

APPENDIX G

Flow Meter Details



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"> - 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 | <ul style="list-style-type: none"> - 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):

| <u>Standard Options:</u> | |
|--|---|
| <ul style="list-style-type: none"> - 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 | <ul style="list-style-type: none"> - 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):

| | |
|--|---|
| <u>Standard Options:</u> | |
| <ul style="list-style-type: none"> - 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 | <ul style="list-style-type: none"> - 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):

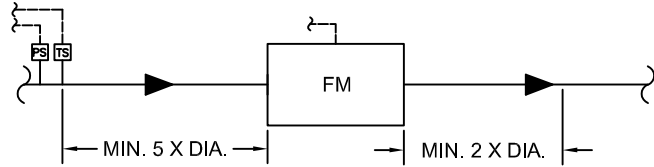
| | |
|--|---|
| <u>Standard Options:</u> | |
| <ul style="list-style-type: none"> - Non-hazardous area approval - 4-20 mA output - IP 65 NEMA 4x enclosure - Threaded ½" NPT electrical connection - EPDM seal | <ul style="list-style-type: none"> - 0-150 PSIG sensor range, 600 PSI overload - Threaded ½"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

RSG45 data monitors (for all applications):

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

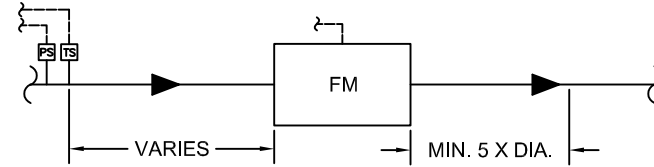
*All RSG45 data monitors must be installed in a Hoffman Pentair model A14128PHC enclosure.

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.

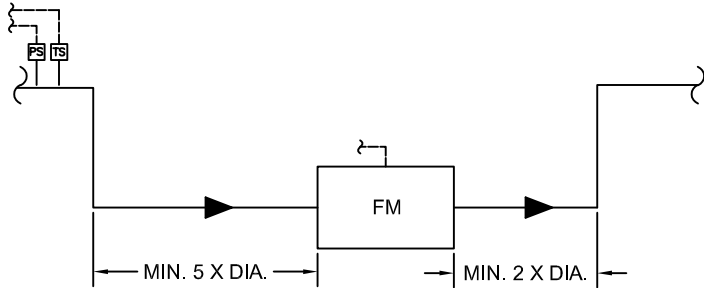
VORTEX FLOW METER (STEAM):



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

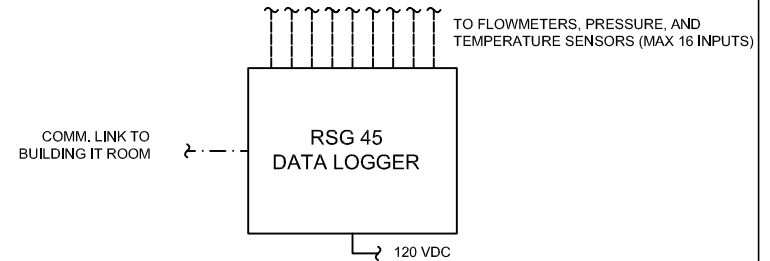
- CONSULT THE LATEST EDITION OF THE ENDRESS HAUSER PROWRL F200 TECHNICAL INFORMATION MANUAL TO CONFIRM DIMENSIONS

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

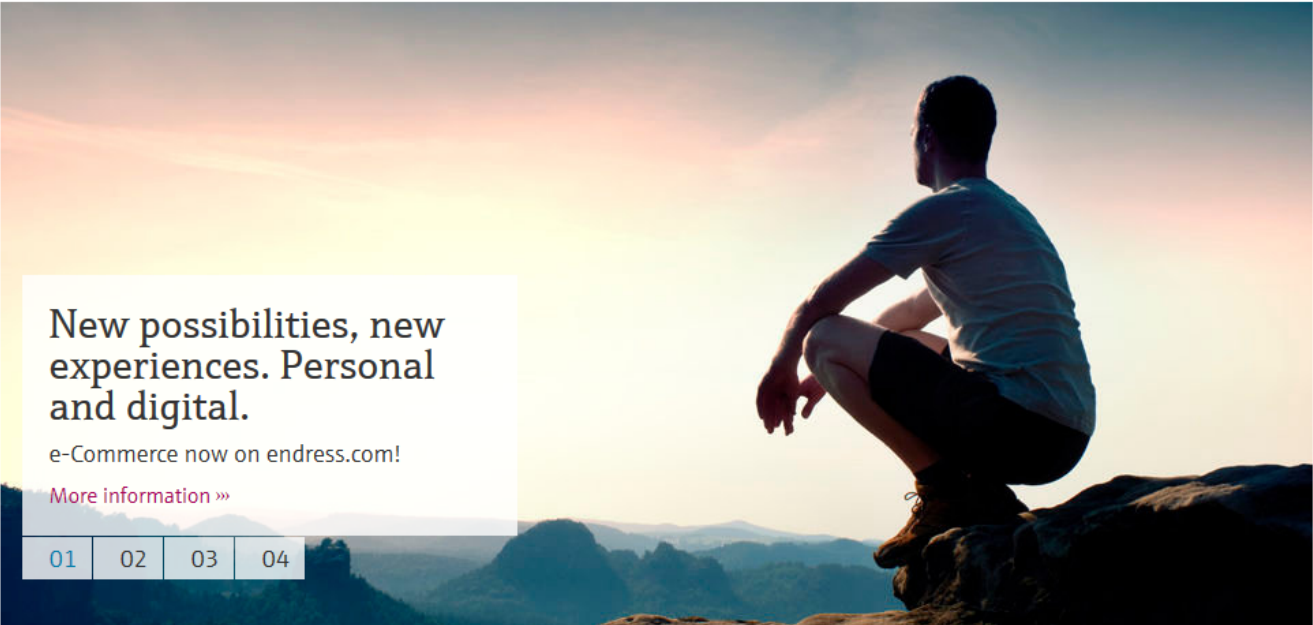
1. Go to the Endress Hauser web page: <https://www.us.endress.com/en>
2. Click on "Go to Applicator"

