APPENDIX G

Flow Meter Details

Last Updated 6/10/2024

Oklahoma State University Utility Meter Part Number List

OSU has a sole product agreement with Endress Hauser for all utilities flowmeters on the OSU-Stillwater Campus.

Promag P100 magnetic flowmeters (for domestic water, chilled water, heating hot water, and condensate applications):

Standard Options:

- Liner : PTFE, PFA
- Non-hazardous area approval
- 24 Vdc power supply
- 4-20 mA HART, pulse/frequency/switch output
- No display
- Compact, aluminum coated housing
- Threaded ½" NPT electrical connection
- Class 150, carbon steel, ASME B16.5 flanges
- 316L electrodes
- NSF 61 drinking and warm water approval

Meter connection size (inch)	Meter Part Number
½"	5P1B15-AADBAADEA1KGA+AAL5
1"	5P1B25-AADBAADEA1K0A+AAL5
1-1/2"	5P1B40-AADBAADEA1K0A+AAL5
2"	5P1B50-AADBAADEA1K0A+AAL5
3"	5P1B80-AADBAADEA1K0A+AAL5
4"	5P1B1H-AADBAADEA1K0A+AAL5
6"	5P1B1F-AADBAADEA1K0A+AAL5
8"	5P1B2H-AADBAADEA1K0A+AAL5
10"	5P1B2F-AADBAADEA1K0+AAL5
12"	5P1B3H-AADBAADEA1K0A+AAL5

Standard line size Prowirl F200 vortex flowmeters (for steam applications where meter size is the same as line size):

Standard Options:

- Non-hazardous area approval
- 4-20 mA HART, pulse/frequency/switch output
- Display :SD02 with 4-line, push buttons and data backup function
- GT20 dual compartment, aluminum coated housing
- Threaded ½" NPT electrical connection
- Class 150, carbon steel, ASME B16.5 flanges
- 316L electrodes with integral temperature measurement and graphite sensor seal
- 0.75%, 3-point calibration flow

Meter connection size (inch)	Meter Part Number
½"	7F2C15-AADCCADCAAAAASKA1+AADJ
1"	7F2C25-AADCCADCAAAAASKA1+AADJ
1-1/2"	7F2C40-AADCCADCAAAAASKA1+AADJ
2"	7F2C50-AADCCADCAAAAASKA1+AADJ
3"	7F2C80-AADCCADCAAAAASKA1+AADJ
4"	7F2C1H-AADCCADCAAAAASKA1+AADJ
6"	7F2C1F-AADCCADCAAAAASKA1+AADJ
8"	7F2C2H-AADCCADCAAAAASKA1+AADJ

Reduced meter size Prowirl F200 vortex flowmeters (for steam applications where meter size is *smaller* than line size):

Standard Options: - Non-hazardous area approval - 4-20 mA HART, pulse/frequency/switch output - Display :SD02 with 4-line, push buttons and data backup function - GT20 dual compartment, aluminum coated housing	- Threaded ½" NPT electrical connection - Class 150, carbon steel, ASME B16.5 flanges - 316L electrodes with integral temperature measurement and graphite sensor seal - 0.75%, 3-point calibration flow
Line Size > Meter Size (inch)	**Meter Part Number**
1-1/2" > 1"	7R2CRG-AADCCADCAAAAASKA1+AADJ
2" > 1-1/2"	7R2CRJ-AADCCADCAAAAASKA1+AADJ
3" > 2"	7R2CRK-AADCCADCAAAAASKA1+AADJ
4" > 3"	7R2CRM-AADCCADCAAAAASKA1+AADJ
6" > 4"	7R2BRN-AADCCD3AASK+AADJ
8" > 6"	7R2CRR-AADCCADCAAAAASKA1+DJ

CERABAR pressure transmitter (for all applications):

Standard Options: - Non-hazardous area approval - 4-20 mA output - IP 65 NEMA 4x enclosure - Threaded ½" NPT electrical connection - EPDM seal	- 0-150 PSIG sensor range, 600 PSI overload - Threaded ½" MNPT / ¼" FNPT process connection - 316L housing and process connection
All applications	PMC11-AA1V1PFVXJJ

RSG45 data monitors (for all applications):

Standard Options: - Non-hazardous area approval - 100-230 Vac power supply - **16 Inputs** - Threaded ½" NPT electrical connection - Zink diecast, powder-coated IP65 NEMA 4 enclosure	- MODBUS RTU/TCP communication - Energy Software + mathematic - Integrated Web server - 7" multicolor TFT display (English)
All applications	RSG45-AA1BBBBAA1B6+AA

*All RSG45 data monitors must be installed in a Hoffman Pentair model A14128PHC enclosure.

