

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Flow Transmitter**with type designation(s)
PROWIRL F, D, O, R

Issued to

Endress + Hauser Flowtec AG
Reinach, Switzerland

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Location classes:**

Temperature	D
Humidity	B
Vibration	A
EMC	B
Enclosure	B, C

Issued at **Hamburg** on **2020-12-04**for **DNV GL**This Certificate is valid until **2025-12-03**.DNV GL local station: **Augsburg**Approval Engineer: **Dariusz Lesniewski**

Joannis Papanuskas
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

Vortex flowmeter Proline Prowirl 200
Flow measurement of gas, steam and liquids

Type designation:

PROWIRL F -> 7F2x**-...
PROWIRL D -> 7D2x**-...
PROWIRL O -> 7O2x**-...
PROWIRL R -> 7R2x**-... (x=B, C)

Prowirl 200 (transmitter):

Display: 4-line display with push buttons or with touch control (backlit)

Operation:

- Via local display (17 operating languages)
- Via operating tools, e.g. "FieldCare" from Endress+Hauser

Power supply: DC 12 to 35 V

Degree of protection: IP66, IP67

Design / Housing material:

- Aluminum or stainless steel housing

Output/Input:

- current output (4–20 mA, HART); 2nd current output (optional)
- pulse/frequency/switch output;
- passive current input (optional)

Communication: HART, PROFIBUS PA; FOUNDATION Fieldbus

Ex approvals: ATEX, IECEx, cCSAus, NEPSI, TIIS, INMETRO

Prowirl D, F, R, O (sensors):

Max. measured error:

- Volume flow – liquids: $\pm 0.75\%$; gases/steam: $\pm 1.0\%$
- Mass flow – liquids: $\pm 1.0\%$; gases/steam: $\pm 1.7\%$

Nominal diameters:

- Prowirl D: DN 15 to 150 (½" to 6")
- Prowirl F: DN 15 to 300 (½" to 12")
- Prowirl R: DN 25 to 250 (1" to 10")
- Prowirl O: DN 15 to 300 (½" to 12")

Process connections:

- Prowirl D: Wafer
- Prowirl F/R/O: flange (EN [DIN], ASME, JIS)
- Prowirl O: flange (EN [DIN], ASME, JIS), butt-weld version

Process pressure:

- Prowirl D, F, R: PN 10 to 40, Class 150 to 300, 10 to 20K
- Prowirl O: PN 63 to 250, Class 600 to 1500, 40K

Process temperature:

- Standard: -200 to +400 °C (-328 to +752 °F)
- Option (Prowirl F, R, O): up to +450 °C (+842 °F)

Degree of protection:

- IP66 and IP67 (Type 4X enclosure)

Materials: Stainless steel, Alloy C22

Ex approvals: ATEX, IECEx, FM, cCSAus, NEPSI, TIIS, INMETRO

Firmware versions:

01.01.zz PROFIBUS PA, DevRev02

01.03.zz HART, DevRev03

01.01.zz FF, DevRev01

Place of manufacture

Endress+Hauser Flowtec AG
35, rue de l'Europe
68700 Cernay, FRANCE

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Type Approval documentation

Test Reports: paconsult no. 15-6583, E+H Vib_2020_PW200_001, IWS Test Report No. G275-15
Test Report: MeßTechnikNord No. 07472.062.15 V1.1, E+H: EMC2020PCF0008, EMC2020PCF0009
Test Reports: E+H no. 970003925 (15.07.2013), no. 970003926 (17.07.2013)
Technical Note: E+H "Performance Test of PW200 at 400°C"
Technical Note: E+H "Estimation of Time to Failure of PW200 ..."
Minutes: "Steam Measurement with Prowirl 200, Windisch (CH)", 29 April 2015
Technical Information Documents (TI):
7D2B-TI01083DEN_0515, 7D2C-TI01332DEN_0220, 7F2B-TI01084DEN_0515, 7F2C-TI01333DEN_0420
7O2B-TI01085DEN_0414, 7O2C-TI01334DEN_0420, 7R2B-TI01086DEN_0515, 7R2C-TI01335DEN_0320
Documents as the E+H reference document:
"Documentation list "PROLINE PROWIRL 7 C/D/F/R/O 2 B**-..., 7 D/F/R/O 2 C**-...", issue 08-04-2020"
Software Development Documentation; Firmware related documents for the certificate update 2020
Test Reports as the DNV GL File: Pr. 11-138558
Type approval assessment report issued at Augsburg on 2020-07-15

Tests carried out

Applicable tests according to class guideline DNVGL-CG-0339, December 2019.

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE