



FORCE
Certification



OIML Member State
Denmark

OIML Certificate No.
R49/2013-A-DK2-2022.02

OIML CERTIFICATE ISSUED UNDER SCHEME A

OIML Issuing Authority

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

Applicant

Name: Kamstrup A/S
Address: Industrivej 28, 8660 Skanderborg, Denmark

Manufacturer

Name: Kamstrup A/S
Address: Industrivej 28, 8660 Skanderborg, Denmark

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

Ultrasonic water meter, type KWM4230

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): 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. 120-34520 issued by FORCE Technology on 9 August 2022
- Test report no. 121-34153 Rev. 1 issued by FORCE Technology on 19 April 2022

The technical documentation relating to the identified type is contained in documentation file:
Task no. 120-34520 and 122-28125

OIML Certificate History

| Revision No. | Date | Description of the modification |
|--------------|----------------|---------------------------------|
| Revision 0 | 17 August 2022 | Original certificate |
| | | |
| | | |

Identification, signature and stamp
The OIML Issuing Authority

Date: 17. August 2022



Lars Poder
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

KWM4230 is an integrated and hermetically sealed static water meter based on the ultrasonic measuring principle. The meter body is made of a composite housing combined with a body fully made of stainless steel and equipped with black coated split flanges made in cast iron.

The volume measurements are made by means of bidirectional ultrasonic technique according to the transit time method. KWM4230 has a display indicating the registered volume, measuring unit, error codes and more.

Furthermore, an optical eye is located on the front, whereby data reading of data loggers and configuration of the meter, can be made for service and diagnostic purposes.

KWM4230 is powered by 2 x D-cell-batteries with possibility for replaceable batteries. It is providing long battery life, even with high performance communication. A separate pulse interface can be used for converting the data telegram into volume pulses during calibration of the meter.

Inscriptions

The water meters type KWM4230 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
- Frequency
- 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.: SW: G1C1)
- Meter replacement year
- Direction of flow by means of an arrow shown on both sides of the body

Technical and metrological characteristics

Flow designation

Meter size DN125, length 250 mm

| | |
|--|--|
| Q ₁ Minimum flow rate [l/h] | 200 |
| Q ₂ Transitional flow rate [l/h] | 320 |
| Q ₃ Permanent flow rate [m ³ /h] | 160 |
| Q ₄ Overload flow rate [m ³ /h] | 200 |
| Dynamic range Q ₃ /Q ₁ | 800, 630, 500, 400, 315, 250, 200, 160, 125, 100 |

Meter size DN150, length 300 mm

| | |
|--|--|
| Q ₁ Minimum flow rate [l/h] | 312.5 |
| Q ₂ Transitional flow rate [l/h] | 500 |
| Q ₃ Permanent flow rate [m ³ /h] | 250 |
| Q ₄ Overload flow rate [m ³ /h] | 312.5 |
| Dynamic range Q ₃ /Q ₁ | 800, 630, 500, 400, 315, 250, 200, 160, 125, 100 |

Meter size DN200, length 350 mm

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|--|--|
| Q ₁ Minimum flow rate [l/h] | 500 |
| Q ₂ Transitional flow rate [l/h] | 800 |
| Q ₃ Permanent flow rate [m ³ /h] | 400 |
| Q ₄ Overload flow rate [m ³ /h] | 500 |
| Dynamic range Q ₃ /Q ₁ | 800, 630, 500, 400, 315, 250, 200, 160, 125, 100 |

Meter size DN250, length 450 mm

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|--|--|
| Q ₁ Minimum flow rate [l/h] | 787.5 |
| Q ₂ Transitional flow rate [l/h] | 1260 |
| Q ₃ Permanent flow rate [m ³ /h] | 630 |
| Q ₄ Overload flow rate [m ³ /h] | 787.5 |
| Dynamic range Q ₃ /Q ₁ | 800, 630, 500, 400, 315, 250, 200, 160, 125, 100 |

Meter size DN300, length 500 mm

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| Q ₁ Minimum flow rate [l/h] | 1250 |
| Q ₂ Transitional flow rate [l/h] | 2000 |
| Q ₃ Permanent flow rate [m ³ /h] | 1000 |
| Q ₄ Overload flow rate [m ³ /h] | 1250 |
| Dynamic range Q ₃ /Q ₁ | 800, 630, 500, 400, 315, 250, 200, 160, 125, 100 |

Other characteristics:

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|--|---|
| Instrument type: | Complete water meter |
| Temperature class: | T30 (0.1 – 30 °C) T50 (0.1 – 50 °C) |
| Pressure stage: | PN6, PN10 and PN16 |
| Accuracy class: | 2 |
| Electromagnetic environment class: | E1 and E2 |
| Mechanical environment class: | M1, Class B and O (building and outdoors) |
| Climatic class: | -25 °C – 55 °C, condensing |
| Sensitivity to irregularity upstream velocity field classes: | U0 |
| Sensitivity to irregularity downstream velocity field classes: | D0 |
| Orientation requirements: | None up to R400 Above R400 only in horizontal position |
| Protection class: | IP68 |
| Power supply: | 3.65 VDC lithium battery (2xD-cell) |
| Battery lifetime: | Up to 20 years |

Security measures:

- | | |
|----------|--|
| D | Module D label engraved on a plaque under the sealing ring |
| S | Security seal (void sealing ring) |
| T | Type label engraved on a plaque under the sealing ring |
| P | Security seals (void label) |