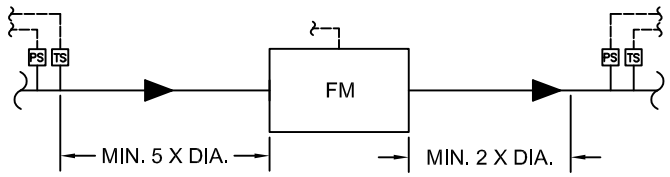
Flowmeter Selection Guidelines

Flowmeter Section Guidelines			
Media	**Minimum Flow**	**Nominal Flow**	**Maximum Flow**
Domestic Water	10% of peak flow	80% of peak flow	100% peak flow*
Chilled Water	10% of peak flow	80% of peak flow	100% peak flow*
Condensate	10% of peak steam flow	100% of peak steam flow **	Condensate return unit pump flow (single pump flow value)
Heating Hot Water	10% of peak flow	80% of peak flow	100% peak flow*

*Peak low is calculated and provided by EOR

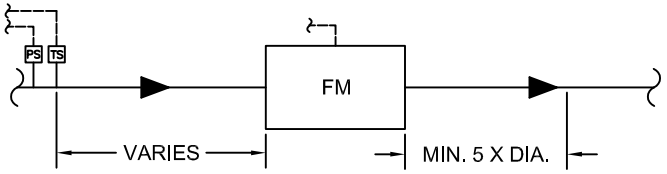
**Peak Steam flow is calculated and provided by EOR. Peak steam flow would be expressed in lb/hr, divide lb/hr value by 500 to obtain value expressed in GPM of condensate

MAGNETIC FLOW METER (CW, DW, HW):



- MINIMUM STRAIGHT RUNS SHOWN INCLUDE FITTINGS, VALVES, TEES, ELBOWS, AND REDUCERS.
- CONSULT THE LATEST EDITION OF THE ENDRESS HAUSER PROMAG P100 TECHNICAL INFORMATION MANUAL TO CONFIRM DIMENSIONS.

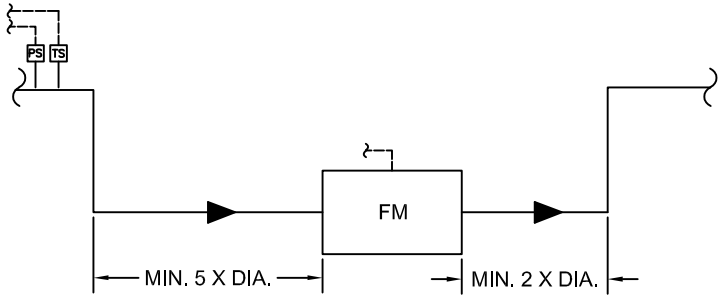
VORTEX FLOW METER (STEAM):



MINIMUM INLET RUNS	
OBSTRUCTION	MIN. PIPE DIA.
PIPE REDUCER	15
SINGLE 90 ELBOW	20
DOUBLE 90 ELBOW	40
TEE	20
VALVE	50

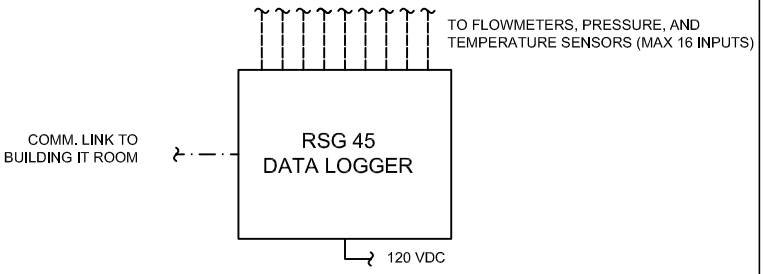
- CONSULT THE LATEST EDITION OF THE ENDRESS HAUSER PROWIRL F200 TECHNICAL INFORMATION MANUAL TO CONFIRM DIMENSIONS

MAGNETIC FLOW METER (COND):



- MINIMUM STRAIGHT RUNS SHOWN INCLUDE FITTINGS, VALVES, TEES, ELBOWS, AND REDUCERS.
- CONSULT THE LATEST EDITION OF THE ENDRESS HAUSER PROMAG P100 TECHNICAL INFORMATION MANUAL TO CONFIRM DIMENSIONS.

RSG 45 DATA LOGGER:



- RSG 45 MUST BE INSTALLED IN AN ACCESSIBLE PART OF THE BUILDING MECHANICAL ROOM.
- POWER REQUIREMENT FOR RSG 45 IS 120V/1/60 WITH A MOP OF 20A (DEDICATED CIRCUIT). A LOCAL DISCONNECT IS REQUIRED, WHICH SHALL BE LABEL/IDENTIFY BY THE CONTRACTOR.
- DATA LOGGER MUST BE INSTALLED IN A HOFFMAN PENTAIR MODEL A14128PHC LOCK BOX. DIMENSIONS ARE : 12' WIDE X 16.5" HIGH X 9.5" DEEP.
- 1" CONDUIT MUST BE INSTALLED FROM THE DATA LOGGER TO EACH METER OR SENSOR USING A 18-4 AWG SHIELDED WIRE. THE CONDUIT SHALL BE ATTACHED TO THE DATA LOGGER BOX WITH AT LEAST ONE FOOT OF WIRE INSIDE THE BOX (INSTALLED BY THE CONTRACTOR).
- A CAT6 CABLE MUST BE RUN FROM THE DATA LOGGER (WITH AT LEAST ONE FOOT OF WIRE INSIDE THE BOX) TO THE BUILDING IT ROOM (INSTALLED BY THE CONTRACTOR).
- ALL WIRING MUST BE INSTALLED BY CONTRACTOR. OSU WILL TERMINATE THE WIRES (18-4 AWG SHIELD WIRE) WHEN THE RSG45 IS INSTALLED.

STANDARD FLOW METER INSTALLATION DETAILS