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V 3112

EU-TYPE EXAMINATION CERTIFICATE

Number: TCM 142/10 - 4758

Addition 4

This addition replaces all previous versions of this certificate in full wording.

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: Ningbo Water Meter (Group) Co., Ltd.
355 Hongxing Road, Jiangbei District
315032 Ningbo
China

For: water meter - positive displacement

type: PD-SDC

Accuracy class: 2

Temperature class: T30 and T50

Valid until: 11 October 2030

Document No: 0115-CS-A036-10

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

Date of issue: 12 October 2020

Certificate approved by:

Český metrologický institut

RNDr. Pavel Klenovský

1 Measuring device description

The water meters type PD-SDC 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 of the European Parliament and of the Council no. 2014/32/EU of measuring instruments, as amended.

The water meters type PD-SDC are positive displacement meters with rotary piston.

The water meters type PD-SDC(E3) consist of a cast brass or bronze body with connecting screw threads and inlet strainer, a wet measuring unit, a dry mechanical indicating device (Plastic Can Calculator) with a glass disc a brass or plastic head ring with a plastic cover or super dry mechanical indicating device (Copper Can Calculator or Stainless Steel Can Calculator) with brass or plastic head ring with a plastic lid.

The water meters type PD-SDC(E4) consist of a cast brass or bronze or plastic body with connecting screw threads and inlet strainer, a wet measuring unit, a pressure plate, an o-ring, a gasket, a screw plate, a dry mechanical indicating device or super dry mechanical indicating device (Copper Can Calculator or Stainless Steel Can Calculator) and clamp on plastic cover with a lid.

The water meters type PD-SDC(E6) consist of a cast brass or bronze body with connecting screw threads and inlet strainer, a wet measuring unit, an o-ring, a register chamber, a dry mechanical indicating device or super dry mechanical indicating device (Copper Can Calculator or Stainless Steel Can Calculator) and brass head ring with a plastic lid.

The water meters type PD-SDC(E8) consist of a cast brass or bronze or plastic body (plastic body for DN 15 only) with connecting screw threads and inlet strainer, an o-ring, a wet measuring unit, pressure plate, gaskets, a screw plate, a dry mechanical indicating device or super dry mechanical indicating device (Copper Can Calculator or Stainless Steel Can Calculator) and clamp on plastic cover with a lid.

The water meters type PD-SDC(T) consist of a cast brass or bronze body with connecting screw threads, an impact ring, a wet measuring unit, pressure plate, o-ring, gasket, screw plate, a dry mechanical indicating device or super dry mechanical indicating device (Copper Can Calculator or Stainless Steel Can Calculator) and clamp on plastic cover with a lid. If needed the meter is equipped with a brass or bronze casted base with threads connecting the meter to a pipe, a screw connecting the meter body to the base, gasket and o-ring.

The measuring unit consists of an internal strainer, a piston chamber with a plastic shaft and stainless steel holder, a rotary piston with stainless steel shaft, a plate entering the piston cylinder, an o-ring, a lid covering the piston chamber and a transmission shaft with magnetic ring.

The mechanical indicating device, dry (Plastic Calculator) or super dry (Copper Can Calculator or Stainless Steel Can Calculator), can be formed by 5 numbered drums and 4 rotary pointers with scales or 7 numbered drums and 2 rotary pointers with scales (this variant can be equipped with additional separate pointer with inductive plate) or 8 numbered drums and 1 rotary pointer with scale. There is a star wheel with six arms which can be used for rapid testing.

The water meters type PD-SDC can be equipped by a reed impulse transmitter which can be used for remote reading. The water meter has not been tested with reed impulse transmitter installed within this certification. The meters can be equipped with parts for mounting of an AMR device and all dial types can include an inductive pointer for AMR reading.

The water meters type PD-SDC shall be installed to operate in arbitrary positions.

Water meters type PD-SDC are manufactured according to technical documentation of manufacturer No. Q/ZNJ 17005-2013.12 Annex 1 from 31.12.2013 including among others the assembly drawings No. ZN1.632.xxx where xxx is 009, 010, 019 from 08/2012; 015, 022, 025, 066, 080; 020, 021 from 03/2007; 087, 088 from 05/2007; 070 from 07/2007; 205, 206 from 10/2013; 251, 252 from 06/2012.

