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V 3112

EU-TYPE EXAMINATION CERTIFICATE

Number: TCM 142/10 - 4759

Addition 3

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-LFC

Accuracy class: 2

Temperature class: T30 and T50

Valid until: 11 October 2030

Document No: 0115-CS-A037-10

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 -3-

RNDr. Pavel Klenovský

1 Measuring device description

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

The water meters type PD-LFC consist of a brass, bronze or plastic body with connecting screw threads, an inlet strainer (optional), a non-return valve, a wet rotary piston measuring unit, a clamp frame, a gear mechanism and an encapsulated liquid filled mechanical counter. There are two variants of the meter with metal body differing in the body construction. The body of variant PD-LFC (A) consists of upper and lower parts which are connected with a screw which is integral part of the body parts. The body of variant PD-LFC (B) consists of upper and lower parts and a separate screw ring connecting both parts together. The connection is sealed with an o-ring in both cases. The variants differ also in the body shape. The meter variant with the plastic body is called PD-LFC (S). In this case the body construction is similar to the PD-LFC (A) besides the material.

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, a lid covering the piston chamber and a transmission shaft.

The mechanical counter is formed by eight drums for each size of the meter. The first drum from the right side is intended for continual reading.

The water meters type PD-LFC can be equipped by a reed impulse transmitter which can be used for remote reading.

The water meters type PD-LFC shall be installed to operate in arbitrary position.

Water meters type PD-LFC are manufactured according to technical documentation of manufacturer No. Q/ZNJ 17005-2010 Annex 2 from 1. 10. 2010 which contains among others assembly drawings No. ZN1.632.xxx where xxx is 085, 086, 016, 029, 031, 034, 041, 051-055 from 8/2010 and according to technical documentation of manufacturer No. Q/ZNJ 17005-2013.12 Annex 1 from 31. 12. 2013 which contains among others assembly drawings No. ZN1.632.xxx where xxx is 012, 012a, 013 – 013c, 184, 184a, 185 – 185c from 04/2007.

2 Basic technical data

Basic technical data of water meters type PD-LFC:

Nominal diameter (DN) [mm]:	15	20	25	32	40
Overload flowrate (Q_4) [m^3/h]:	≤ 3.13	≤ 5.00	≤ 7.88	≤ 12.5	≤ 20.0
Permanent flowrate (Q_3) [m^3/h]:	≤ 2.50 [1]	≤ 4.00 [1]	≤ 6.30 [1]	≤ 10.0 [1]	≤ 16.0 [1]
Transitional flowrate (Q_2) [m^3/h]:	≥ 0.0100	≥ 0.0160	≥ 0.0252	≥ 0.0400	≥ 0.0640
Minimum flowrate (Q_1) [m^3/h]:	≥ 0.0063	≥ 0.0100	≥ 0.0158	≥ 0.0250	≥ 0.0400
Ratio Q_3 / Q_1:	≤ 400 [2]				
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]:	9 999			99 999	
Resolution of the indicating device [m^3]:	0.00002			0.0002	
Flow profile sensitivity classes:	U0 D0				
Orientation limitation:	Arbitrary orientation				
Length L [mm]:	110 to 170	130 to 190	170 to 260	260	300

Connection type– Screw thread size:	G¾B or G1B	G1B	G1¼B	G1½B	G2B
Reed switch power supply (U_{max} / I_{max}):	max. 24 V / 0.01 A				
Reed switch K-factor [impulse / L]:	2			0.2	

[1] The value of Q_3 shall be chosen from the R5 line of ISO 3:1973.
[2] The ratio Q_3 / Q_1 shall be chosen from the R10 line from ISO 3:1973 and this value shall be higher than 40.

3 Test

Technical tests of the water meters type PD-LFC were performed according to the International Recommendation OIML R49 Edition 2006 (E) and EN 14154-1:2005+A1:2007, Test Report No. 6015-PT-A0043-10 from October 11th 2010; according to EN 14154-1:2005+A2:2011, Test Report No. 6015-PT-P0034-13 from April 24th 2015 and according to ISO 4064:2014 and OIML R 49:2013, Test Report No. 6015-PT-P0052-17 from 4th July 2017.

4 The measuring device data

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

- The "CE" marking and supplementary metrology marking
- Number of EC-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)
- 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

For the PD-LFC (A) and PD-LFC (S) variants the connection of the upper and the lower body parts has to be sealed (figures 1 and 2). For the PD-LFC (B) variant the connection of the upper body part and the screw ring has to be sealed (figure 3). The sealing is realized by a wire with a lead or plastic seal.
The connection of the water meter's body and reed impulse transmitter has to be sealed, if equipped.

