



Member state  
Czech Republic

OIML Certificate No.  
R49/2013-CZ-17.06

## OIML BASIC CERTIFICATE OF CONFORMITY

### Issuing Authority

Name: Czech Metrology Institute  
Address: Okružní 31,  
638 00 Brno, CZ  
Person responsible: Jan Kalandra

### Applicant

Name: SPIRE METERING TECHNOLOGY  
Address: 249 Cedar Hill street, Marlborough, MA 01752  
USA

### Manufacturer of the certified type

Name: SPIRE METERING TECHNOLOGY  
Address: 249 Cedar Hill street, Marlborough, MA 01752  
USA

### Identification of the certified type

**Water meter**  
**Type: 280W- CI**

For further characteristics see page 2 to 4

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

**R 49, edition 2013, for accuracy class 2**

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

This 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 Test report No. 6015-PT-P3045-17 from 15<sup>th</sup> November 2017 that includes 77 pages including annexes, Test report No. 8551-PT-P0101-15 from 1<sup>st</sup> June 2015 that includes 37 pages including annexes, Test report No. 8551-PT-P0140-15 that includes 14 pages including annexes and Test report No. 8551-PT-P0145-15 that includes 13 pages including annexes.

**Measuring system description:**

The ultrasonic water meters type 280W-CI intended for metering cold potable water, based on an ultrasonic transit-time principle, with straight inlet (5 times the diameter) and outlet (3 times the diameter) length, without flow conditioner and there are equipped with an electronic calculating/indicating device. The display shows the measurements in cubic meter volume and cubic meter per hour flow rate. The meter is not designed to measure reverse flow. The meter does not require any extra-mechanical housing or adjustments.


The meter is intended for mount to the connecting horizontal, vertical and diagonal pipework with the flow axis in the horizontal, vertical and diagonal plane and with the indicating device positioned at the top and at the side.

The meter is equipped with the electronic indicating device. The display is a digital type, and can show up to 9 digits. The meter has two indication modes: High resolution mode and normal resolution mode. The high resolution mode is used during the calibration process. The water meter displays the volume resolution of 0.000001 m<sup>3</sup> on the digital display in the high resolution mode.

The normal resolution mode is used during normal operation. The water meter displays in the normal resolution mode up to 000000.001 m<sup>3</sup>/h flow rate and 0000000.01 m<sup>3</sup> volume on the digital display.

The water meters type 280W-CI can be equipped by M-bus transmitter which can be used for remote reading.



  
**The OIML Issuing Authority**  
Pavel Klenovský

20 December 2017

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**Characteristics:**

Basic technical data of water meters type **280W-CI**

|   |  |       |       |       |       |       |
|---|--|-------|-------|-------|-------|-------|
| Model number:   | 280W-CI  |       |       |       |       |       |
| Type details:   |  |       |       |       |       |       |
| Orientation limitation:   | Any position, forward flow   |       |       |       |       |       |
| Nominal diameter (DN) [mm]:   | 50   | 80    | 100   | 150   | 200   | 250   |
| Overload flow rate (Q <sub>4</sub> ) [m <sup>3</sup> /h]:                 | 31,25  | 78,75 | 125   | 200   | 312,5 | 500   |
| Permanent flow rate (Q <sub>3</sub> ) [m <sup>3</sup> /h]: <sup>1</sup>   | 25   | 63    | 100   | 160   | 250   | 400   |
| Transitional flow rate (Q <sub>2</sub> ) [m <sup>3</sup> /h]:             | 0,08   | 0,202 | 0,32  | 0,512 | 0,80  | 1,28  |
| Minimum flow rate (Q <sub>1</sub> ) [m <sup>3</sup> /h]:                  | 0,05   | 0,126 | 0,20  | 0,32  | 0,50  | 0,80  |
| Ratio Q <sub>3</sub> / Q <sub>1</sub> :                                   | 500  |       |       |       |       |       |
| Ratio Q <sub>2</sub> / Q <sub>1</sub> :                                   | 1.6  |       |       |       |       |       |
| Ratio Q <sub>4</sub> / Q <sub>3</sub> :                                   | 1.25   |       |       |       |       |       |
| Measuring principle:  | Ultrasonic   |       |       |       |       |       |
| Accuracy class:   | 2  |       |       |       |       |       |
| Maximum permissible error for the lower flowrate zone (MPE <sub>l</sub> ) | ±5%  |       |       |       |       |       |
| Maximum permissible error for the upper flowrate zone (MPE <sub>u</sub> ) | ±2% for water having a temperature ≤ 30°C<br>±3% for water having a temperature > 30°C |       |       |       |       |       |
| Temperature class:  | T30 and T50  |       |       |       |       |       |
| Maximum admissible temperature [°C]:                                      | 50   |       |       |       |       |       |
| Maximum admissible pressure [bar]:  | 16   |       |       |       |       |       |
| Maximum pressure-loss [bar]:  | 0,16   |       |       |       |       |       |
| Environmental class:  | C  |       |       |       |       |       |
| Electromagnetic class:  | E2   |       |       |       |       |       |
| Resolution of the indicating device [m <sup>3</sup> ]:                    | 0.01   |       |       |       |       |       |
| High resolution of the indicating device [L]:                             | 0.001  |       |       |       |       |       |
| Indicating range [m <sup>3</sup> ]:                                       | 999 999  |       |       |       |       |       |
| Length [mm]:  | 201  | 226   | 249   | 300   | 351   | 450   |
| Software version  | Version 31.0   |       |       |       |       |       |
| Checksum  | A4532301   |       |       |       |       |       |
| EUT Testing requirements:   |  |       |       |       |       |       |
| Category:   | Ultrasonic water meters  |       |       |       |       |       |
| Case:   | C  |       |       |       |       |       |
| Installation details:   |  |       |       |       |       |       |
| Connection type:  | DN50   | DN80  | DN100 | DN150 | DN200 | DN250 |
| Flow profile sensitivity classes  | U5 D3  |       |       |       |       |       |
| Flow conditioner (details if required):                                   | No   |       |       |       |       |       |
| Power supply:   |  |       |       |       |       |       |
| Type  | battery  |       |       |       |       |       |
| Minimum battery life time [mm] :  | 15   |       |       |       |       |       |
| U   | Li, 3.6V/2.4A  |       |       |       |       |       |

### **Marking and inscriptions**

The water meters type **280W-CI** shall be clearly and indelibly marked with the following information:

- Unit of measurement ( $m^3$ )
- Numerical value  $Q_3$  in  $m^3/h$  ( $Q_3 \times .\times$ ) and the ratio  $Q_3 / Q_1$ , (R 500)
- OIML certificate of conformity number
- Name of trademark of the manufacturer
- Year of manufacture, two last digits of the year of manufacture, or the month and year of manufacture and serial number (as near as possible to the indicating device)
- Direction of flow, by means of an arrow (shown on both sides of the body or on one side only provided the direction of flow arrow is easily visible under all circumstances)
- Maximum admissible pressure (MAP16)
- The temperature class (T50, T30)
- The pressure loss class ( $\Delta p$  63,  $\Delta p$  40,  $\Delta p$  25)
- The installation sensitivity class (U5D3)
- Climatic and electromagnetic environmental classes
- The latest date that the meter is to be replaced

These markings shall comply with the requirements of OIML R 49 and shall be visible without dismantling the water meter after the instrument has been placed on the market or put into use.

### **Security measures**

To prevent tampering with the water meter and its electronics, a sealing cap is permanently adhered to the 2 screws that are horizontally aligned with the display, surrounding the face plate of the water meter. The seals prevent access to the screws required to open the water meter top cover/face plate. Also electrode protection is recommended.