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EU-TYPE EXAMINATION CERTIFICATE

Number: TCM 142/17- 5470

In accordance: with Directive 2014/32/EU of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments (implemented in Czech Republic by Government Order No. 120/2016 Coll.).

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

For: water meter - ultrasonic water meter
type: 280W-R

Accuracy class: 2
Temperature class: T30 and T50

Valid until: 11 May 2027

Document No: 0511-CS-A016-17

Description: Essential characteristics, approved conditions and special conditions, if any, are described in this certificate.

Date of issue: 12 May 2017

Certificate approved by:




RNDr. Pavel Klenovský

1. Measuring device description

The ultrasonic water meters type 280W-R are designed to measure, memorise and display the volume at metering conditions of water passing through the measurement transducer in the sense of the Directive 2014/32/EU of the European Parliament and of the Council of the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments (implemented in Czech Republic by Government Order No. 120/2016 Coll.), as amended.

The ultrasonic water meters type 280W-R 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 m³ 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 m³/h flow rate and 0000000.01 m³ volume on the digital display.

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

2. Main characteristics:

Basic technical data of water meters type 280W-R:

Model number:	280W-R		
Type details:			
Orientation limitation:	Horizontal, vertical and diagonal position, forward flow		
Nominal diameter (DN) [mm]:	15	20	25
Overload flow rate (Q ₄) [m ³ /h]:	3.13	3.13	5.00
Permanent flow rate (Q ₃) [m ³ /h]: ¹	2.50	2.50	4.00
Transitional flow rate (Q ₂) [m ³ /h]:	0.016	0.016	0.026
Minimum flow rate (Q ₁) [m ³ /h]:	0.010	0.010	0.016
Ratio Q ₃ / Q ₁ :	250		
Ratio Q ₂ / Q ₁ :	1.6		
Ratio Q ₄ / Q ₃ :	1.25		
Measuring principle:	Ultrasonic		
Accuracy class:	2		
Maximum permissible error for the lower flowrate zone (MPE)	±5%		
Maximum permissible error for the upper flowrate zone (MPE)	±2% for water having a temperature ≤ 30°C ±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]:	0.63	0.40	0.25
Environmental class:	C		
Electromagnetic class:	E2		
Resolution of the indicating device [m ³]:	0.01		
Resolution of the indicating device [L]:	0.01 (normal mode) 0.000001 (calibration mode)		
Indicating range [m ³]:	999 999		
Length [mm]:	165	190	260

Software version	Version 31.0		
Checksum	A4532301		
EUT Testing requirements:			
Category:	Ultrasonic water meters		
Case:	C		
Installation details:			
Connection type:	G ¾ B	G 1 B	G 1 ¼ B
Flow profile sensitivity classes	U0 D0	U5 D3	
Flow conditioner (details if required):	No		
Power supply:			
Type	battery		
Minimum battery life time [mm] :	15		
<i>U</i>	Li, 3.6V/2.4A		

3. Test

Technical tests of the water meters type 280W-R were performed in compliance with the International Recommendation OIML R 49 Edition 2013 (E) with conformity to ISO 4064 and , Test Report No. 6015-PT-P0022-17 and No. 8551-PT-E0145-15 and No. 8551-PT-E0101-15.

Checking of software was performed in compliance with the WELMEC guide 7.2-2015, Test report No. 8553-PT-S1014-16.

4. Conformity marks and inscription:

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

- Unit of measurement (m³)
- Numerical value Q₃ in m³/h (Q₃ × ×) and the ratio Q₃ / Q₁ (R250),
- EU-type examination certificate number
- Manufacturer's name, registered trade name or registered trade mark
- Post address of manufacturer
- Year of manufacture, two last digits of the year of manufacture, or the month and year of manufacture
- 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 (MAP 16)
- The temperature class (T50, T30)
- The pressure loss class (Δp 63, Δp 40, Δp 25)
- The installation sensitivity class (U5 D3)
- Climatic and electromagnetic environmental classes (C; E2)
- The latest date that the battery is to be replaced
- CE marking and metrology marking in line with the Directive 2014/32/EU

These markings shall be visible without dismantling the water meter after the instrument has been placed on the market or put into use. Example is in Figure 2.

5. Additional specifications:

The water meters type 280W-R shall be put onto the market in line with the procedure of conformity assessment according to the Annex D or F of the Directive 2014/32/EU as well as in compliance with the technical description of this report and shall be tested in accordance with the requirements determined in ISO 4064-1:2014, respectively OIML R 49-1:2013.

A metrological test may only be performed by a producer, or a notified body respectively in line with the conformity assessment procedure by the D or F Annexes of the Directive 2014/32/EU, respectively.

6. Ensuring the integrity of the instruments:

To prevent tampering with the ultrasonic water meter **280W-R** 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 (Figure 3).

7. Drawing of the instrument:

Water meters type 280W-R are manufactured according to the technical documentation of manufacturer. Technical documentation contains following drawings:

Document reference	Date	Brief description
280W-D DN 20 ASSY	22.4.2014	Assembly drawing for 280W-D DN 20
280W-001	12.6.2015	280W-D Assembly
280W-R-MB-JGT	18.3.2017	Water meter panel

History of additions

Addition No.	Description
Addition 0	Issuing certificate