

# Proline Prowirl R 200 vortex flowmeter

Flowmeter with best-in-class accuracy despite pipe reduction



## Benefits:

- Easy energy management – integrated temperature and pressure measurement for steam and gases
- Cost and time savings – no pipework modifications needed for line size reduction
- Same accuracy down to Re 10 000 – most linear Vortex meter body
- Long-term stability – robust drift-free capacitive sensor
- 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):  $\pm 0.75\%$  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: 0.1 to 540 m<sup>3</sup>/h (0.061 to 320 ft<sup>3</sup>/min) depending on medium: water with 1 bar a, 20 °C (14.5 psi a, 68° F) Steam, gas: 0.52 to 7300 m<sup>3</sup>/h (0.31 to 4300 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

More information and current pricing:

[www.be.endress.com/7R2C](http://www.be.endress.com/7R2C)

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 (CF3M) DSC sensor: 1.4404/F316/F316L Process connection: 1.4404/F316/F316L

**Field of application:** Prowirl R was designed for low flows and is thus the particularly dependable solution for energy management. Additionally its calibration option PremiumCal guarantees excellent measuring accuracy for maximum plant availability. With genuine loop-powered technology, Prowirl R 200 enables cost-effective and seamless integration into existing infrastructures. It offers highest operational safety in hazardous areas. Heartbeat Technology ensures process safety at all times.

## Features and specifications

### Gas

#### Measuring principle

Vortex

#### Product headline

Flowmeter with best-in-class accuracy despite pipe reduction.  
Easy energy management – integrated temperature and pressure measurement for steam and gases.  
Dedicated to applications with very low flow or reduced flow.

#### Sensor features

Cost and time savings – no pipework modifications needed for line size reduction. Same accuracy down to Re 10 000 – most linear Vortex meter body. Long-term stability – robust drift-free capacitive sensor. Integrated diameter reduction by 1 or 2 line sizes. Nominal diameter (mating pipe) up to DN 250 (10").

## Gas

**Transmitter features**

Cost and time savings – no pipework modifications needed for line size reduction. Same accuracy down to Re 10 000 – most linear Vortex meter body. Long-term stability – robust drift-free capacitive sensor. Integrated diameter reduction by 1 or 2 line sizes. Nominal diameter (mating pipe) up to DN 250 (10"). Flexible positioning of pressure cell.

**Nominal diameter range**

DN 25 to 250 (1 to 10")

**Wetted materials**

Measuring tube: 1.4408 (CF3M)

DSC sensor: 1.4404/F316/F316L

Process connection: 1.4404/F316/F316L

**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 (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: 0.1 to 540 m<sup>3</sup>/h (0.061 to 320 ft<sup>3</sup>/min)

depending on medium: water with 1 bar a, 20 °C (14.5 psi a, 68 °F)

Steam, gas: 0.52 to 7300 m<sup>3</sup>/h (0.31 to 4300 ft<sup>3</sup>/min)

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PN 40, Class 300, 20K

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

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**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)

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**Sensor housing material**

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

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**Transmitter housing material**

AlSi10Mg, coated; 1.4404 (316L)

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**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**

4 - 20 mA (passive)

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**Digital communication**

HART, PROFIBUS PA, FOUNDATION Fieldbus

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**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)

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, UK Ex

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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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**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)

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**Marine approvals and certificates**

ABS, LR, BV, DNV GL

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**Pressure approvals and certificates**

PED, CRN, AD 2000

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**Material certificates**

3.1 material

NACE MR0175/MR0103, PMI (on request); welding test acc. to ISO 15614 - 1, similar to ASME IX (on request)

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## Steam

### Measuring principle

Vortex

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### Product headline

Flowmeter with best-in-class accuracy despite pipe reduction.  
Easy energy management – integrated temperature and pressure measurement for steam and gases.  
Dedicated to applications with very low flow or reduced flow.

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### Sensor features

Cost and time savings – no pipework modifications needed for line size reduction. Same accuracy down to Re 10 000 – most linear Vortex meter body. Long-term stability – robust drift-free capacitive sensor. Integrated diameter reduction by 1 or 2 line sizes. Nominal diameter (mating pipe) up to DN 250 (10").

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### Transmitter features

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### Nominal diameter range

DN 25 to 250 (1 to 10")

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### Wetted materials

Measuring tube: 1.4408 (CF3M)

DSC sensor: 1.4404/F316/F316L

Process connection: 1.4404/F316/F316L

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### Measured variables

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

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## Steam

**Max. measurement error**

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Mass flow (liquid):  $\pm 0.85\%$

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**Measuring range**

Liquid: 0.1 to 540 m<sup>3</sup>/h (0.061 to 320 ft<sup>3</sup>/min)

depending on medium: water with 1 bar a, 20 °C (14.5 psi a, 68 °F)

Steam, gas: 0.52 to 7300 m<sup>3</sup>/h (0.31 to 4300 ft<sup>3</sup>/min)

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**Max. process pressure**

PN 40, Class 300, 20K

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**Medium temperature range**

Standard: -40 to +260 °C (-40 to +500 °F)

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

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

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**Transmitter housing material**

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## Steam

### Degree of protection

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### Display/Operation

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### Outputs

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### Digital communication

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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, UK Ex

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### Product safety

CE, C-tick, EAC

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### Functional safety

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## Steam

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PED, CRN, AD 2000

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### **Material certificates**

3.1 material

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## Liquids

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