

# APPENDIX G

## Flow Meters Details



Last Updated 10/12/2018

## 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):

<u>Standard Options:</u>	
<ul style="list-style-type: none"> <li>- Liner : PTFE, PFA</li> <li>- Non-hazardous area approval</li> <li>- 24 Vdc power supply</li> <li>- 4-20 mA HART, pulse/frequency/switch output</li> <li>- No display</li> <li>- Compact, aluminum coated housing</li> </ul>	<ul style="list-style-type: none"> <li>- Threaded ½” NPT electrical connection</li> <li>- Class 150, carbon steel, ASME B16.5 flanges</li> <li>- 316L electrodes</li> <li>- NSF 61 drinking and warm water approval</li> </ul>
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):

<u>Standard Options:</u>	
<ul style="list-style-type: none"> <li>- Non-hazardous area approval</li> <li>- 4-20 mA HART, pulse/frequency/switch output</li> <li>- Display :SD02 with 4-line, push buttons and data backup function</li> <li>- GT20 dual compartment, aluminum coated housing</li> </ul>	<ul style="list-style-type: none"> <li>- Threaded ½” NPT electrical connection</li> <li>- Class 150, carbon steel, ASME B16.5 flanges</li> <li>- 316L electrodes with integral temperature measurement and graphite sensor seal</li> <li>- 0.75%, 3-point calibration flow</li> </ul>
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):**

<u>Standard Options:</u>	
<ul style="list-style-type: none"> <li>- Non-hazardous area approval</li> <li>- 4-20 mA HART, pulse/frequency/switch output</li> <li>- Display :SD02 with 4-line, push buttons and data backup function</li> <li>- GT20 dual compartment, aluminum coated housing</li> </ul>	<ul style="list-style-type: none"> <li>- Threaded ½" NPT electrical connection</li> <li>- Class 150, carbon steel, ASME B16.5 flanges</li> <li>- 316L electrodes with integral temperature measurement and graphite sensor seal</li> <li>- 0.75%, 3-point calibration flow</li> </ul>
<b>Line Size &gt; Meter Size (inch)</b>	<b>Meter Part Number</b>
<b>1-1/2" &gt; 1"</b>	7R2CRG-AADCCADCAAAAASKA1+AADJ
<b>2" &gt; 1-1/2"</b>	7R2CRJ-AADCCADCAAAAASKA1+AADJ
<b>3" &gt; 2"</b>	7R2CRK-AADCCADCAAAAASKA1+AADJ
<b>4" &gt; 3"</b>	7R2CRM-AADCCADCAAAAASKA1+AADJ
<b>6" &gt; 4"</b>	7R2BRN-AADCCD3AASK+AADJ
<b>8" &gt; 6"</b>	7R2CRR-AADCCADCAAAAASKA1+DJ

**CERABAR pressure transmitter (for all applications):**

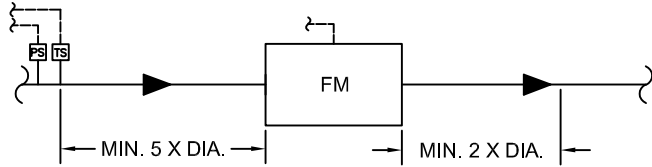
<u>Standard Options:</u>	
<ul style="list-style-type: none"> <li>- Non-hazardous area approval</li> <li>- 4-20 mA output</li> <li>- IP 65 NEMA 4x enclosure</li> <li>- Threaded ½" NPT electrical connection</li> <li>- EPDM seal</li> </ul>	<ul style="list-style-type: none"> <li>- 0-150 PSIG sensor range, 600 PSI overload</li> <li>- Threaded ½" MNPT / ¼" FNPT process connection</li> <li>- 316L housing and process connection</li> </ul>
All applications	PMC11-AA1V1PFVXJJ

**RSG45 data monitors (for all applications):**

<u>Standard Options:</u>	
<ul style="list-style-type: none"> <li>- Non-hazardous area approval</li> <li>- 100-230 Vac power supply</li> <li>- <b>16 Inputs</b></li> <li>- Threaded ½" NPT electrical connection</li> <li>- Zink diecast, powder-coated IP65 NEMA 4 enclosure</li> </ul>	<ul style="list-style-type: none"> <li>- MODBUS RTU/TCP communication</li> <li>- Energy Software + mathematic</li> <li>- Integrated Web server</li> <li>- 7" multicolor TFT display (English)</li> </ul>
All applications	RSG45-AA1BBBBAA1B6+AA