About us Media Events Career Product tools Downloads Contact E-direct  Cart  MyAccount  Search

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 highlights the 'Liquids/Gas/Steam' option, with an arrow pointing to it from a box containing the number '4.'. Below the 'Flow' dropdown, there is a link: 'Improvements and innovations for your success' and a button: '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 'General parameters' section includes the following fields:

- Measuring task:** Monitoring/Control (indicated by an orange arrow and box labeled '5.')
- Principle/Sensor:** -- choose
- Fluid:** -- choose (indicated by an orange arrow and box labeled '6.')
- Standard/State:** [Empty]
- TAG:** [Empty]

The 'Fluid' dropdown menu is open, showing a list of options. The 'Water' option is highlighted, and the 'Water, process' option is selected (indicated by an orange arrow and box labeled '6.').

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

General parameters

Measuring task: Monitoring/Control

Fluid: Water, process

Standard/State: IAPWS

TAG:

Principle/Sensor: Promag P (100, 200, 300, 500)

Generation: 3

Model:

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" value=""/> |
| Pressure (at) | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text" value=""/> |

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* ^{EST} Water, process v **Properties** Transmitter *i* 100 v Model *i* 0 v

Standard/State *i* IAPWS v Liquid Extended Order Code 5P1B??- ????

TAG *i* DW_PROJECT_NAME 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 10. |
| Pressure (at min/nom/max flow) | <input type="text"/> | <input type="text"/> | <input type="text"/> | psi_g v 10. |
| 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 | |

Operating range max.: 792.516 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

PED: Good engineering practice - no PED class

Meter size: 3"

Proposals

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 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 checkboxes for 'Sizing', 'Fluid properties', 'Compare sensors (Flow)', 'Trisize (Flow)', and 'Chart' in the 'Reports to print' section.

Sizing of Domestic Water Meters

17. Download the pdf file

Product selection via application parameters

Home Help Contact

DW_PROJECT_NAME

Applicator Sizing - Flow

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"

Print Sizing Sizing Energy Add to Cart Reset

18. Save the pdf file

Product selection via application parameters

Home Help Contact

DW_PROJECT_NAME

Applicator Sizing - Flow

Project :
Customer :
Contact person : 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"

Print Sizing Sizing Energy Add to Cart Reset

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.

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'), 'MyAccount', and a search icon. 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 navigation menu with '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 menu with four items: '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' selected, with an orange arrow and a box containing '4.' pointing to it. Other options in the dropdown are 'Density/Concentration' and 'Teqwave concentration app finder'. The text 'Improvements and innovations for your success' and 'Find the best fitting flow successor device' is also visible.

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 EH

Home Help Contact v

Sizing Flow Dimensioning of flowmeters

Sizing

General parameters

Measuring task i Monitoring/Control v 5. Principle/Sensor i -- choose v

Fluid i -- choose v Find ... a.

Standard/State i

TAG i

User hint

Please select in the following order:

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

Then, the process requires:

Reset

| Fluid | Find ... |
|-------------------------------|---------------------------|
| Liquids | Water Ethylene Glycol 30% |
| Gases | Water Ethylene Glycol 60% |
| Natural gases | Water, Chemical effluent |
| Liquid gases | Water, de-ionised |
| Cryogenic liquids | Water, degassed |
| Steam | Water, highly purified |
| Water | Water, potable |
| Organic substances (e.g. Hyc | Water, process |
| Inorganic substances (e.g. Ar | Water, purified |
| Foods | Water, Sea |
| Non-Newtonian fluids | |

Sizing of Hot Water Meters

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

The screenshot shows the 'Product selection via application parameters' interface. The main header includes 'Applicator' and 'Endress+Hauser' with a logo. Below this is a navigation bar with 'Home', 'Help', and 'Contact'. The main content area is titled 'Sizing Flow' and 'Dimensioning of flowmeters'. A 'Sizing' tab is active. Under 'General parameters', the 'Measuring task' is 'Monitoring/Control', 'Fluid' is 'Water, process', 'Standard/State' is 'IAPWS', and 'TAG' is empty. A search dropdown is open, showing 'New generation' and 'Current generation' options. The 'New generation' list includes 'Promag P (100, 200, 300, 500)', which is highlighted. An orange box with the number '7.' and an arrow points to this selection. Other options in the dropdown include 'Coriolis (Promass)', 'Thermal (t-mass)', 'Ultrasonic Flow (Prosonic)', and 'Vortex (Prowirl)'. A 'Reset' button is located at the bottom right.

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 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 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 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 |
| Pressure (at min/nom/max flow) | <input type="text"/> | <input type="text"/> | <input type="text"/> | psi_g |
| Temp. (at min/nom/max flow) | <input type="text"/> | <input type="text"/> | <input type="text"/> | °F |

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.