

TYPE APPROVAL CERTIFICATE

This is to certify that the undernoted product(s) has/have been tested in accordance with the relevant requirements of the DNV GL Type Approval System.

Certificate No.	13 685 - 14 HH
Company	Micro Motion, Inc. 7070 Winchester Circle Boulder, Colorado 80301
Product Description	Heavy Fuel Viscosity Meter
Type	HFVM
Environmental Category	C, EMC1
Technical Data / Range of Application	Model Code: HFVM 1 1 'x1' 729 'x2' A C 'x3' 'x4' 'x5' 'x6' 'x7' Z Z Z Application: continuous measurement of viscosity, density and temperature Power supply: 24VDC (Channel B) Transmitter Output: Channel A = 4–20 mA + HART Channel C = Modbus/RS-485 Display: Segmented two-line LCD screen Three-color LED indicates meter and alert status Optical switch controls for hazardous area configuration and display Degree of protection: IP 56 Software requirement class: 3 Software/Firmware version: 1.x (see page 2 for more details)
Test Standard	Guidelines for the Performance of Type Approvals, Chapter 2- Test Requirements for Electrical / Electronic Equipment and Systems (VI-7-2), Edition 2012
Documents	Test Reports: - Intertek Report No.: 101551275GRR-001 Rev: A - Intertek Report No.: 101551275GRR-002 - Micro Motion: HFVM LR Marine performance test report, Ref. TR140919 Product Data Sheet: PS-001487, Rev A Construction Drawings, Circuit Diagrams, Part / Materil Lists Product Matrix for HFVM 20023555, Rev. AH" Software questionnaire: 'GL-Type Approval SOFTWARE, Requirement class 3' and related documents
Remarks	This certificate is issued on the basis of GL Guidelines for the Performance of Type Approvals, Chapter 1 - Procedure (VI-7-1), Edition 2007

Valid until **2019-12-04**

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File No. **I.A.11**

Hamburg, 2014-12-05

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HFVM 1 1 'x1' 729 'x2' A C 'x3' 'x4' 'x5' 'x6' 'x7' Z Z Z

Calibration Range / Performance:

- Viscosity accuracy $\pm 0.2\text{cSt}$ (0-10cSt range) then $\pm 1\%$ FS, Viscosity limit 100cP
- Density accuracy: $\pm 1 \text{ kg/m}^3$, density range 600 to 1250 kg/m³

Temperature range: -40°C to +150 °C

Process connections: Process Connection: 1 1/2-inch Cone Seat Compression fitting

Materials (code 'x1'): F, L

Sensor calibration type (code 'x2'): B, E, H

Display (code 'x3'): 2, 3

Hazardous area approvals (code 'x4'): M, 2, V, 3, A, F, I, T

Application Configuration (code 'X5'): H, J, E

Calibration range (code 'X6') : B, R, L

Language (Manual and Software) (code 'x7'): E, I, M, R

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