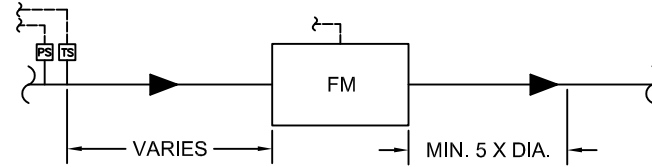
\*All RSG45 data monitors must be installed in a Hoffman Pentair model A14128PHC enclosure.

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.

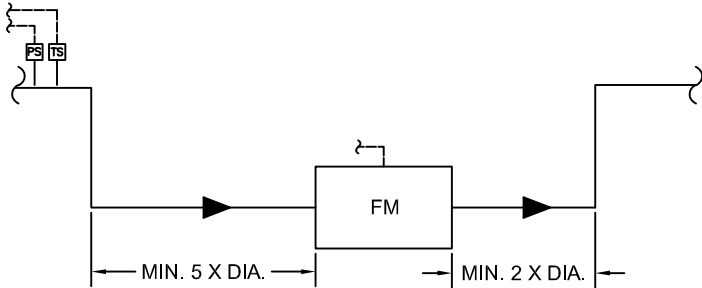
VORTEX FLOW METER (STEAM):



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

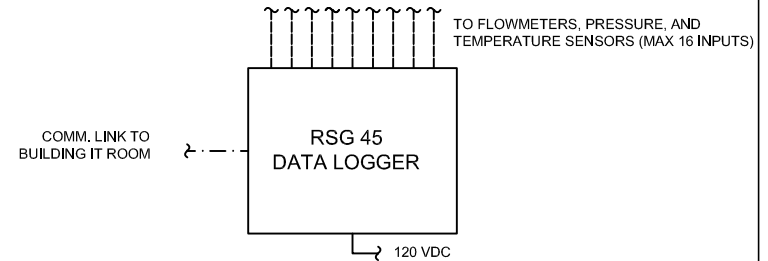
- CONSULT THE LATEST EDITION OF THE ENDRESS HAUSER PROWRL F200 TECHNICAL INFORMATION MANUAL TO CONFIRM DIMENSIONS

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 AN MOP OF 15A. A LOCAL DISCONNECT IS REQUIRED.
- 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 WITH PULLSTRING MUST BE INSTALLED FROM THE DATA LOGGER TO EACH METER AND SENSOR.
- A CAT6 CABLE MUST BE RUN FROM THE DATA LOGGER TO THE BUILDING IT ROOM.
- ALL WIRING MUST BE INSTALLED AND TERMINATED BY CONTRACTOR.

# STANDARD FLOW METER INSTALLATION DETAILS

## Sizing of Domestic Water Meters


1. Go to the Endress Hauser web page: <https://www.us.endress.com/en>
2. Click on "Go to Applicator"


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USA

Industries Products Solutions Services

**Endress+Hauser**   
People for Process Automation



New possibilities, new experiences. Personal and digital.

e-Commerce now on endress.com!

[More information »](#)

01 02 03 04

### Product finder

Our product finder helps you to search for suitable measuring devices, software or system components via product characteristics. Applicator leads you through an individual product selection via application parameters.

[Go to product finder](#)

[Go to Applicator](#)

# Sizing of Domestic Water Meters

While in the 'Applicator' page

3. Select 'Flow' under the 'Product Sizing'

4. Select 'Liquids/Gas/Steam'

The screenshot shows the 'Applicator' web interface for Endress+Hauser. The page title is 'Product selection via application parameters'. The main navigation bar includes 'Home', 'Help', and 'Contact'. The 'Your Industry' section lists six categories: Chemical, Water & Wastewater, Food & Beverage, Life Sciences, Oil & Gas, and Power & Energy, each with a representative image. The 'Product Selection' section is titled 'Best matching your application requirements' and features a grid of dropdown menus for Level, Pressure, Flow, Temperature, Analysis, Density, Viscosity, Software, and System Products. The 'Product Sizing' section is titled 'Perfectly supporting your dimensioning' and includes dropdown menus for Level, Pressure, Flow, and Temperature. The 'Flow' dropdown menu is expanded, showing options: Liquids/Gas/Steam, Density/Concentration, and Teqwave concentration app finder. An orange cloud-shaped highlight surrounds the 'Flow' dropdown and its options, with an orange arrow pointing to the 'Liquids/Gas/Steam' option, which is also marked with a small orange box containing the number '4.'. Below the 'Flow' dropdown, there is a link that says 'Find the best fitting flow successor device'.

