Proline Prowirl F 200 / 7F2B

Benefits:
- Integrated temperature measuring for mass/energy flow of saturated steam
- Highest process safety – dualsens version enables redundant measurement
- High availability – proven robustness, resistance to vibrations, temperature shocks & water hammer
- No maintenance – lifetime calibration
- Convenient device wiring – separate connection compartment
- Safe operation – no need to open the device due to display with touch control, background lighting
- Integrated verification – Heartbeat Technology

Specs at a glance
- **Max. measurement error** Volume flow (liquid): ±0.75 % Volume flow (steam, gas): ±1.00 % Mass flow (liquid): ±0.85% Mass flow (steam,, gas): ±1.7%
- **Measuring range** Liquid: 0.16 to 2412 m³/h (0.09 to 1420 ft³/min) depending on medium: water with 1 bar a, 20 °C (14.5 psi a, 68° F) Steam, gas: 2 to 32 166 m³/h (1.18 to 18 932 ft³/min) depending on medium: steam with 180 °C, 10 bar a (356 °F, 145 psi a); air with 25 °C, 4.4 bar a (77 °F, 63.8 psi a)
- **Medium temperature range** Standard: −40 to +260 °C (−40 to +500 °F) High/low temperature (option): −200 to +400 °C (−328 to +752 °F) High/low temperature (on request): −200 to +450 °C (−328 to +842 °F)
- **Max. process pressure** PN 40, Class 300, 20K
- **Wetted materials** Measuring tube: 1.4408 (C3FM); CX2MW similar to Alloy C22, 2.4602 DSC sensor: 1.4435 (316/316L); UNS N06022 similar to Alloy C22, 2.4602 Connection: 1.4404 (F316/F316L); CX2MW similar to Alloy C22, 2.4602; 1.4408 (CF3M)
Field of application: The Prowirl F measuring tube is the first choice in heavy duty applications. The proven and patented capacitive DSC sensor ensures high precision measured values even under the toughest process conditions. Prowirl F 200 offers wetsteam detection and industry-compliant two-wire technology for seamless integration into existing infrastructures and control systems, as well as high operational safety in hazardous areas thanks to an intrinsically safe design, and a familiar installation procedure.

Features and specifications

<table>
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<td><strong>Product headline</strong></td>
<td>std_productprofile_product_usp_8110. std_productprofile_product_usp2_38908_1511797531. Suitable for a wide range of applications; optimized for steam application!</td>
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| Transmitter features | Convenient device wiring – separate connection compartment. Safe operation – no need to open the device due to display with touch control, background ligl Integrated verification – Heartbeat Technology. Display module with data transfer function. Robust dual-compartment ho safety: worldwide approvals (SIL, Haz. area). |

| Nominal diameter range | DN 15 to 300 (½ to 12") |
### Wetted materials
Measuring tube: 1.4408 (C3FM); CX2MW similar to Alloy C22, 2.4602
DSC sensor: 1.4435 (316/316L); UNS N06022 similar to Alloy C22, 2.4602
Connection: 1.4404 (F316/F316L); CX2MW similar to Alloy C22, 2.4602 (CF3M)

### Measured variables
Volume flow, mass flow, corrected volume flow, energy flow, heat flow difference, temperature

### Max. measurement error
Volume flow (liquid): ±0.75 %
Volume flow (steam, gas): ±1.00 %
Mass flow (liquid): ±0.85%
Mass flow (steam, gas): ±1.7 %

### Measuring range
Liquid: 0.16 to 2412 m³/h (0.09 to 1420 ft³/min)
depending on medium: water with 1 bar a, 20 °C (14.5 psi a, 68° F)
Steam, gas: 2 to 32 166 m³/h (1.18 to 18 932 ft³/min)
depending on medium: steam with 180 °C, 10 bar a (356 °F, 145 psi a); a °C, 4.4 bar a (77 °F, 63.8 psi a)

### Max. process pressure
PN 40, Class 300, 20K

### Medium temperature range
Standard: −40 to +260 °C (−40 to +500 °F)
High/low temperature (option): −200 to +400 °C (−328 to +752 °F)
High/low temperature (on request): −200 to +450 °C (−328 to +842 °F)

