EC-type examination certificate

Number **T10071** Revision 2
Project number: 9200041

Issued by	NMi Certin B.V. Hugo de Grootplein 1 3314 EG Dordrecht The Netherlands		
In accordance with	The "Metrologiewet" (Stb 2006, 137) as Dutch implementation of the Directive 2004/22/EC on measuring instruments (MID).		
Applicant	Emerson Process Management Flow B.V. Neonstraat 1 6718 WX Ede The Netherlands		
In respect of	An interruptible or non-interruptible measurement instrument for liquids other than water		
	Manufacturer	:	Emerson
	Designation	:	MMI-MID 001
Characteristics	$Q_{min} - Q_{max}$	:	See paragraph 1.2 of the description
	Minimum measured quantity	:	See paragraph 1.2 of the description
	Accuracy class	:	0.3 resp. 0.5, resp 1.0, resp. 2.5; see paragraph 1.2 of the description
	Environment class	:	M3 / E3
	Temperature range liquid	:	See paragraph 1.2 of the description
	Temperature range ambient	:	See paragraph 1.2 of the description
	Intended for the measurement of	:	Oil and oil products, alcohol, chemicals, potable liquids, liquefied gasses under pressure and cryogenic liquids with densities between 400 and 2000 kg/m^3
	In the description T10071 revision 2 the additional characteristics are given.		
Valid until	25 April 2017		
Description and Documentation	The measurement instrument is approved for measuring mass, density and volume and is described in the description number T10071 revision 2 and documented in the documentation folder number T10071 - 2, appertaining to this EC-type examination certificate.		
Remarks	This version replaces the earlier version, excluding the documentation folder.		

The Notified Body no. 0122
NMi Certin, 15 May 2009

C. Oosterman
Head Certification Board

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Parties concerned can lodge objection against this decision, within six weeks after the date of submission, to the general manager of NMi (see "Regulation objection and appeal against decisions of NMi")

INSPECTION
RvA I 122

Description

1 General information on the measurement instrument

All properties of the measurement instrument, whether mentioned or not, may not be in conflict with the Legislation.

This revision 2 is issued due to:
- Editorial changes.

1.1 Essential Parts

1.1.1 Measurement sensor
- Make Micro Motion, various types. See Evaluation certificate number TC7056 for details.
- Make Micro Motion, various types. See Evaluation certificate number TC7050 for details.

1.1.2 Flow transmitter
- Make Micro Motion, various types. See Evaluation certificate number TC7057 for details.

1.1.3 Flow computer
- Make Emerson Process Management, type FloBoss S600. See Evaluation certificate number TC7470 for details.
- Make Omni Flow Computers, Inc., type OMNI 3000 or OMNI 6000. See Evaluation certificate number TC7375 for details.
- Make Contrec Enraf, type Contrec 1010. See Evaluation certificate number TC7348 for details.

1.1.4 Temperature transmitter
- Make Rosemount, type 3144P Series. See Part certificate number TC7458 for details.

1.1.5 Pressure transmitter
- Make Rosemount, type 3051S series. See Part certificate number TC7457 for details.

1.2 Essential Characteristics

- $Q_{min} - Q_{max}$:
  - The Q_{min} of the measuring instrument shall not be smaller than the smallest Q_{min} of the components making up the measuring instrument.
  - The Q_{max} of the measuring instrument shall not be larger than the largest Q_{max} of the components making up the measuring instrument.
  - The ratio Q_{max}:Q_{min} shall be:
    - At least 5: 1 when measuring cryogenic liquids
    - Suitable for use when used on a pipeline or for loading ships
    - At least 4: 1 in all other cases
- Minimum measure quantity (MMQ):
  The MMQ is the largest value of:
  - The MMQ mentioned in the Evaluation certificate of the measurement sensor;
  - 200 times the largest display scale interval
  - 200 times the printed scale interval
  - 100 times the additional effect of the pipe work between measurement sensor and transfer point due to variations in temperature, equal to 10°C for exposed pipes and 2°C for insulated or underground pipes.
- Temperature range ambient and liquid:
  Depends on the used parts forming the measurement instrument; See the Evaluation/ Parts certificates of each component for the approved temperature range.

