

OIML Member State
The Netherlands

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Project number 2591028
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Issuing authority
Person responsible: NMi Certin B.V.
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Applicant and
Manufacturer Emerson Process Management Flow B.V.
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Identification of the
certified type **A measurement transducer**
Type: CMFxxx^[1]; CMFHCx^[1]

Characteristics See page 2 and further.

This OIML Certificate is issued under scheme A

This Certificate attests the conformity of the above-identified type (represented by the sample(s) identified in the OIML Type Evaluation Report) with the requirements of the following Recommendation of the International Organization of Legal Metrology (OIML):

R 117-1:2007 "Dynamic measuring systems for liquids other than water"

Accuracy class 0.3 / 0.5 / 1.5

This Certificate relates only to the metrological and technical characteristics of the type of measuring instrument covered by the relevant OIML International Recommendation identified above. This Certificate does not bestow any form of legal international approval.

This certificate and supporting reports comply with the requirements of OIML-CS-PD-07 clause 6.2.

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[1] With xxx or x denoting the size of the measurement sensor.

Issuing Authority **NMi Certin B.V., OIML Issuing Authority NL1**
30 September 2021

Certification Board

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The conformity was established by the results of tests and examinations provided in the associated report(s):

Report number	Issue date	Number of pages
Measurement sensor		
CVN/201269	10 July 2002	80
CVN-410178-01	21 December 2005	6
CVN-410178-02	21 December 2005	8
CVN-410178-03	21 December 2005	8
CVN-410178-04	21 December 2005	6
C-SP/603876	12 July 2006	23
CPC-802620-1	11 June 2009	41
CPC-9200041-1	15 October 2009	10
CPC-9200087-1	15 October 2009	10
NMi-10200543-1	11 January 2011	4
NMi-10200543-2	5 April 2011	12
NMi-11200345-2	20 October 2011	10
NMi-2591028-01	30 September 2021	14
MVD series electronics		
CVN-201269	10 July 2002	80
CPC-307228-1	21 February 2005	35
CPC-610406-2	29 January 2008	142
CPC-710466-1	19 November 2008	64
NMi-11200214-01	17 May 2011	13
NMi-11200345-2	20 October 2011	10
NMi-1901208-1	5 July 2018	114
5700 electronics		
NMi-14200115-01	4 December 2015	68
NMi-14200115-02	4 December 2015	52
NMi-14200115-06	22 April 2016	21
NMi-15200770-01	4 February 2016	9
NMi-2571596-01	30 September 2021	38

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Characteristics of the measurement transducer

In Table 1 to Table 8, the general characteristics of the measuring instrument are presented.

The construction of the measurement transducer is recorded in documentation folders TC7050-6 for the measurement sensor and TC7057-16 for the MVD series electronics or in TC8519-4 for the 5700 electronics.

Table 1 General characteristics applicable to the CMF series of measurement sensors

- Density range: 595 ... 1100 kg/m³
- Maximum viscosity: 1080 mm²/s (cSt) under actual operating conditions
- Accuracy class: 0.3; 0.5; and 1.5
- Environmental classes: M3 / E3 / H3
- Ambient temperature range: -40 ... +55 °C
- Intended for the measurement of: Oil and oil products, alcohol, chemicals, potable liquids, cryogenic liquids

Further characteristics of the CMF and CMFHC series measurement sensor:

Accuracy Class	0.3	0.5	1.5
Temperature range liquid for mass measurement	-10 °C ... +250 °C		-200 °C ... +50 °C
Temperature range liquid for density and volume measurement	-10 °C ... +150 °C		

Table 2 Specific characteristics of the CMF series of measurement sensors

Sensor type	CMF100y	CMF200y	CMF300y	CMF350y	CMF400y
Maximum flow rate [kg/min]	450	1450	4500	4920	6800
Minimum flow rate [kg/min] Accuracy class 0.3	11,4	36	114	453 ^{A, B, C, E} 226 ^{H, L, M, P}	680(i) 680(ii) 1700(iii)
Minimum flow rate [kg/min] Accuracy class 0.5;	5,7	18	57	226 ^{A, B, C, E} 113 ^{H, L, M, P}	680(i) 340(ii) 850(iii)
Minimum flow rate [kg/min] Accuracy class 1.0; 1.5					680(i) 340(ii) 340(iii)
Minimum Measured Quantity [kg]	10	20	200	500	500
Maximum pressure [bar(g)]	10	10	10	10	10

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Notes:

- y is a letter which indicates the type of material the meter is built of.
Where there are different possibilities for a characteristic, the actual letter is indicated in superscript.
- The CMF400 did get a mechanical improvement, therefore the following distinction applies:
 - (i) Serial number up to 411000
 - (ii) Serial number from 411000 up to 14200000
 - (iii) Serial number higher than 14200000

Table 3 Specific characteristics of the CMFHC series of measurement sensors

Sensor type	CMFHC2y	CMFHC3y	CMFHC4y	
Maximum flow rate [kg/min]	12600	22000	30000	
Minimum flow rate Class 0.3 [kg/min]	568	1134	1700	
Minimum flow rate Class 0.5 [kg/min]	284	567	850	
Minimum flow rate Class 1.0 [kg/min]	227	453	680	
Minimum flow rate Class 1.5 [kg/min]	114	227	340	
Minimum Measured Quantity [kg]	1000	1000	1000	
Maximum pressure [bar(g)]	10	10	10	

Notes:

- y is a letter which indicates the type of material the meter is built of.
Where there are different possibilities for a characteristic, the actual letter is indicated in superscript.