### Ambient temperature range
Compact version (standard): −40 to +80 °C (−40 to +176 °F)
Compact version (option): −50 to +80 °C (−58 to +176 °F)
Remote version (standard): −40 to +85 °C (−40 to +185 °F)
Remote version (option): −50 to +85 °C (−58 to +185 °F)
## Liquids

**Sensor housing material**
Sensor connection housing: AlSi10Mg, coated; 1.4408 (CF3M)

**Transmitter housing material**
AlSi10Mg, coated; 1.4404 (316L)

**Degree of protection**
Compact version: IP66/67, type 4X enclosure
Sensor remote version: IP66/67, type 4X enclosure
Transmitter remote version: IP66/67, type 4X enclosure

**Display/Operation**
4-line backlit display with touch control (operation from outside)
Configuration via local display and operating tools possible
Remote display available

**Outputs**
- 4-20 mA HART (passive)
- 4-20 mA (passive)
- Pulse/frequency/switch output (passive)

**Inputs**
Current Input 4-20 mA (passive)

**Digital communication**
HART, PROFIBUS PA, FOUNDATION Fieldbus

**Power supply**
- DC 12 to 35 V (4-20 mA HART with/without pulse/frequency/switch output)
- DC 12 to 30 V (4-20 mA HART, 4-20 mA)
- DC 12 to 35 V (4-20 mA HART, pulse/frequency/switch output, 4-20 mA)
- DC 9 to 32 V (PROFIBUS PA, pulse/frequency/switch output)

**Hazardous area approvals**
ATEX, IECEx, cCSAus, EAC

**Other approvals and certificates**
**Liquids**

**Functional safety**
Functional safety according to IEC 61508, applicable in safety-relevant applications in accordance with IEC 61511

**Metrological approvals and certificates**
Calibration performed on accredited calibration facilities (acc. to ISO/IEC 17025). Heartbeat Technology complies with the requirements for measurement traceability according to ISO 9001:2015 – Section 7.1.5.2 a (TÜV SÜD attestation)

**Pressure approvals and certificates**
PED, CRN, AD 2000

**Material certificates**
3.1 material
NACE MR0175/MR0103, PMI (on request); welding test acc. to ISO 15614 similar to ASME IX (on request)

**Gas**

**Measuring principle**

**Product headline**
std_productprofile_product_usp_8110.
std_productprofile_product_usp2_38908_1511797531.
Suitable for a wide range of applications; optimized for steam applications.

**Sensor features**
std_productprofile_product_benefits_8115.
std_productprofile_product_differentiating_tech_features_6578.
std_productprofile_product_differentiating_tech_features_6577.
std_successorproducts_product_differentiating_tech_features_6580_15
Transmitter features

Nominal diameter range
DN 15 to 300 (½ to 12”)

Wetted materials
Measuring tube: 1.4408 (C3FM); CX2MW similar to Alloy C22, 2.4602 DSC sensor: 1.4435 (316/316L); UNS N06022 similar to Alloy C22, 2.46 Connection: 1.4404 (F316/F316L); CX2MW similar to Alloy C22, 2.4602 (CF3M)

Measured variables
Volume flow, mass flow, corrected volume flow, energy flow, heat flow difference, temperature

Max. measurement error
Volume flow (liquid): ±0.75 %
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Measuring range
Liquid: 0.16 to 2412 m³/h (0.09 to 1420 ft³/min)
depending on medium: water with 1 bar a, 20 °C (14.5 psi a, 68 °F)
Steam, gas: 2 to 32 166 m³/h (1.18 to 18 932 ft³/min)
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Max. process pressure
PN 40, Class 300, 20K
Gas

**Medium temperature range**
- Standard: –40 to +260 °C (–40 to +500 °F)
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- High/low temperature (on request): –200 to +450 °C (–328 to +842 °F)