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

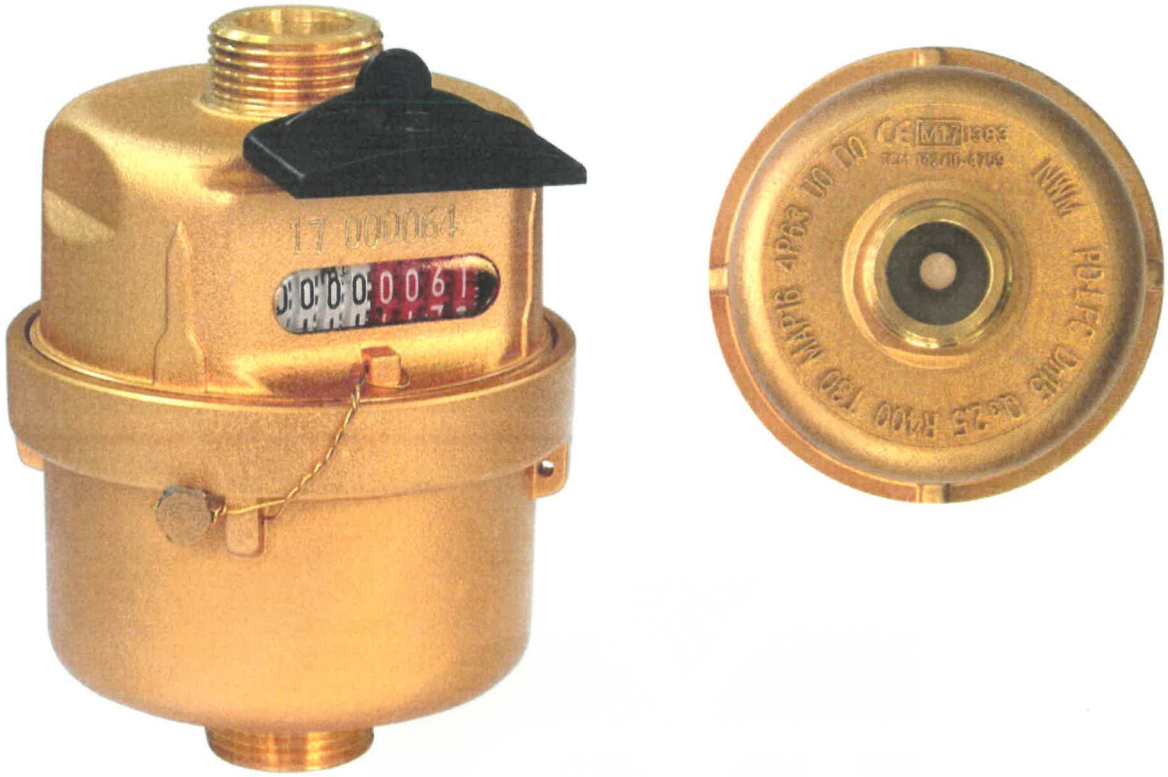

Figure 2: Example of the water meter type PD-LFC (S) DN 15 – view and sealing:

Figure 3: Example of the water meter type PD-LFC (B) DN 15 – view and sealing:

Figure 4: Example of the water meter type PD-LFC (B) DN 15 with reed impulse transmitter – view:

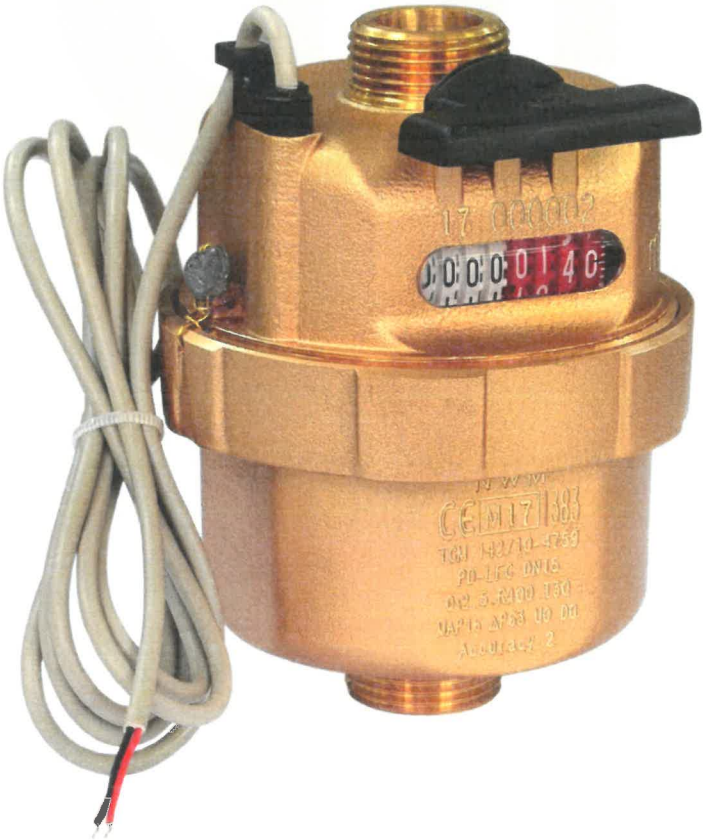

Figure 5: The dial plates of the water meters type PD-LFC (A). The marking besides the serial number and the address is placed at the bottom of the meter. The address is placed at the back side of the lid. The figures are an example for the DN 15 size. For bigger sizes the drawings are analogous.

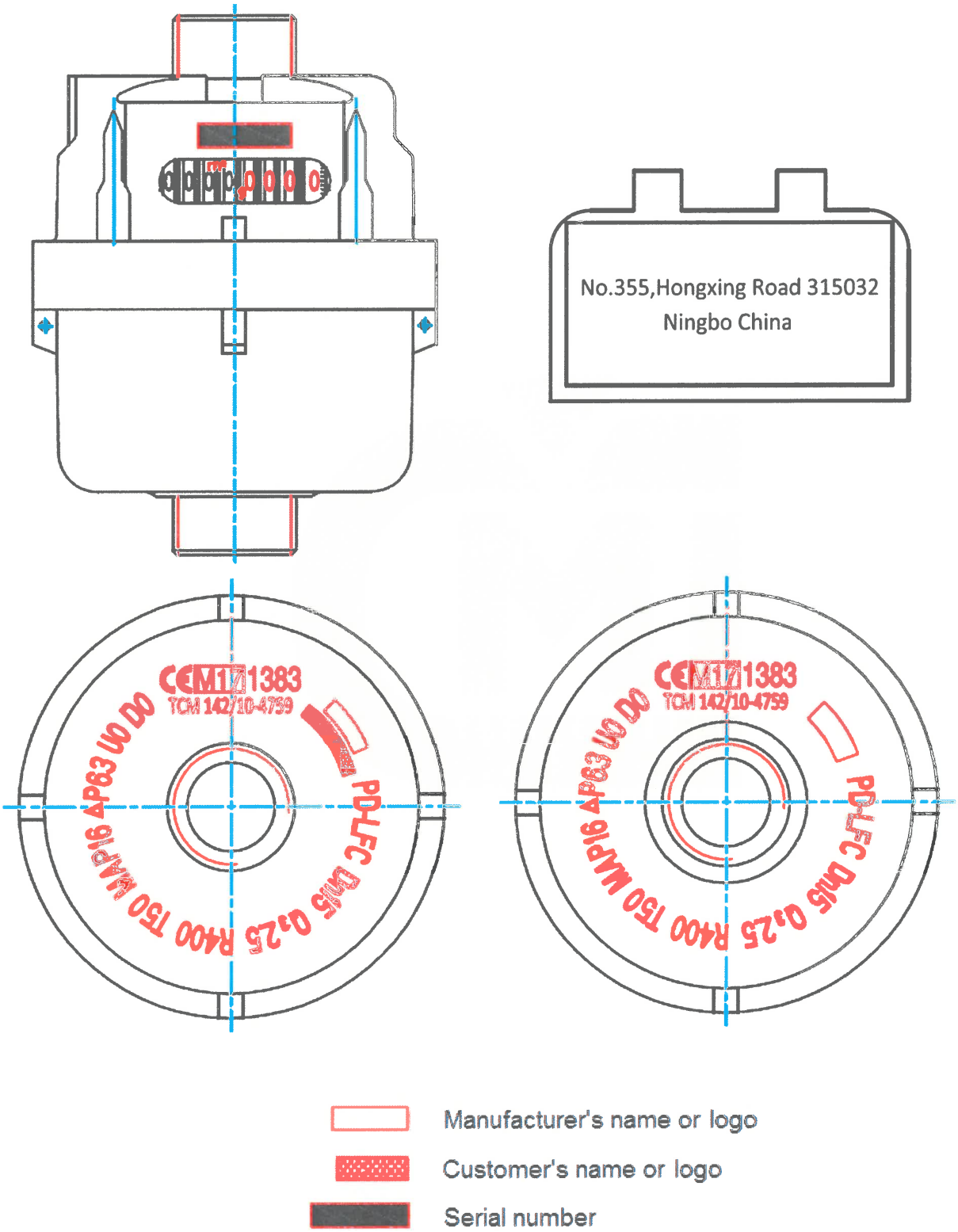

Figure 6: The dial plates of the water meters type PD-LFC (S). The marking besides the serial number and the address is placed at the bottom of the meter. The address is placed at the back side of the lid. The figures are an example for the DN 15 size. For bigger sizes the drawings are analogous.