2 Basic technical data

Basic technical data of water meters type PD-SDC variant E4:

Nominal diameter (DN) [mm]:	15	20	25	32	40
Overload flowrate (Q_4) [m^3/h]:	3.13	5.00	7.88	12.5	20
Permanent flowrate (Q_3) [m^3/h]:	2.50	4.00	6.30	10	16
Transitional flowrate (Q_2) [m^3/h]:	≥ 0.0050	≥ 0.0080	≥ 0.0252	≥ 0.040	≥ 0.064
Minimum flowrate (Q_1) [m^3/h]:	≥ 0.003125	≥ 0.0050	≥ 0.0158	≥ 0.025	≥ 0.040
Ratio Q_3 / Q_1:	≤ 800 [1]		≤ 400 [1]		
Ratio Q_2 / Q_1:	1.6				
Ratio Q_4 / Q_3:	1.25				
Accuracy class:	2				
Maximum permissible error for the lower flowrate zone (MPE_l):	± 5 %				
Maximum permissible error for the upper flowrate zone (MPE_u):	± 2 % for water having a temperature ≤ 30 °C ± 3 % for water having a temperature > 30 °C				
Temperature class:	T30 and T50				
Water pressure classes:	MAP 16				
Pressure-loss classes:	ΔP 63				
Indicating range [m^3]:	99 999				
Resolution of the indicating device [m^3]:	0.00002				
Resolution of the device for the rapid testing [pulse/L]:	71.185	40.264	26.745	13.200	4.941
Flow profile sensitivity classes:	U0 D0				
Orientation limitation:	Arbitrary orientation				
Length L [mm]:	110 - 190	154 - 190	168 - 260	260	300
Connection type– Screw thread size:	G¾B or G1B	G1B	G1¼B or G1½B	G1½B	G2B
Reed switch power supply (U_{max} / I_{max}):	max. 24 V / 0.01 A				
Reed switch K-factor [impulse / L]:	1, 0.1, 0.01 and 0.001				

[1] The ratio Q_3 / Q_1 shall be chosen according to paragraph 4.1.4 of EN ISO 4064-1:2017 | OIML R 49-1:2013

Basic technical data of water meters type PD-SDC variants E3, E6, E8, T:

Nominal diameter (DN) [mm]:	15	20	25
Overload flowrate (Q_4) [m^3/h]:	3.13	5.00	7.88
Permanent flowrate (Q_3) [m^3/h]:	2.50	4.00	6.30
Transitional flowrate (Q_2) [m^3/h]:	≥ 0.0100	≥ 0.0160	≥ 0.0252
Minimum flowrate (Q_1) [m^3/h]:	≥ 0.0063	≥ 0.0100	≥ 0.0158
Ratio Q_3 / Q_1:	≤ 400 [1]		
Ratio Q_2 / Q_1:	1.6		
Ratio Q_4 / Q_3:	1.25		
Accuracy class:	2		
Maximum permissible error for the lower flowrate zone (MPE_l):	± 5 %		
Maximum permissible error for the upper flowrate zone (MPE_u):	± 2 % for water having a temperature ≤ 30 °C ± 3 % for water having a temperature > 30 °C		
Temperature class:	T30 and T50		
Water pressure classes:	MAP 16		
Pressure-loss classes:	ΔP 63		
Indicating range [m^3]:	99 999		
Resolution of the indicating device [m^3]:	0.00002		
Resolution of the device for the rapid testing [pulse/L]:	71.185	40.264	26.745
Flow profile sensitivity classes:	U0 D0		

Orientation limitation:	Arbitrary orientation		
Length L [mm]:	110 - 190	154 - 190	168 - 260
Connection type– Screw thread size:	G¾B or G1B	G1B	G1¼B or G1½B
Reed switch power supply (U_{max} / I_{max}):	max. 24 V / 0.01 A		
Reed switch K-factor [impulse / L]:	1, 0.1, 0.01 and 0.001		

[1] The ratio Q_3 / Q_1 shall be chosen according to paragraph 4.1.4 of EN ISO 4064-1:2017 | OIML R 49-1:2013

3 Tests

Technical tests of the water meters type PD-SDC were performed according to International Recommendation OIML R 49 Edition 2006 (E) and EN 14154:2005+A1:2007, Test Report No. 6015-PT-A0044-10 from 11th October 2010 and No. 6015-PT-P0091-11 from 29th June 2011; according to EN 14154:2005 +A2:2011, Test Report No. 6015-PT-P0022-15 from 17th July 2015 and according to EN ISO 4064:2017 and OIML R 49:2013, Test Report No. 6015-PT-P0030-17 from 16th December 2019.