## Sizing of Domestic Water Meters

5. Select 'Monitoring/Control' under 'Measuring task'

6. Select 'Water' and then 'Water, process' under 'Fluid'

The screenshot shows the 'Sizing Flow' application interface for 'Dimensioning of flowmeters'. The 'Measuring task' dropdown is set to 'Monitoring/Control', indicated by an orange arrow and a box labeled '5.'. The 'Fluid' dropdown is open, showing a list of fluid types. An orange arrow and a box labeled '6.' point to the 'Water, process' option in the list. The 'Principle/Sensor' dropdown is currently set to '-- choose'. A 'User hint' section on the left provides a list of steps: 1. Measuring task, 2. Fluid, 3. Principle/Sensor, 4. Transmitter. The 'Reset' button is located at the bottom right of the interface.

Product selection via application parameters Close X

Applicator Endress+Hauser

Home Help Contact

Sizing Flow Dimensioning of flowmeters

**General parameters**

Measuring task: Monitoring/Control 5. Principle/Sensor: -- choose

Fluid: -- choose 6.

Standard/State: -- choose

TAG: -- choose

**User hint**

Please select in the following order:

1. Measuring task
2. Fluid
3. Principle/Sensor
4. Transmitter

Then, the process requires:

Reset

## Sizing of Domestic Water Meters

7. Select 'Electromagnetic (Promag)' and then 'Promag P (100, 200, 300, 500)' under 'Principle/Sensor'

Product selection via application parameters Close X

Applicator Endress+Hauser

Home Help Contact

Sizing Flow Dimensioning of flowmeters

Sizing

**General parameters**

Measuring task: Monitoring/Control

Fluid: Water, process

Standard/State: IAPWS

TAG:

Generation 3

Model:

Find ... Promag P (100, 200, 300, 500)

**New generation**

- Picomag
- Promag D (400)
- Promag L (400)
- Promag W (400, 500, 800)
- Promag H (100, 200, 300, 500)
- Promag E (100)
- Promag P (100, 200, 300, 500)**

**Current generation**

- Promag D (10)
- Promag L (10)

**User hint**

Please select in the following order:

1. Measuring task
2. Fluid
3. Principle/Sensor
4. Transmitter

Then, the process requirements can be entered!

Reset



## Sizing of Domestic Water Meters

8. Select '100' under 'Transmitter'

Product selection via application parameters Close X

Applicator Endress+Hauser

Home Help Contact

Sizing Flow Dimensioning of flowmeters

Sizing

**General parameters**

Measuring task  Principle/Sensor  Generation

Fluid   Transmitter  Model

Standard/State   Flow meter

TAG  Extended Order Code  8.

1 Message(s)

Process data

	minimum	nominal	maximum	Unit
Requested flow (min/nom/max)	<input type="text"/>	<input type="text"/>	<input type="text"/>	USGPH <input type="text"/>
Pressure (at)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

## Sizing of Domestic Water Meters

9. In the 'TAG', write the name of the project preceded by DW that stands for Domestic Water.

10. Selection of units: USGPM for flow, 'psi\_g' for pressure, and '°F' for temperature.

Product selection via application parameters Close X

Home Help Contact v

Measuring task *i* Monitoring/Control v Principle/Sensor *i* Promag P (100, 200, 30) v Generation 3

Fluid *i* <sup>EST</sup> Water, process v **Properties** Transmitter *i* 100 v Model *i* 0 v

Standard/State *i* IAPWS v **Liquid** Flow meter *i* Promag P 100

TAG *i* DW\_PROJECT\_NAME ← Extended Order Code 5P1B??- ????