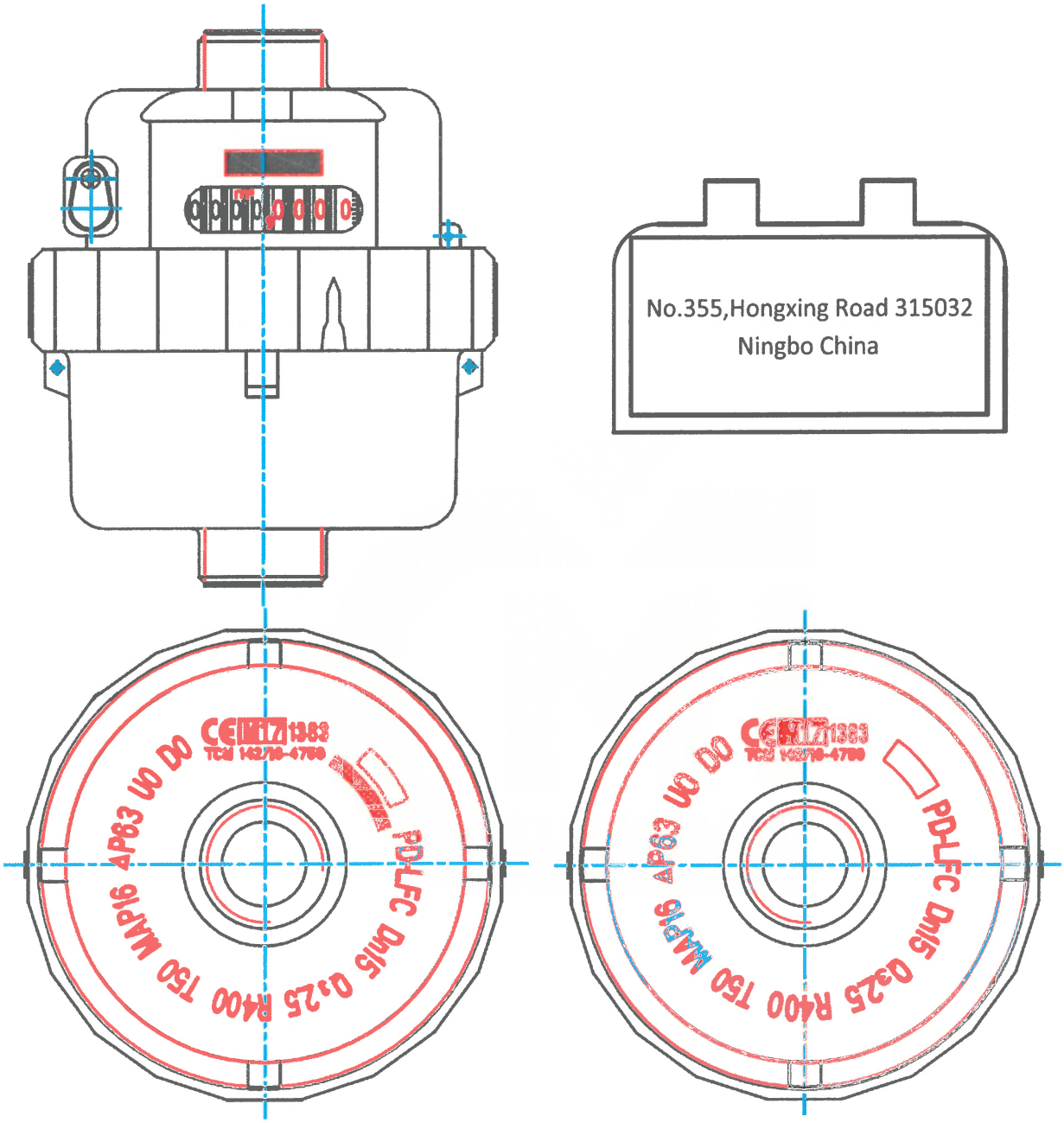

Figure 7: The dial plates of the water meters type PD-LFC (B). The marking is placed either on side of the meter or at the bottom of the meter. The address is placed at the back side of the lid. The figures are an example for the DN 15 size. For bigger sizes the drawings are analogous.