Certificate No:
TAA00003BB

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Flow Transmitter

with type designation(s)
FLOW 38 DNV

Issued to
COMAC CAL s.r.o.
Třanovice, **Czech Republic**

is found to comply with
DNV 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.

Location classes:

Temperature	**C**
Humidity	**B**
Vibration	**B**
EMC	**A**
Enclosure	**B / IP65**

Issued at **Høvik** on **2024-04-12**
This Certificate is valid until **2029-04-11**.
DNV local unit: **Prague CMC**

for **DNV**

Approval Engineer: **Ståle Sneen**

Frederik Tore Elter
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 AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") 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

The magnetic-inductive flowmeter FLOW 38 DNV is designed for measuring electrically conductive liquids. It can also be used for bidirectional flow measurement.
The flow meter FLOW 38 DNV is produced either in a compact version (the electronic evaluation unit is part of the flow sensor), or in a separate version, where the electronic evaluation unit is connected to the flow sensor by a cable, and can be installed in places other than the installation of the flow sensor in the pipeline.
Flowmeter FLOW 38 DNV is equipped with several configurable outputs (pulse output, status output, analog current loop 4-20mA, HART, RS485 and M-BUS communication).
Possible versions of the FLOW 38 DNV flowmeter are specified by the order code, and other technical data are given in the manufacturer's documentation (FLOW 38 DNV - Installation and technical conditions).

Basic technical data

Outputs:	Impulse/flowswitch (max. 400 Hz), 4...20 mA (pulse and current outputs are passive with an option of feeding from meter's internal power supply)
Communication:	Interface RS485 (protocols Mod-Bus RTU/M-BUS), M-BUS/M-BUS, Mod-Bus TCP IP, HART, micro SD card
Size:	DN 4...600
Lining material:	Rubber, PVDF, Rilsan, PTFE, ETFE, PFA, Ceramics (on request)
Process connection:	Sandwich Flanged DIN (EN1092) Threaded (EN 10226-1) Food processing (fittings DIN 11851), clamp (DIN 32676)
Flow sensor protection:	IP65, IP67, IP68
Electronics protection:	design HEAD – IP65
Supply voltage:	110...230V AC (+10; -20%) 50...60Hz (standard) 24V AC/DC with reverse polarity protection (per order)

Tested and approved for connection to 24 Vdc and 230 Vac / 50 Hz distributions onboard.

Product order code:
FL38DNV/DNxxx/Ax(cl)/Bx/Cx/Dx/Ex/Fx/Gx/Hx/Ix

The complete order code can be found in the manual listed under Type Approval documentation.

Place of manufacture

COMAC CAL s.r.o.
Těšínská 737/30, 735 42 Těrlicko
Czech Republic

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, 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 rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Type Approval documentation

Tests carried out
Applicable tests according to class guideline DNV-CG-0339, August 2021.

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