Table 4 General characteristics of the MVD series electronics

Environmental classes	M3 / E3 / H3 (700, 800, 820, 1700, 2700, 3500, 3700) M2 / E2 / H3 (2500)
Ambient temperature range	-40...+55 °C; condensing humidity
Power supply voltage	24 VDC 18... 30 VDC 18...100 VDC / 85...265 VAC, 50...60 Hz

Table 5 Software versions of the MVD series electronics

Version	Checksum	Version	Checksum	Version	Checksum
700 Core Processor					
2.0	51FF	2.7	F666	3.2	18D0
2.1	2B3F	2.8	1DEA	3.3	B0D1
2.2	9005	3.0	D00D	3.40	73A9
2.3	D75B	3.0 – ETO17153	97D6	3.42	F00C
2.4	474F	3.11 – ETO19413	14AD	3.50	11AA
2.5	14AD	3.12	1F1B	3.52	3C4A
2.6	D732	3.13 – ETO18951	8BF8		
800 Enhanced Core Processor					
3.11	891378AB	3.9	58CB3E0C	4.51– ETO32353	BC1660E8
3.21	9893B999	3.91 – ETO21156	65F98DD7	4.51-ETO33244	D7B81135
3.30	A73D25DA	3.94	47EB3E10	4.60	DDB76E3C
3.42	7FA82CE8	3.96	756C1BFD	4.70	AEB92E3F
3.50	D9343F05	4.00	C582F843	4.80	F1583A44
3.52	132CCB63	4.02	8D61C368	4.9	6083BF9B
3.6	A9CA4E81	4.14	40860C63	5.08	4D368E71
3.61 – ETO17170	9AA358FF	4.20	2983A9BE	5.10	82C541D9
3.7	BE73CD62	4.21– ETO21931	D6349259	5.20	BD69FDD6
3.71 – ETO18982	580D32B6	4.40	B280233F	5.22	F4A8D922
3.8	8CA8E7D1	4.42	D7BA0841		
3.81 – ETO20775	7931CE3D	4.50	6B48C624		
800 Remote Dual Core Processor					
1.00	52FB 1CF0	1.20	3B7249F6	1.40	8B64EF94
1.10	787951AA	1.30	AC56C460	1.41	073C45F2

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Version	Checksum	Version	Checksum	Version	Checksum
1700 / 2700 / 2500					
3.2, 3.3, 3.4, 3.4.1, 3.5.3 ^{*)}		3.6, 3.7, 4.1, 4.2 ^{*)}		4.0, 4.1, 4.2 ^{**)}	
5.0/1.0	7A7F0B39	6.4/1.3	B77B25C9	7.1/1.3	88FB1B5C
5.1/1.0	95F0BC47	6.5/1.3	88FB1B5C	7.2/1.3	9ECE81F1
5.12/1.0	A14FBFB9	6.6/1.3	9ECE81F1	7.3/1.3	4A5365D4
5.2/1.0	746CBE79	6.7/1.3	4A5365D4	8.0/1.3	1E1467F9
6.0/1.1	BB615B55	6.8/1.3	1E1467F9	8.02/1.3	201465F9
6.1/1.2	13176BE6	6.82/1.3	201465F9		
6.11 – ETO19266	9B13F21A	7.0/1.3	B77B25C9		
3500 / 3700					
7.0/1.1	A1C34F1C	8.03 – ETO19299	2D6104C2	8.3/1.4	8F65A9E9
7.1/1.1	D5783FCF	8.1/1.3	4279A001	8.4/1.4	227B10D2
7.2/1.1	20609FD3	8.14/1.3	62F125F2	8.41 – ETO26097	31D36D05
8.0/1.2	158A12BD	8.2/1.4	368139C5	8.43 – ETO31478	E35DF3C0
8.02 – ETO18947	1CC007C4	8.21 – ETO23686	D507F464	8.50/1.5	1C146AF7

Notes:

- ^{*)} Software versions for the 1700 / 2700 which do not have a checksum.
- ^{**)} Software versions for the 2500 which do not have a checksum.

Table 6 General characteristics of the 5700 electronics

Environmental classes	M3 / E3 / H3
Ambient temperature range	-25...+55 °C (if the display is the primary indication) -40...+55 °C (if an approved external display is used as primary indication)
Power supply voltage	21... 90 VDC 100...240 VAC, 50...60 Hz

Table 7 Software versions of the 5700 electronics

Version	Checksum	Version	Checksum	Version	Checksum
Transmitter Software (Weights & Measures)*)					
1.20 (1.0)	2DF0D8E9	2.10 (2.0)	23DD3385	4.0 (3.0)	0E4997D5
1.30 (1.1)	ADE631BB	3.0 (3.0)	06108400	4.07 (4.0)	44477758
1.85 (2.0) ETO28130	0EA71B41	3.1 (3.0)	2DE64BB2	4.1 (4.0)	AFE0673B
2.00 (2.0)	2F52132D	3.2 (3.0)	8CB1FE4B		
Internal Core Processor					
4.02	8D61C368	4.50	6B48C624	5.08	4D368E71
4.14	40860C63	4.60	DDB76E3C	5.10	82C541D9
4.20	2983A9BE	4.70	AEB92E3F	5.20	BD69FDD6
4.40	B280233F	4.80	F1583A44	5.22	F4A8D922
4.42	D7BA0841	4.90	6083BF9B		
PIC Firmware					
8.0	0000DE9C				
LCD PIC Firmware**)					
3.0	000081D5 (1.20)	3.0	00007442 (1.30 and later)		

Notes:

- *) The transmitter software and the Weights & Measures (W&M) software form a matched set. Please note that the W&M software does not have a checksum and means W&M is licensed.
- ***) The number between brackets, is the transmitter software which belongs to the stated checksum.