1.3 Essential Shapes

1.3.1 Inscriptions.

- Name plate
  On the measurement instrument, clearly visible, at least the following is inscribed:
  - The CE marking and the supplementary metrological marking
  - This EC-type examination certificate number: T10071.
  - Manufacturers name or trade mark
  - Designation
  - Year of manufacture and a serial number
  - Accuracy class
  - Q_{max} and Q_{min}
  - P_{max}
  - Liquid(s) to be measured
  - Temperature range ambient
  - Environmental classes (mechanical and electromagnetic)
- Measurement sensor
  For the inscriptions on the measurement sensor, see the applicable Evaluation certificate.
- Flow transmitter
  For the inscriptions on the flow transmitter, see the applicable Evaluation certificate.
- Flow computer
  For the inscriptions on the flow computer, see the applicable Evaluation certificate.
- Temperature and pressure transmitter
  For the inscription on the temperature and pressure transmitter, see the applicable Part certificates

1.3.2 Sealing.

- Name plate
  The name plate of the measurement instrument is sealed against removal
- Measurement sensor
  For the sealing of the measurement sensor, see the applicable Evaluation certificate.
- Flow transmitter
  For the sealing of the flow transmitter, see the applicable Evaluation certificate.
- Flow computer
  For the sealing of the flow computer, see the applicable Evaluation certificate.
- Temperature and pressure transmitter
  For the sealing of the temperature and pressure transmitter, see the applicable Part certificates.

The securing component has to bear:

- A mark of the manufacturer laid down in an approved quality system by a Notified Body, or;
- A mark of a Notified Body.

1.3.3 Configuration

- For the typical arrangement of the interruptible measuring instrument, see drawing number T10071/1-1 in the Documentation folder.
- For the typical arrangement of the non-interruptible measuring instrument, see drawing number T10071/1-2 in the Documentation folder.

1.4 **Conditional parts**

The measuring system contains also the following conditional parts:
- Temperature sensor
- Pressure sensor
- Back-up power supply
  Mandatory for non-interruptible systems. Optional for interruptible systems.

1.5 **Conditional characteristics**
- Before a delivery is started, the system shall be free of air.
- By-pass of a sensor (optional)
  See T10071/1-4 for prescribed conditions for by-passing a sensor.

1.6 **Conditional shapes**
- The construction shall be such that no air pockets remain after the air is released by the vent-off valves.
- Diameter of the valves and piping.

1.7 **Non essential parts**
- Pump, pipe work and connections.
- Block-in valve(s)
- Vent-off valve(s)
- Filter/strainer

2 Conditions for Approval

- Verification procedure of the system
  For the initial verifications the NMi procedure C-SP-HW-281 is applied. The title of the procedure is: "Procedure C-SP-HW-281 for the MID conformity assessment for the Micro Motion Flow meter when used for custody transfer gas application (annex MI-002) and liquid applications (annex MI-005)".
- Verification procedure of the meter
  For the initial verification the NMi procedure C-SP-HW-280 is applied. The title of the procedure is "Procedure C-SP-HW-280 for the MID conformity assessment for the Micro Motion Flow meter when used for custody transfer in gas applications (annex MI-002) and liquid applications (annex MI-005)".

  The initial verification is based on:
  - a water calibration, which includes:
    - a mass flow test
    - a zero mass flow verification
    - if applicable a density test
  - In the field a zero mass flow verification and if applicable a density verification.

  This procedure is justified because of the fact that tests have proven that the mass and density accuracy on water is representative for mass and density accuracy on other liquids.

  Note: The initial verification method can also be applied for the subsequent verifications.