DNV·GL

Certificate No:
TAA00002CD

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Flow Transmitter

with type designation(s)
Flow Transmitter UMF2B, Flow Transmitter UMF3, Magnetic Ind. Flowmeter PIT, Magnetic Ind. Flowmeter PITE

Issued to
Heinrichs Messtechnik GmbH
KÖLN, Germany

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.

Type	Temperature	Humidity	Vibration	EMC	Enclosure
Flow Transmitter UMF2B	**D**	**B**	**B**	**B**	**B (max. IP67)**
Flow Transmitter UMF3	**D**	**B**	**B**	**A**	**B (max. IP67)**
Magnetic Ind. Flowmeter PIT	**D**	**B**	**B**	**B**	**B (IP65…IP68)**
Magnetic Ind. Flowmeter PITE	**D**	**B**	**B**	**B**	**B (IP65/68)**

Issued at **Hamburg** on **2019-05-31**
This Certificate is valid until **2024-05-30**.
DNV GL local station: **Essen**

Approval Engineer: **Jens Dietrich**

for **DNV GL**

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.

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Product description

Flow Transmitter UMF2B Model-Code:

UMF2-ABCDEFGH

Transmitter layout:
A=C: Remote Transmitter IP67 with ½" NPT Threaded entries
A=D: Remote Transmitter IP67 with M20 x 1.5 mm Threaded entries
A=E: Remote Transmitter IP65 with ½" NPT Threaded entries
A=F: Remote Transmitter IP65 with M20 x 1.5 mm Threaded entries
A=G: Remote Transmitter IP68 with ½" NPT Threaded entries
A=H: Remote Transmitter IP68 with M20 x 1.5 mm Threaded entries

User Interface:
B=1: Integrated Indication/User Interface

Power supply:
C=1: 230VAC (+10%, -15%), 50/60Hz
C=2: 115VAC (+10%, -15%), 50/60Hz
C=4: 24VDC (+/-15%)

Output:
D=F: current output: (0)4-20mA
pulse output: passive Um=24VDC
status output: passive Um=24VDC
D=G: current output: (0)4-20mA with HART® - protocol
pulse output: passive Um=24VDC
status output: passive Um=24VDC

Design:
EFG=SBH: Heinrichs, ships approval version
EFG=SBK: Kobold, ships approval version

Interconnecting cable:
IP 67
H=0 2,5m standard on remote version cable prefabricated on transmitter
H=1 5m cable prefabricated on transmitter
H=2 10m cable prefabricated on transmitter
H=3 15m junction box on transmitter
H=4 20m junction box on transmitter
H=5 30m junction box on transmitter
H=6 40m junction box on transmitter
H=7 50m junction box on transmitter

IP 68
H=A 2,5m standard on remote version junction box on transmitter
H=B 5m junction box on transmitter
H=C 10m junction box on transmitter
H=D 15m junction box on transmitter
H=E 20m junction box on transmitter
H=F 30m junction box on transmitter
H=G 40m junction box on transmitter
H=H 50m junction box on transmitter.

Flow Transmitter UMF3 Model-Code:

UMF3-ABCDEFGH:

Power supply:
A=1: 90-253VAC, 50/60Hz
A=2: 24VDC (+/-20%)

Transmitter layout:
B=C: junction box, intrinsically safe
B=D: junction box, non-intrinsically safe

Approval:
C=S: Ships Approval (only IECEx Gas)

Output:
D=A: Standard: 1x current output : 4 - 20mA (passive) HART®
1x pulse output: 1 kHz, passive 24V DC (Um=30V DC)
1x status output: passive 24V DC (Um=30V DC)
non-intrinsically safe
D=C: Standard: 1x current output : 4 - 20mA (passive) HART®
1x pulse output: 1 kHz, passive 24V DC (Um=30V DC)
1x status output: passive 24V DC (Um=30V DC)
intrinsically safe

Transmitter design:
E=3: IP65, remote transmitter, junction box on transmitter, connecting cable: 0, 1, 2,3, 4, 5, 6, 7, 8
E=6: IP67, remote transmitter, junction box on transmitter, connecting cable: A, B, C, D, E, F, G, H

Threads for cable entries (signal and power supply):
F=1: M20x1,5 (Ex-proof and not Ex-proof)

Design:
G=H: Heinrichs

Interconnecting cable:
IP 65
H=0 without
H=1 2,5m standard on remote version
H=2 5m
H=3 10m
H=4 15m
H=5 20m
H=6 30m
H=7 40m
H=8 50m
IP 68
H=A 2,5m standard on remote version junction box on transmitter
H=B 5m
H=C 10m
H=D 15m
H=E 20m
H=F 30m
H=G 40m
H=H 50m

Software versions:

UMF2B: 2.21
UMF3: 2.01

Magnetic Inductive Flowmeter PIT Model-Code:

PIT-ABCDEFGHI-JKLM-N-O

Model:
A=S: Stainless steel (1.4571/1.4404)/PTFE for nominal diameters DN125 - DN2000
A=A: PFA for nominal diameters DN125 - DN600
A=U: Stainless steel (1.4571/1.4404)/PTFE for nominal diameters DN125 - DN2000
model including Installation/Extraction device, mounting adaptor and valve
A=X: Special on request

Process Connection:
BCDE=317B: DN40 PN40 Form B1 DIN EN 1092-1
BCDE=321B: DN50 PN40 Form B1 DIN EN 1092-1
BCDE=206R: 2" Class 150 RF ASME B16.5-2013
BCDE=326B: DN65 PN40 Form B1 DIN EN 1092-1
BCDE=331B: DN80 PN40 Form B1 DIN EN 1092-1
BCDE=208R: 3" Class 150 RF ASME B16.5-2013
BCDE=XXXX: Special on request