**9.**

1 Message(s) v

Process data *i* **Reference values**

	minimum	nominal	maximum	Unit
Requested flow (min/nom/max)	<input type="text"/>	<input type="text"/>	<input type="text"/>	USGPM v
Pressure (at min/nom/max flow)	<input type="text"/>	<input type="text"/>	<input type="text"/>	psi_g v
Temp. (at min/nom/max flow)	<input type="text"/>	<input type="text"/>	<input type="text"/>	°F v

**10.**

## Sizing of Domestic Water Meters

11. Using the peak flow, fill the 'Requested flow' cells: minimum, nominal, and maximum.

Maximum = Peak Flow

Minimum = 10% of peak flow

Nominal = 80% of peak flow

Example: domestic water peak flow = 100 gpm (designer)

Minimum = 10 gpm

Nominal = 80 gpm

Maximum = 100 gpm

Product selection via application parameters

Applicator

Endress+Hauser

Requested flow (min/nom/max): 10 80 100 USGPM

Pressure (at min/nom/max flow): 70 70 70 psi\_g

Temp. (at min/nom/max flow): 45 45 45 °F

Density: 62.436 62.436 62.436 lb/ft3

Viscosity: 1.41658 1.41658 1.41658 cSt

Vapor pressure: 0.1476 0.1476 0.1476 psi\_a

Design pressure (min/max): 70 70 psi\_g

Design Temp. (min/max): 45 45 °F

	minimum	nominal	maximum	Unit
Requested flow	10	80	100	USGPM
Flow velocity	0.422	3.378	4.223	ft/s
Measured error Volume	1.28	0.6	0.58	%
Meas. error alt. Vol.	1.75	0.39	0.36	%
Reynolds no.	7 178	57 424	71 780	

Meter size: 3" +

12. Contact OSU Energy Services.

13.

14.

12. Contact OSU Utilities Engineering in order to obtain the nominal pressure. It depends on the location of the project.

13. The nominal temperature used for sizing domestic water (DW) meters is 45 °F.

14. Verify 'Flow velocity' stays into the range between 3.3 and 8.2 ft/s. Change the 'Meter size' if it is necessary to keep the 'Flow velocity' in this range.

## Sizing of Domestic Water Meters

At this point the sizing of domestic water (DW) meter is complete. The next step is to print the results that shall be email to OSU Energy services for approval.

15. Select 'Print Sizing'

16. On the 'Applicator Print Settings' / 'Reports to print', select: 'Sizing', ' Fluid properties', 'Compare sensors (Flow)' 'Trisize (Flow)', and 'Chart'

The screenshot shows the 'Product selection via application parameters' interface. The 'Applicator Print Settings' dialog box is open, displaying the following details:

- Page Format:** Page size: DIN A4; Page Margins [mm]: Top (0), Left (15), Bottom (0), Right (5); Orientation: Portrait (selected); Language: English (English).
- Reports to print:** Selection and Sizing reports:  Sizing,  Condensed,  Fluid properties,  Compare sensors (Flow),  Trisize (Flow),  Chart,  Corrosion info (Flow).

Annotations in the image include:

- A box labeled '15.' pointing to the 'Print Sizing' button at the bottom left of the main interface.
- A box labeled '16.' pointing to the 'Bottom' margin field in the 'Page Format' section, with arrows pointing to the 'Sizing', 'Fluid properties', 'Compare sensors (Flow)', 'Trisize (Flow)', and 'Chart' checkboxes in the 'Reports to print' section.

# Sizing of Domestic Water Meters

## 17. Download the pdf file

The screenshot shows the 'Applicator Sizing - Flow' window. The PDF icon in the top right corner of the window is highlighted with an orange box and an arrow pointing to it, with the number '17.' written next to the arrow. The window contains the following information:

**Project :**  
Customer:  
Contact person: Phone: C.Project No.:  
eMail: Fax:

**TAG :** DW\_PROJECT\_NAME  
Timestamp: --- Review number: ---  
Sales order number:

**Sizing Sheet**

**General Parameters**

Fluid	Water, process
State	Liquid
Character	Clean
Abrasivity	Not abrasive
Fluid Group (PED)	Normal Fluid (Fluid group 2)
Fluid type	Newtonian
Atmospheric Pressure	14.696 psi_a
Standard	ASME (ANSI)

