

GENERAL:

The scope of this document is to provide instruction for the installation of steam revenue metering.

DESIGN GUIDELINES:

1. Materials

- 1.1. The University of Missouri Columbia has standardized on FSS Swirl Flowmeters as manufactured by ABB Inc., Warminster, PA and Supertrol II flow computers as manufactured by KEP Inc., Eaton Town, NJ. Substitutes will not be accepted.
- 1.2. As these meters will be used to measure building steam usage for utility billing purposes, the meter shall be carefully sized considering the design of the building envelope, HVAC and process equipment, projected building utilization and diversification. Consultant is to provide Project Manager with GSF of facility and a steam usage estimate. All capacities and selections must be verified with ABB and approved by the Project Manager before completing final selection.
- 1.3. Steam Meter
 - 1.3.1. Meter shall be Swirl Flowmeter Model FSS430Y0R1F0()R0A1A1B1H5L2SP0R5TC1M5 . No substitutions accepted.
- 1.4. Flow Computer
 - 1.4.1. KEP Flow computer model ES749O1(3-MOD-IP)P without enclosure. No substitutions accepted.
- 1.5. Pressure Transmitter
 - 1.5.1. ABB Model 261GSDKBNS1 pressure transmitter or approved equal. Pressure range 0-145 psig. Process temperature range of -58 to 248 °F. ½” NPT process connection. Pressure transmitter shall have ½” pigtail siphon and ½” forged steel gate valves before and after installed pigtail siphon.
 - 1.5.2. Pressure transmitter shall have ½” pigtail siphon and ½” forged steel gate valves before and after installed pigtail siphon.
- 1.6. RTD
 - 1.6.1. ABB Model V10186-LT2T (_ _ _) 3S3A10 or approved equal. RTD assembly shall include a spring loaded, three-wire platinum 100 ohm RTD. Aluminum connection head, 316 stainless steel union and nipple inserted into a 316 stainless steel thermowell. Process connection shall be ¾” NPT.

2. Installation

- 2.1. Installation of steam meter and associated wiring, pressure transmitter and RTD assembly, shall be in strict accordance with manufacturer’s printed instructions and recommendations, applicable BOCA requirements, and as detailed on drawings.

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- 2.2. Swirl meters shall be installed in a horizontal position with a minimum of five straight pipe diameters upstream and five straight pipe diameters downstream. Meter head shall be installed in the horizontal plane or facing down as detailed in instructions for high temperature applications.
 - 2.3. Swirl meter shall be installed prior to all steam pressure reducing valves and modulating control valves.
 - 2.4. Swirl meter transmitter shall be located in an accessible location to permit ease of reading and service of transmitter.
 - 2.5. Low-voltage wiring to the steam meter and flow computer shall be made in coordination with Owner's Representative as shown in 336333 ABB Swirl Meter Wiring Diagram.dwg.
- 3. Commissioning**
- 3.1. The final wiring connections to the swirl meter, pressure transmitter and RTD will be made by Owner.
 - 3.2. Steam will not be turned on by Owner until the steam meter is fully installed and operating satisfactorily and the downstream steam piping is successfully leak tested and secure.
 - 3.3. Only Owner personnel will be authorized to turn steam service on or off.

REFERENCES

336333 ABB Swirl Meter Wiring Diagram.dwg