
- 4, 5, 6. Proof that flowmeters of this model are randomly selected from the production line and tested for accuracy. Minimum number of test samples each year to be 1,300 times the annual production divided by the quantity (4 times the annual production plus 1,300). (Proof may be as simple as describing your quality control practices, telling how many flowmeters are produced each year and how many finished flowmeters were wet tested at a flow lab with standards traceable to NIST.)
7. When does the NIST-traceable certification for the flow laboratory standards expire?
8. Explain how the flowmeter is designed and constructed so that accuracy will be maintained over the life of the flowmeter. (Briefly describe special designs and materials which keep accuracy from degrading and attest to the accuracy provided.)
9. Verify that the serial number of the water flowmeter and the direction of flow are clearly indicated on the flowmeter itself.
10. Verify that the register is weatherproof.
11. Verify that the totalizer will read only in acre-feet, acre-inches, or gallons. (Because of the flexibility of electronic readouts, this should be interpreted as only reading in acre-feet, acre-inches, or gallons when installed in Kansas.)
12. How many active digits are there in the totalizer?
13. Verify that the totalizer memory is nonvolatile. (If all power, including backup battery, is lost, the totalizer will not lose its accumulated value.)
14. Verify that the totalizer cannot be reset without breaking the manufacturer's seal or obtaining the authorization of the manufacturer or the Chief Engineer. (Electronic totalizer resets may be considered sealed by either physical encasement, a password known only to the manufacturer, or any other device that shields a reset. This requirement is to ensure that it is evident when a totalizer has been reset by anyone other than the manufacturer or the Chief Engineer.)
15. Verify that the water flowmeter and register are constructed such that they can be sealed by the Chief Engineer. (Indicate how a Chief Engineer's representative will be ensured that a water flowmeter is not removed, reset, or otherwise tampered with.)
16. Describe the measuring chamber provided, or expected to be used, with this model of water flowmeter. (Measuring chamber is defined as "a cylindrical chamber in which a water flowmeter is installed that is calibrated to match the measuring element of the water flowmeter and the nominal size of the pipe in which it is installed." The intent of this requirement is to ensure proper installation.)
17. Describe the design of flow-straightening vanes installed in the measuring chamber. (Positive-displacement and multi-jet meters are exempted from the straightening vanes requirement.)
18. What are the spacing recommendations for each water flowmeter model in terms of pipe diameters of straight pipe required upstream and downstream of the water flowmeter sensor to obtain $\pm 2\%$ accuracy? (The minimum spacing allowed by the Chief Engineer is 5 diameters upstream and 2 diameters downstream regardless of lesser manufacturer recommendations. Greater spacings quoted by the manufacturer will be regarded as the minimum for the model water flowmeter quoted.)
19. What is the normal operating range of this model water flowmeter? (i.e., what are the lowest and highest velocities at which this model of water flowmeter can be expected to provide $\pm 2\%$ accuracy?)