**Operating Conditions**

	minimum	nominal	maximum	
Requested Flow	10	80	100	USGPM
Pressure		70		psi_g
Temperature		45		°F
Density		62.436		lb/ft3
Viscosity		1.41658		cSt
Pressure (min/max)	70		70	psi_g
Temp. (min/max)	45		45	°F
Vapor Pressure	0.1476	0.1476	0.1476	psi_a

**Flowmeter :** Promag P 100  
Flow Principle: Electromagnetic  
Meter Size: 2"

## 18. Save the pdf file

The screenshot shows the 'Applicator Sizing - Flow' window with a 'Save File' dialog box open over the PDF icon. The dialog box contains the following information:

Opening DW\_PROJECT\_NAME.pdf

You have chosen to open:

- DW\_PROJECT\_NAME.pdf
- which is: Adobe Acrobat Document (75.9 KB)
- from: https://portal.endress.com

What should Firefox do with this file?

Open with Adobe Acrobat DC (default)

Save File

Do this automatically for files like this from now on.

Buttons: OK, Cancel

## Sizing of Hot Water Meters

1. Go to the Endress Hauser web page: <https://www.us.endress.com/en>
2. Click on "Go to Applicator"

The screenshot shows the top navigation bar of the Endress+Hauser website. It includes links for 'About us', 'Media', 'Events', 'Career', 'Product tools', 'Downloads', 'Contact', and 'E-direct'. On the right side, there are icons for a shopping cart (labeled '0 Cart'), 'MyAccount', and a search icon (labeled 'Search'). Below the navigation bar, there is a 'USA' dropdown menu. The main header features the 'Endress+Hauser' logo with the tagline 'People for Process Automation' and a blue 'EH' logo. Below the logo, there are navigation links for 'Industries', 'Products', 'Solutions', and 'Services'. The hero section features a background image of a person sitting on a rock at sunset. A white text box on the left contains the text: 'New possibilities, new experiences. Personal and digital. e-Commerce now on endress.com! More information »'. Below this text box is a horizontal navigation bar with four tabs labeled '01', '02', '03', and '04'.

### Product finder

Our product finder helps you to search for suitable measuring devices, software or system components via product characteristics. Applicator leads you through an individual product selection via application parameters.

[Go to product finder](#)

[Go to Applicator](#)

# Sizing of Hot Water Meters

While in the 'Applicator' page

3. Select 'Flow' under the 'Product Sizing'

4. Select 'Liquids/Gas/Steam'

The screenshot shows the 'Applicator' web interface for Endress+Hauser. The page title is 'Product selection via application parameters'. The main navigation includes 'Home', 'Help', and 'Contact'. The 'Your Industry' section lists: Chemical, Water & Wastewater, Food & Beverage, Life Sciences, Oil & Gas, Power & Energy, and Primaries & Metals. The 'Product Selection' section includes: Level, Pressure, Flow, Temperature, Analysis, Density, Viscosity, Software, and System Products. The 'Product Sizing' section includes: Level, Pressure, Flow, Temperature, and Energy. The 'Flow' dropdown is expanded, showing 'Liquids/Gas/Steam' as the selected option, which is highlighted with an orange cloud and a box containing the number '4.'. Below the dropdown, there is a link: 'Find the best fitting flow successor device'.

## Sizing of Hot Water Meters

5. Select 'Monitoring/Control' under 'Measuring task'

6. Select 'Water' and then 'Water, process' under 'Fluid'

Product selection via application parameters Close X

Applicator Endress+Hauser

Home Help Contact v

Sizing Flow Dimensioning of flowmeters

**General parameters**

Measuring task: Monitoring/Control 5. Principle/Sensor: -- choose

Fluid: -- choose

Standard/State: -- choose

TAG: -- choose

**User hint**

Please select in the following order:

1. Measuring task
2. Fluid
3. Principle/Sensor
4. Transmitter

Then, the process requires:

Reset



# Sizing of Hot Water Meters

7. Select 'Electromagnetic (Promag)' and then 'Promag P (100, 200, 300, 500)' under 'Principle/Sensor'

Product selection via application parameters

Applicator Endress+Hauser

Home Help Contact

Sizing Flow Dimensioning of flowmeters

**General parameters**

Measuring task: Monitoring/Control

Fluid: Water, process

Standard/State: IAPWS

TAG:

**User hint**

Please select in the following order:

1. Measuring task
2. Fluid
3. Principle/Sensor
4. Transmitter

Then, the process requirements can be entered!