Sensor length:
FGH=163: 163 mm (up to diameters < DN600)
FGH=XXX: length in mm (PIT-S: DN700-DN1200 = 263, DN1400-DN2000 = 363)

Electrode Material:
I=H: Hastelloy C-4
I=T: Tantal only for model PIT-A
I=N: Platin only for model PIT-A
I=X: Special on request

Measuring range/ medium velocity:
J=0: 1-10 m/s
J=L: 0,5 - 5 m/s

Transmitter layout (protection class):
K=3: remote transmitter (UMF3), IP65 junction box on sensor
K=4: remote transmitter (UMF2), IP67 junction box on sensor
K=5: remote transmitter (UMF2), IP68 grouted junction box on sensor

Approval:
L=1 Ships Approval (non-Ex) (DNV-GL, ABS, Bureau Veritas)
L=S Ships Approval (IECEx Gas Ex) only with UMF3 (DNV-GL, ABS, Bureau Veritas)

Certificate:
M=0 without
M=1 works certificate 2.1
M=2 works certificate 2.2
M=B material certificate 3.1 incl. Material analysis (DIN EN 10204:2004)
M=C material certificate 3.2 incl. Material analysis (DIN EN 10204:2004)

Supplementary equipment:
N=0: without
N=X: with (separate specification needed)

Design:
O=H: Heinrichs

Magnetic Inductive Flowmeter PITE Model-Code:

PITE-ABCDEFGHIJKL-M-N

Model:
A=S: stainless steel (1.4571/1.4404)/PTFE, Tmax=100°C
A=X: Special on request

Process connection:
BCDE=A504: Weld on adaptor for pipe sizes DN80/3"..DN400/16" c/w. cap nut, pressure rating PN16
BCDE=309B: Flange connection DN25 PN40, pressure rating PN16

Sensor length:
FGH=013: 138,5 mm (L= 166mm for flange connection DN25 PN40)
FGH=XXX: Special on request

Electrode Material:
I=H: Hastelloy
I=X: Special on request

Mounting of Transmitter:
J=4: Remote Transmitter, IP65, cable 5m
J=5: Remote Transmitter, IP68, cable 5m

Approval:
K=1: Ships Approval (DNV-GL, ABS, Bureau Veritas), with Cable bend protection

Certificate:
L=0: without
L=1: Material certificate 2.1
L=2: Material certificate 2.2
L=B: Material certificate 3.1 (DIN EN 10204:2004)
L=C: Material certificate 3.2 (DIN EN 10204:2004)

Supplement Equipment:
M=0: without
M=X: Special on request

Version:
N=H: Heinrichs

Sensor Power: The sensors are powered from the transmitters via the sensor cable.

Ambient temperature: -20 °C to +60 °C

Process medium temperature:
PIT: -20 °C to +150 °C
PITe: -20 °C to +100 °C

Process pressures:
PIT: max. 40 bar
PITe: max. 16 bar

Ingress protection class:
PIT: IP68, max. 4 bar
PITe: IP65 / IP68 max 1 bar

Required medium conductivity: min. 20µS/cm

Measured accuracy: Q ≥ 30%: +/-1.5 % of measured value plus +/- 0.5 % URV

Q ≤ 30%: +/-1.5 % of measured value plus +/- 2.5 % URV

Flow velocity range: 0.5 m/s to 10 m/s.

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.

Product certificate
If specified in the Rules, ref. Pt.4 Ch.9 Sec.1, the control and monitoring system in which the above listed hardware is used shall be delivered with a product certificate. For each such delivery the certification test is to be performed at the manufacturer of the application system before the system is shipped to the yard. The test shall be done according to an approved test program. After certification the clause for software control will be put into force.

Software control
All changes in software are to be recorded as long as the system is in use on board. Documentation of major changes is to be forwarded to DNV GL for evaluation and approval before implemented on board. Certification of modified functionality may be required for the particular vessel.

Production testing
Weldings shall be carried out by qualified welders using approved welding procedure specifications (WPS) and type approved welding consumables. Ref. to Pt.4, Ch.6, Sec. 10.
Material certificates for pressurized part such as pre-material, flanges, pipes and fittings according to Table 3 of Pt.4, Ch.6 – Section 2 - Piping Systems are to be provided.
For application in piping systems of pipe class I and II the following additional requirements are to be observed:
- Each flowmeter is to be hydraulically pressure tested up to 1,5 times the maximum design pressure in presence of a DNV GL surveyor. Appropriate product certificate (PC) is to be issued.

Ex-certification is referenced only and not covered by this type approval certificate.

Wall mounting bracket SG4-1012 for transmitter/junction box mounting.

Used DC Power supplies for UMF2B and UMF3 shall safeguard supply voltage within permissible variations range as specified above.

The suitability of the measuring principle is to be checked for the respective fluid media.

Selection of materials for PIT/PITe:
It shall be noted that for selection of the materials the applicable service condition with respect to type of media, flow velocity, media temperature etc. and installation area of the piping system is to be considered. In particular, the resistance to corrosion, erosion, oxidation and other deterioration during projected service life are to be taken into account.

Tests carried out

Applicable Tests according to DNV GL CG-0339, November 2016.

Marking of product

Maker, type designation, serial number, manufacturing date, power supply, ex-marking (if applicable)

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