

# Proline Prowirl F 200

## Medidor de vazão vortex

Medidor de vazão/caudal versátil com detecção em condições de vapor úmido e excelente precisão



Mais informações e preço atual:

[www.br.endress.com/7F2C](http://www.br.endress.com/7F2C)

### Benefícios:

- Fácil gerenciamento de energia – temperatura integrada e medição de pressão para vapor e gases
- Engenharia compacta – compensação do escoamento de entrada
- Mesma precisão até Re 10 000 – corpo do medidor Vortex mais linear
- Estabilidade a longo prazo – sensor capacitivo robusto sem desvio
- Fiação de equipamento prática – compartimento de conexão separado
- Operação segura – não é necessário abrir o equipamento, pois ele possui um display com controle por toque e iluminação traseira
- Verificação integrada – Heartbeat Technology

### Especificações resumidas

- **Max. measurement error** Volume flow (liquid):  $\pm 0.75\%$  Volume flow (optional):  $\pm 0.65\%$  Volume flow (steam, gas):  $\pm 1.00\%$  Mass flow (saturated steam):  $\pm 1.7\%$  (temperature compensated);  $\pm 1.5\%$  (temperature/pressure compensated) Mass flow (superheated steam, gas):  $\pm 1.5\%$  (temperature/pressure compensated);  $\pm 1.7\%$  (temperature compensated + external pressure compensation) Mass flow (liquid):  $\pm 0.85\%$
- **Measuring range** Liquid: 0.076 to 2100 m<sup>3</sup>/h (0.045 to 1300 ft<sup>3</sup>/min) depending on medium: water with 1 bar a, 20 °C (14.5 psi a, 68 °F) Steam, gas: 0.39 to 28000 m<sup>3</sup>/h (0.23 to 17000 ft<sup>3</sup>/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)

- **Max. process pressure** PN 100, Class 600, 20K
- **Wetted materials** Measuring tube: 1.4408 (C3FM); CX2MW similar to Alloy C22, 2.4602 DSC sensor: 1.4404 (316/316L); UNS N06022 similar to Alloy C22, 2.4602 Process connection: 1.4404/F316/F316L); 2.4602

**Campo de aplicação:** Prowirl F é um medidor de vazão/caudal multivariável com medição de vapor úmido em linha. Sua opção de calibração PremiumCal garante excelente precisão de medição e alta disponibilidade da fábrica em faixas de baixa vazão/caudal de gás, vapor e líquidos. Com a tecnologia original de alimentação por ciclo, o Prowirl F 200 possibilita economia e uma perfeita integração às estruturas existentes. Ele oferece maior segurança à operação em áreas classificadas. A Heartbeat Technology garante a segurança do processo em todos os momentos.

## Características e especificações

### Liquids

#### Measuring principle

Vortex

#### Product headline

Versatile flowmeter with detection of wet steam conditions and best-in-class accuracy.

Easy energy management – integrated temperature and pressure measurement for steam and gases.

Suitable for a wide range of applications; optimized for steam applications.

#### Sensor features

Space-saving engineering – inlet run compensation. Same accuracy down to Re 10 000 – most linear Vortex meter body. Long-term stability – robust drift-free capacitive sensor.

Wet steam capabilities for DN 25 to 300 (1 to 12"). Flexible positioning of pressure cell. Industrial siphon design for pressure measurement.

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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 lighting. Integrated verification – Heartbeat Technology. Display module with data transfer function. Robust dual-compartment housing. Plant safety: worldwide approvals (SIL, Haz. area).

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### Nominal diameter range

DN 15 to 300 (½ to 12")

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### Wetted materials

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DSC sensor: 1.4404 (316/316L); UNS N06022 similar to Alloy C22,  
2.4602

Process connection: 1.4404/F316/F316L); 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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## Liquids

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Steam, gas: 0.39 to 28000 m<sup>3</sup>/h (0.23 to 17000 ft<sup>3</sup>/min)

depending on medium: steam with 180 °C, 10 bar a (356 °F, 145 psi a);  
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Standard: -40 to +260 °C (-40 to +500 °F)

High/low temperature (option): -200 to +400 °C (-328 to +752 °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)

### Sensor housing material

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

### Transmitter housing material

AlSi10Mg, coated; 1.4404 (316L)

## Liquids

### 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

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### Display/Operation

4 - line backlit display with touch control (operation from outside)

Configuration via local display and operating tools possible

Remote display available

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### Outputs

4 - 20 mA HART (passive)

4 - 20 mA (passive)

Pulse/frequency/switch output (passive)

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### Inputs

Current Input 4 - 20 mA (passive)

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### Digital communication

HART, PROFIBUS PA, FOUNDATION Fieldbus

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### 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 input)

DC 9 to 32 V (PROFIBUS PA, pulse/frequency/switch output)

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### Hazardous area approvals

ATEX, IECEx, cCSAus, JPN, EAC

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### Product safety

CE, C-TICK, EAC

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### Functional safety

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

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## Liquids

### **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)

### **Marine approvals and certificates**

ABS, LR, BV, DNV GL

### **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 - 1, similar to ASME IX (on request)

## Steam

### **Measuring principle**

Vortex

### **Product headline**

Versatile flowmeter with detection of wet steam conditions and best-in-class accuracy.

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### **Sensor features**

Space-saving engineering – inlet run compensation. Same accuracy down to Re 10 000 – most linear Vortex meter body. Long-term stability – robust drift-free capacitive sensor.

Wet steam capabilities for DN 25 to 300 (1 to 12"). Flexible positioning of pressure cell. Industrial siphon design for pressure measurement.

## Steam

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### 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: 1.4404 (316/316L); UNS N06022 similar to Alloy C22, 2.4602

Process connection: 1.4404/F316/F316L); 2.4602

### Measured variables

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

### Max. measurement error

Volume flow (liquid):  $\pm 0.75\%$

Volume flow (optional):  $\pm 0.65\%$

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**Steam**

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**Medium temperature range**

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**Steam****Digital communication**

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