DNV·GL

Certificate No:
TAA00002R4

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Viscosity Transmitter

with type designation(s)
Heavy Fuel Viscosity Meter (HFVM)

Issued to
Micro Motion, Inc.
Boulder, CO, USA

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	**A**
Enclosure	**B**

Issued at **Høvik** on **2020-04-01**

This Certificate is valid until **2025-03-31**.
DNV GL local station: **Long Beach**

Approval Engineer: **Nils Jarem**

for **DNV GL**
Digitally Signed By: Sneen, Ståle
Location: DNV GL Høvik, Norway
on behalf of

Marta Alonso Pontes
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.

Job Id: **262.1-017456-2**
Certificate No: **TAA00002R4**

Product description
Heavy Fuel Viscosity Meter (HFVM) with no stem extension:
Micro Motion® fork viscosity meters are accurate multi-variable devices that measure liquid viscosity, density and temperature under demanding conditions. These meters use vibrating fork technology to provide reliable direct insertion measurement.
Rating: 24 V DC

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.

Application/Limitation
Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to the Rules and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

EMC in the range 2 GHz to 6 GHz according to DNVGL-CG-0339, December 2019 has not been documented. EMC up to 6 GHz must additionally be documented for installation on ships contracted for construction on or after 2022-01-01.

Type Approval documentation
Data sheet: PS-001487 Rev A Heavy Fuel Viscosity Meter Product Data Sheet
Test reports: 101551275GRR-002 dated 2014-07-14
101551275GRR-001 Rev A
TR140919 Rev 1
Type approval renewal assessment report for A-14017, DNV GL Long Beach 2020-04-01.

Tests carried out
Applicable tests according to class guideline DNVGL-CG-0339, November 2016.

Marking of product
The products to be marked with:
- model name
- manufacturer name
- serial number

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