4 The measuring device data

The water meters type PD-SDC shall be clearly and indelibly marked with the following information:

- The "CE" marking and supplementary metrology marking
- Number of EU-type examination certificate
- Manufacturer's name or trademark
- Postal address at which the manufacturer can be contacted
- Year of manufacturing (last two digits) and serial number (as near as possible to the indicating device)
- Measuring device type
- Unit of measurement (m^3)
- Accuracy class 2
- Numerical value Q_3 in m^3/h (Q_3 ×.×)
- The ratio Q_3 / Q_1, (R××)
- The temperature class (T××)
- The maximum admissible pressure (MAP ××)
- The pressure loss class (ΔP ××)
- Classes on sensitivity to irregularities in velocity field (U× D×)
- Direction of flow arrow on both sides of the meter body

There are additional data required if the water meter is equipped with impulse transmitter:

- Output signals for ancillary devices (type / levels)
- External power supply requirements (voltage – frequency)

5 Sealing

The connection of water meter body and brass head ring has to be sealed by a wire with lead or plastic seal for water meters types PD-SDC (E3) and PD-SDC (E6).

The water meters types PD-SDC (E4) DN 15 to DN 25, PD-SDC (E8) and PD-SDC (T) have to be sealed by clamp on plastic cover which cannot be removed without damage and which is identified by a safeguarding mark.

The connection of water meter body and plastic clamp on cover has to be sealed by a wire with lead or plastic seal for water meters types PD-SDC (E4) DN 32 and DN 40.

The connection of the water meter body and the base has to be sealed by a wire with lead or plastic seal for water meter type PD-SDC (T).

Optionally the meters can be equipped with a safety pin between the dial window and the dial plate to indicate a rough treatment of the meter.

The connection of water meter body and reed impulse transmitter has to be sealed, if equipped.

The location of seal is described in Figures 1 to 7.

Figure 1: Example of the water meter type PD-SDC (E3) DN 15 – view and sealing:

Figure 2: Example of the water meter type PD-SDC (E4) DN 15 – view and sealing:

Figure 3: Example of the water meter type PD-SDC (E4) DN 32 – view and sealing:

Figure 4: Example of the water meter type PD-SDC (E6) DN 15 – view and sealing:

Figure 5: Example of the water meter type PD-SDC (E8) DN 15 – view and sealing:

Figure 6: Example of the water meter type PD-SDC (E8) DN 15 with plastic body – view and sealing:

Figure 7: Example of the water meter type PD-SDC (T) DN 15 – view and sealing:

Drawings of dial plates of various variants of the PD-SDC meters are shown in the following part of the certificate. Graphical notation as in the legend below is used for the dial drawings:

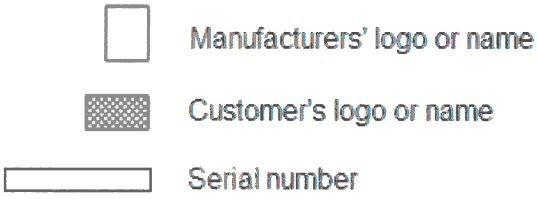

Figure 8: The dial plates of the water meter type PD-SDC (E3). Variant with CE mark and TCM number on top of the head ring is also possible. Variant with inductive pointer or magnetic pointer is also possible.