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- Compact version (standard): –40 to +80 °C (–40 to +176 °F)
- Compact version (option): –50 to +80 °C (–58 to +176 °F)
- Remote version (standard): –40 to +85 °C (–40 to +185 °F)
- Remote version (option): –50 to +85 °C (–58 to +185 °F)

**Sensor housing material**
- Sensor connection housing: AlSi10Mg, coated; 1.4408 (CF3M)

**Transmitter housing material**
- AlSi10Mg, coated; 1.4404 (316L)

**Degree of protection**
- Compact version: IP66/67, type 4X enclosure
- Sensor remote version: IP66/67, type 4X enclosure
- Transmitter remote version: IP66/67, type 4X enclosure

**Display/Operation**
- 4-line backlit display with touch control (operation from outside)
- Configuration via local display and operating tools possible
- Remote display available

**Outputs**
- 4-20 mA HART (passive)
- 4-20 mA (passive)
- Pulse/frequency/switch output (passive)

**Inputs**
- Current input 4-20 mA (passive)

**Digital communication**
- HART, PROFIBUS PA, FOUNDATION Fieldbus
**Gas**

**Power supply**
DC 12 to 35 V (4-20 mA HART with/without pulse/frequency/switch output)
DC 12 to 30 V (4-20 mA HART, 4-20 mA)
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ATEX, IECEx, cCSAus, EAC

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**Material certificates**
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**Steam**

**Measuring principle**

**Product headline**
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Steam

Sensor features
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std_productprofile_product_differentiating_tech_features_6577.
std_successorproducts_product_differentiating_tech_features_6580_15

Transmitter features
Convenient device wiring – separate connection compartment. Safe operation – no need to open the device due to display with touch control, background lighting.
Integrated verification – Heartbeat Technology.
Display module with data transfer function. Robust dual-compartment housing.
Plant safety: worldwide approvals (SIL, Haz. area).

Nominal diameter range
DN 15 to 300 (½ to 12”)

Wetted materials
Measuring tube: 1.4408 (C3FM); CX2MW similar to Alloy C22, 2.4602
DSC sensor: 1.4435 (316/316L); UNS N06022 similar to Alloy C22, 2.4602
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Measured variables
Volume flow, mass flow, corrected volume flow, energy flow, heat flow difference, temperature

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Remote version (standard): –40 to +85 °C (–40 to +185 °F)
Remote version (option): –50 to +85 °C (–58 to +185 °F)

**Sensor housing material**
Sensor connection housing: AlSi10Mg, coated; 1.4408 (CF3M)

**Transmitter housing material**
AlSi10Mg, coated; 1.4404 (316L)

**Degree of protection**
Compact version: IP66/67, type 4X enclosure
Sensor remote version: IP66/67, type 4X enclosure
Transmitter remote version: IP66/67, type 4X enclosure

**Display/Operation**
4-line backlit display with touch control (operation from outside)
Configuration via local display and operating tools possible
Remote display available
Steam

**Outputs**
- 4-20 mA HART (passive)
- 4-20 mA (passive)
- Pulse/frequency/switch output (passive)

**Inputs**
- Current input 4-20 mA (passive)

**Digital communication**
- HART, PROFIBUS PA, FOUNDATION Fieldbus

**Power supply**
- DC 12 to 35 V (4-20 mA HART with/without pulse/frequency/switch output)
- DC 12 to 30 V (4-20 mA HART, 4-20 mA)
- DC 12 to 35 V (4-20 mA HART, pulse/frequency/switch output, 4-20 mA)
- DC 9 to 32 V (PROFIBUS PA, pulse/frequency/switch output)

**Hazardous area approvals**
- ATEX, IECEx, cCSAus, EAC

**Functional safety**
- Functional safety according to IEC 61508, applicable in safety-relevant applications in accordance with IEC 61511

**Metrological approvals and certificates**
- Calibration performed on accredited calibration facilities (acc. to ISO/IEC 17025)
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**Pressure approvals and certificates**
- PED, CRN, AD 2000

**Material certificates**
- 3.1 material
- NACE MR0175/MR0103, PMI (on request); welding test acc. to ISO 15614 similar to ASME IX (on request)
More information www.us.endress.com/7F2B