

# TYPE APPROVAL CERTIFICATE

**This is to certify:**

**That the Flow Transmitter**

with type designation(s)

**Controller transmitter 1500, 2500, 1700, 2700, 3350, 3700, Flow Meters CMF200, CMF300, CMF350, CMF400, CMFHC2, CMFHC3, CMFHC4, Flow Meters F025, F050, F100, F200 and F300, Flow Meter HPC010**

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:**

Type	Temperature	Humidity	Vibration	EMC	Enclosure
<b>Controller transmitter 1500, 2500, 1700, 2700, 3350, 3700</b>	<b>D</b>	<b>B</b>	<b>A</b>	<b>A</b>	<b>C</b>
<b>Flow Meters CMF200, CMF300, CMF350, CMF400, CMFHC2, CMFHC3, CMFHC4</b>	<b>D</b>	<b>B</b>	<b>A</b>	<b>A</b>	<b>C</b>
<b>Flow Meters F025, F050, F100, F200 and F300</b>	<b>D</b>	<b>B</b>	<b>A</b>	<b>A</b>	<b>C</b>
<b>Flow Meter HPC010</b>	<b>D</b>	<b>B</b>	<b>A</b>	<b>A</b>	<b>C</b>

This Certificate is valid until **2023-01-30**.

Issued at **Hamburg** on **2018-01-31**

for **DNV GL**

DNV GL local station: **Long Beach**

Approval Engineer: **Dariusz Lesniewski**

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**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.

Job Id: **262.1-025361-1**  
Certificate No: **TAA000010K**  
Revision No: **2**

## Product description

The Type Approval covers the following units:

Frequency input discrete controller/transmitters, models 1500/2500, 1700/2700, 3350 and 3700.  
Coriolis flow meters, models CMF200, CMF300, CMF350, CMF400, CMFHC2, CMFHC3 and CMFHC4.  
Coriolis flow meters, models F025, F050, F100, F200 and F300.  
Coriolis flow meter, model HPC010

## 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 Rules for 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.

## Type Approval documentation

Test reports:

Intertek report # 3196553BOX-001B (Conducted Low Freq., Radiated Emission and Conducted Emission), dated 2010-06-30  
Dekra report No. DE/BVS/07/2091 (IP)  
NMI report No. CPC-710466-1 with Annex 1 to 6 (Climate, vibration and EMC)  
Intertek report No. G100044687DET-001, (Environmental tests)  
Exam report No. BVS PB 09/04 (IP)  
NMI report No. CVN/201269-1 (Environmental + EMC for CMF400)  
Intertek report # G100709939GRR-001 (env) dated 2013-07-30  
Intertek report # G100759186GRR-002a (env) dated 2012-10-19  
Intertek report # G100759186GRR-001 (emc) ver. A  
Intertek report # G100759186GRR-002 (env) dated 2012-10-19  
Intertek report # 102894678GRR-001, dated 2018-01-24

Other standards referenced:

OIML R117-1, Edition 2007 (E), Dynamic Measuring Systems for Liquids Other Than Water

Dimensional drawings:

CMF400M, dwg. No. 20004644 rev. A, dated 2006-08-08  
CMFHC3M815N2BAEZZZ, dwg. No. 200121000, rev. C, dated 2008-03-24  
CMFHC3M811N2BAEZZZ, dwg. No. 20012200, rev. B, dated 2008-04-08  
CMFHC3M510N2A2EZZZ, dated 2010-07-12  
CMF400M, dwg. No. EP-3008016, rev. B, dated 2002-10-07  
3700, dwg. No. EP-3300458, rev. A, dated 1998-04-08

Assembly/other drawings:

Weld Assy, CMFHC3, dwg. No. ER-20010300, rev. DI, dated 2011-09-09  
Flanged Assy, CMFHC3, dwg. No. ER-20010735, rev. IG, dated 2007-08-31  
Assy 3700/3350, dwg. No. ER-20014004, rev. BA, dated 2008-12-05  
Assy Board Stack 3700, dwg. No. ER 20014006, rev. A, dated 2008-12-05  
Dwg. No. ER-20022549 Rev. AA

Product information brochures:

Micro Motion Coriolis Solutions, doc. No. GI-00713  
High Performance Coriolis Measurement Systems, doc. No. MC-001062 rev D  
Micro Motion Flow and Density Technology, doc. No. MC-00993, rev. E, dated November 2008

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**Product Data Sheets:**

Micro Motion Elite High Capacity Coriolis Flow and Density Meters, dwg. No. PS-001041, rev. L  
Micro Motion Series 3000 Transmitters and Controllers, dwg. No. PS-00291, rev. E  
Micro Motion Elite Coriolis Flow and Density Meters, dwg. No. PS-00374, rev. Z  
Micro Motion® F-Series Coriolis Flow and Density Meters, dwg. No. PS-00603, rev. N  
Product Data Sheet PS-002073, Rev.A, December 2016

Initial Survey report, DNV San Francisco, dated 2012-11-19  
Type Approval Assessment Report issued at Boulder, United States on 2016-12-10

**Tests carried out**

Applicable tests according to Class Guidance DNVGL-CG-0339, November 2016.

**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 at least every second year and at renewal of this certificate.

END OF CERTIFICATE