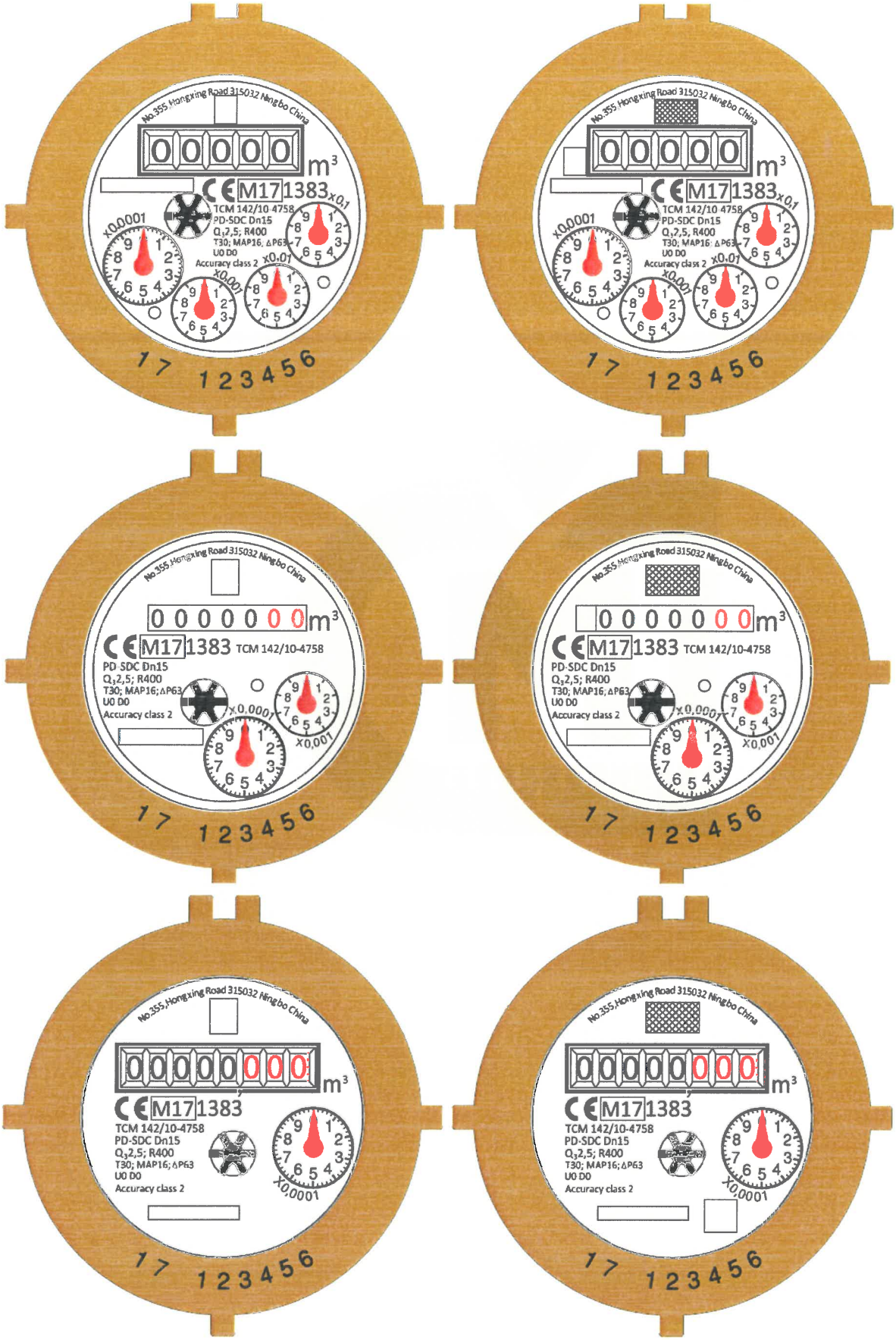

Figure 9: The dial plates of the water meter type PD-SDC (E4). Variant with inductive pointer or magnetic pointer is also possible.

Figure 10: The dial plates of the water meter type PD-SDC (E6). Variant with CE mark and TCM number on top of the head ring is also possible. Variant with inductive pointer or magnetic pointer is also possible.

