



OIML Member State
Denmark

OIML Certificate No.
R49/2013-A-DK2-2021.04

OIML CERTIFICATE ISSUED UNDER SCHEME A

OIML Issuing Authority

Name: FORCE Certification A/S
Address: Park Allé 345, 2605 Brøndby Denmark
Person responsible: Nikki Christoffersen

Applicant

Name: Siemens AG
Address: DE-76181, Karlsruhe, Germany

Manufacturer

Name: Siemens SAS
Address: 1 Chemin de la Sandlach, 67506 Haguenau Cedex, France

Identification of the certified type *(the detailed characteristics will be defined in the additional pages)*

MAG5100W DN50-300 and MAG3100W DN350-600 with MAG8000CT

Designation of the module *(if applicable)*

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This OIML 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):

OIML R 49, Edition (year): 2013

For accuracy class (if applicable): 1 and 2

This OIML Certificate relates only to metrological and technical characteristics of the type of measuring instrument covered by the relevant OIML Recommendation identified above.

This OIML Certificate does not bestow any form of legal international approval.

The conformity was established by the results of tests and examinations provided in the associated reports:

- OIML type evaluation report no. 121-21566.01 issued by FORCE Technology on 21-10-2021
- Test report no. 119-25154-1 issued by FORCE Technology on 25-02-2020

The technical documentation relating to the identified type is contained in documentation file:

Task no. 121-21566.01

OIML Certificate History

Revision No.	Date	Description of the modification
Revision 0	25-10-2021	Original certificate

Identification, signature and stamp
The OIML Issuing Authority

Date: 25-10-2021


Michael Møller Nielsen
Certification manager

Important note: Apart from the mention of the Certificate's reference number and the name of the OIML Member State in which the Certificate is issued, partial quotation of the Certificate and of the associated OIML type evaluation report(s) is not permitted, although either may be reproduced in full.

Measuring system description

The construction consists of an electromagnetic flow sensor, MAG5100W or MAG3100, and a signal transmitter, MAG8000CT.

The design principle is, as for any electromagnetic flow sensor, that a constant pulsed DC electrical current through the coil circuit results in a magnetic field through the sensor bore with direction from coil to coil. When a conductive liquid pass through the magnetic field, a differential DC voltage is introduced between the measuring electrodes.

The sensor has a steel tube and steel flanges and the bore is fitted with an electrically insulating lining, which is coned to optimize the velocity profile of the fluid. Coils generate the magnetic field.

The flow meter may be equipped with an optional wireless communication module.

Inscriptions

The water meters type MAG5100W and MAG3100W with MAG8000CT shall be clearly and indelibly marked with the following information:

- System designation
- Manufacturer designation or logo
- Manufacturer postal address
- Type, production year and serial number
- Accuracy class
- Max pressure loss
- Mechanical and electromagnetic environment classes
- Climatic class
- Flow limits
- Sensitivity velocity field classes
- Temperature of medium
- Maximum working pressure (PN)
- Protection class
- Dynamic Range (Q3/Q1)
- Software version (e.g.: 3.11)
- Direction of flow by means of an arrow shown on both sides of the body

Technical and metrological characteristics

Meter size	Orientation	Accuracy class	Flow rates [m ³ /h]				Ratio Q ₃ /Q ₁
			Minimum Q ₁	Transitional Q ₂	Permanent Q ₃	Overload Q ₄	
DN50	Horizontal	2	0.200	0.320	63	78.75	315
	All	2	0.504	0.806	63	78.75	125
	Horizontal	1	0.315	0.504	63	78.75	200
DN65	Horizontal	2	0.317	0.508	100	125	315
	All	2	0.800	1.280	100	125	125
DN80	Horizontal	2	0.508	0.813	160	200	315
	All	2	1.280	2.048	160	200	125
DN100	Horizontal	2	0.794	1.270	250	312.5	315
	All	2	2.000	3.200	250	312.5	125
DN125	Horizontal	2	1.270	2.032	400	500	315
	All	2	3.200	5.120	400	500	125
DN150	Horizontal	2	2.000	3.200	630	787.5	315
	All	2	5.040	8.064	630	787.5	125
DN200	Horizontal	2	3.175	5.079	1000	1250	315
	All	2	8.000	12.800	1000	1250	125
DN250	Horizontal	2	5.079	8.127	1600	2000	315
	All	2	12.800	20.480	1600	2000	125
DN300	Horizontal	2	5.079	8.127	1600	2000	315
	All	2	12.800	20.480	1600	2000	125
DN350	Horizontal	2	12.500	20.000	2500	3125	200
		1	20.000	32.000	2500	3125	125
DN400	Horizontal	2	20.000	32.000	4000	5000	200
		1	32.000	51.200	4000	5000	125
DN450	Horizontal	2	20.000	32.000	4000	5000	200
		1	32.000	51.200	4000	5000	125
DN500	Horizontal	2	31.500	50.400	6300	7875	200
		1	50.400	80.640	6300	7875	125
DN600	Horizontal	2	31.500	50.400	6300	7875	200
		1	50.400	80.640	6300	7875	125

Meters are approved to measure bi-directional for class 2.

Other sensor variants are also covered by this approval provided the following is fulfilled:

- “R” (Q₃/Q₁) shall not exceed the values in the tables and shall be chosen from OIML R 49-1:2013 list 4.1.4
- Q₃ shall not exceed the values in the tables and shall be chosen from OIML R 49-1:2013 list 4.1.3
- Q₁ shall be larger than the values in the tables
- Q₂ shall be larger than the values in the tables

Other characteristics:

Instrument type:	Complete water meter
Temperature class:	T50 (0.1...50 °C)
Water pressure class:	MAP 16
Accuracy class:	1 and 2
Electromagnetic environment class:	E2
Mechanical environment class:	M1, Class B and O (building and outdoors)
Ambient temperature range:	-25 °C – 55 °C
Sensitivity to irregularity upstream velocity field classes:	The product requires 0xD straight pipe upstream from the sensor for DN50-300 The product requires 3xD straight pipe upstream from the sensor for DN350-600
Sensitivity to irregularity downstream velocity field classes:	The product requires 0xD straight pipe downstream from the sensor for DN50-300 The product requires 3xD straight pipe downstream from the sensor for DN350-600
Orientation requirements:	Horizontal, vertical or at an intermediate angle for DN50-300. Horizontal for DN350-600
Protection class:	IP68
Power supply:	3.6 V lithium battery, 12-24 VAC/VDC, 115-230 VAC
Battery lifetime:	Up to 6 years
Compact/Remote:	Max. 30 m cable