Find ... Promag P (100, 200, 300, 500) Generation 3

**New generation**

- Picomag
- Promag D (400)
- Promag L (400)
- Promag W (400, 500, 800)
- Promag H (100, 200, 300, 500)
- Promag E (100)
- Promag P (100, 200, 300, 500)**

**Current generation**

- Promag D (10)
- Promag L (10)

Model:

Reset

## Sizing of Hot Water Meters

8. Select '100' under 'Transmitter'

Product selection via application parameters Close X

Applicator Endress+Hauser


Home Help Contact

### Sizing Flow Dimensioning of flowmeters

Sizing

**General parameters**

Measuring task	Monitoring/Control	Principle/Sensor	Promag P (100, 200, 30)	Generation 3
Fluid	Water, process	Transmitter	100	Model 0
Standard/State	IAPWS	Flow meter	Promag P 100	
TAG		Extended Order Code	5P1B??- ????	



1 Message(s)

	Reference values			
	minimum	nominal	maximum	Unit
Requested flow (min/nom/max)				USGPH
Pressure (at)				

## Sizing of Hot Water Meters

9. In the 'TAG', write the name of the project preceded by HW that stands for Hot Water.
10. Selection of units: USGPM for flow, 'psi\_g' for pressure, and '°F' for temperature.

Product selection via application parameters Close

Home Help Contact

Measuring task: Monitoring/Control ▼ Principle/Sensor: Promag P (100, 200, 30) ▼ Generation 3

Fluid: Water, process ▼ Properties Transmitter: 100 ▼ Model: 0 ▼

Standard/State: IAPWS ▼ Liquid Flow meter: Promag P 100

TAG: HW\_PROJECT\_NAME ▼ Extended Order Code: 5P1B??- ????

1 Message(s)

	minimum	nominal	maximum	Unit
Requested flow (min/nom/max)	<input type="text"/>	<input type="text"/>	<input type="text"/>	USGPM <span>▼</span>
Pressure (at min/nom/max flow)	<input type="text"/>	<input type="text"/>	<input type="text"/>	psi_g <span>▼</span>
Temp. (at min/nom/max flow)	<input type="text"/>	<input type="text"/>	<input type="text"/>	°F <span>▼</span>

## Sizing of Hot Water Meters

11. Using the peak flow, fill the 'Requested flow' cells: minimum, nominal, and maximum.

Maximum = Peak Flow  
Minimum = 10% of peak flow  
Nominal = 80% of peak flow

Example: hot water peak flow = 100 gpm (designer)  
Minimum = 10 gpm  
Nominal = 80 gpm  
Maximum = 100 gpm

Product selection via application parameters

	minimum	nominal	maximum	Unit
Requested flow (min/nom/max)	10	80	100	USGPM
Pressure (at min/nom/max flow)	70	70	70	psi_g
Temp. (at min/nom/max flow)	90	90	90	°F
Density	62.127	62.127	62.127	lb/ft3
Viscosity	0.76472	0.76472	0.76472	cSt
Vapor pressure	0.699	0.699	0.699	psi_a
Design pressure (min/max)	70		70	psi_g
Design Temp. (min/max)	90		90	°F

	nominal	maximum	Unit	
Requested flow	10	80	100	USGPM
Flow velocity	1.054	8.434	10.54	ft/s
Measured error Volume	0.81	0.54	0.53	%
Meas. error alt. Vol.	0.82	0.28	0.26	%
Reynolds no.	21 009	168 070	210 088	
Meter size	2"			

12. Contact OSU Energy Services.

13.

14.

Good engineering practice - no PED class

Print Sizing   Sizing Energy   Add to Cart   Reset

12. Contact OSU Utilities Engineering in order to obtain the nominal pressure. It depends on the location of the project.

13. The nominal temperature used for sizing hot water (HW) meters is 90 °F.

14. Verify 'Flow velocity' stays into the range between 3.3 and 8.2 ft/s. Change the 'Meter size' if it is necessary to keep the 'Flow velocity' in this range.

**From this point, please follow steps 15 through 18 of the "Sizing Domestic Water" document.**