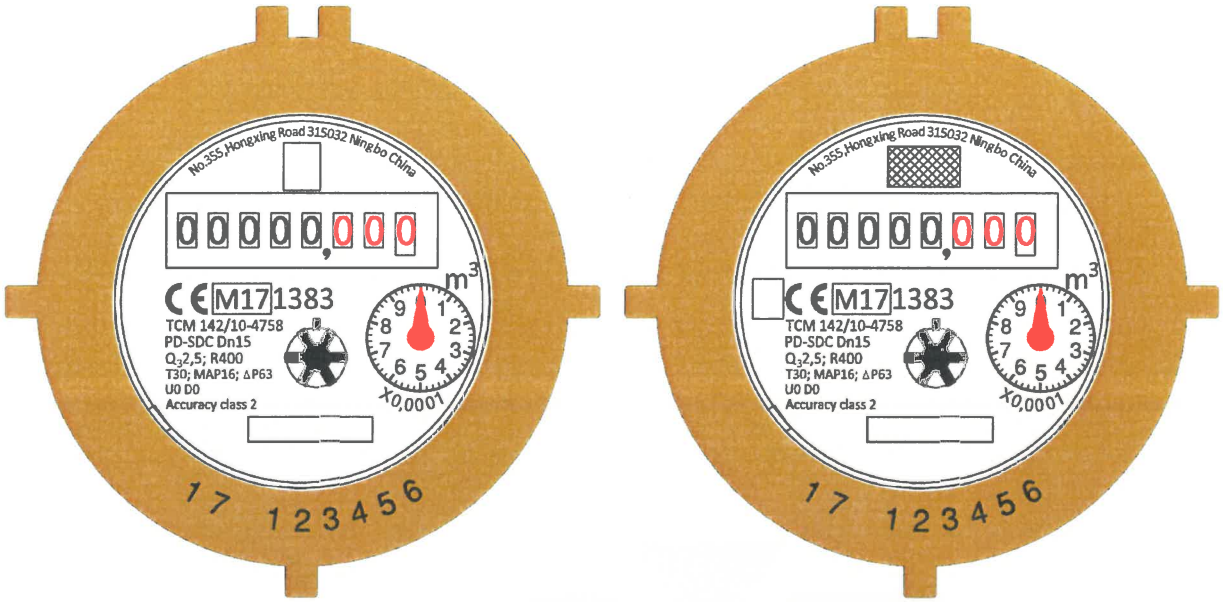

Figure 11: The dial plates of the water meter type PD-SDC (T). Variant with inductive pointer or magnetic pointer is also possible.

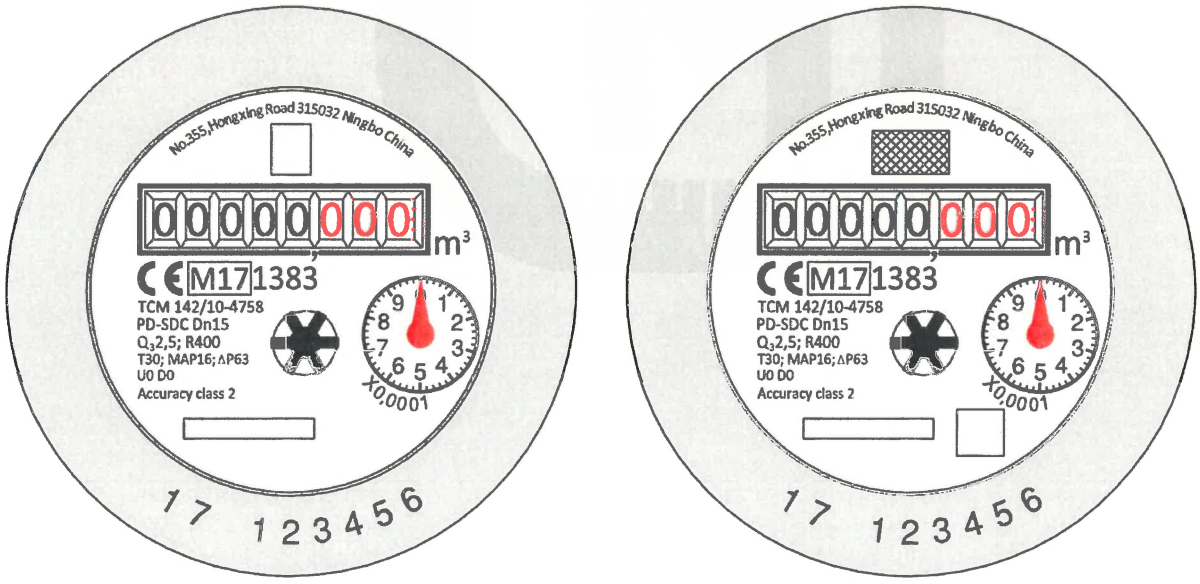

Figure 12: The dial plates of the water meter type PD-SDC (E8). Variant with inductive pointer or magnetic pointer is also possible.

Figure 13: The dial plates of the water meter type PD-SDC - variant with separate inductive pointer. In this case one revolution of the inductive pointer corresponds to 1 L of water.