



EU-TYPE EXAMINATION CERTIFICATE

Number: TCM 142/10 – 4736

Addition 1

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

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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
Ningbo 315032
China

For: water meter – woltman
Type: WP-SDC

Accuracy class: 2
Temperature class: T30 or T50

Valid until: 28 June 2030

Document No: 0115-CS-A022-10

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

Date of issue: 8 June 2020

Certificate approved by:




RNDr. Pavel Klenovský

1 Measuring device description

The Woltman water meters type WP-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 WP-SDC are Woltman meters with turbine axis in flow direction. The water meters of the type WP-SDC consist of an iron, brass or bronze casted body with connecting flanges or groove connection, an interchangeable wet measuring unit with adjusting device and a dry mechanical indicating device or super dry mechanical indicating device (copper can or stainless steel can calculator). The water meter is closed by a flange cover connected by screws and sealed by a silicon o-ring.

The measuring unit consists of an inlet flow straightener with stainless steel shaft with tungsten carbide end, a plastic turbine with two composite axial bearings and two radial sapphire bearings, an outlet flow straightener with stainless steel shaft with tungsten carbide end, a transmission shaft with a magnetic coupling formed by two or four cube shape magnets protected by shaft tube, water meter flange cover, an adjusting screw sealed by silicon o-ring with adjusting slide, a dry or super dry indicating device, plastic cup with rotary plate, bracket with copper can or plastic register, plastic sealed ring with plastic cover.

The water meters type WP-SDC are equipped with a dry (plastic calculator) or super dry (copper can or stainless steel can calculator) indicating device formed by a) numbered rollers with six drums and two rotary pointers or b) numbered rollers with six drums, two rotary pointers and one circular scale or c) numbered rollers with six drums and three rotary pointers.

There is a star wheel with six arms which can be used for rapid testing in mechanical indicating device.

The water meters type WP-SDC can be equipped with a reed impulse transmitter which can be used for remote reading. The water meters have 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 with an inductive pointer for AMR reading.

The water meters type WP-SDC shall be installed to operate in any position for $Q_3 / Q_1 \leq 80$ or in horizontal position with indicating device on top for $Q_3 / Q_1 = 100$.

Water meters type WP-SDC are manufactured according to technical documentation of manufacturer No. Q/ZNJ 17005-2018.12 Annex 1 from 31. 12. 2018. The technical documentation contains among others assembly drawings No. ZN1.631.845~849 from 8/2018 for water meters type WP-SDC DN 50 to 125, No. ZN1.631.850, 851 from 8/2018 for water meters type WP-SDC DN 150 to 200, No. ZN1.631.852, 853, 904 from 8/2018 for water meters type WP-SDC DN 250 to 350 and No. ZN1.631.854, 855 from 8/2018 for water meters type WP-SDC DN 400 to 500.

2 Basic technical data

Basic technical data of water meters type WP-SDC from DN 50 to 125:

Nominal diameter (DN) [mm]:	50	65	80	100	125
Overload flowrate (Q_4) [m^3/h]:	50.0	78.8	78.8	125	200
Permanent flowrate (Q_3) [m^3/h]:	40.0	63.0	63.0	100	160
Transitional flowrate (Q_2) [m^3/h] position H↑:	≥ 0.640	≥ 1.008	≥ 1.008	≥ 1.60	≥ 2.56
Transitional flowrate (Q_2) [m^3/h] any position other than H↑:	≥ 0.800	≥ 1.26	≥ 1.26	≥ 2.00	≥ 3.20
Minimum flowrate (Q_1) [m^3/h] position H↑:	≥ 0.400	≥ 0.630	≥ 0.630	≥ 1.00	≥ 1.60
Minimum flowrate (Q_1) [m^3/h] any position other than H↑:	≥ 0.500	≥ 0.788	≥ 0.788	≥ 1.25	≥ 2.00
Ratio Q_3 / Q_1 position H↑:	$\leq 100^1$				
Ratio Q_3 / Q_1 any position other than H↑:	$\leq 80^1$				
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):	$\pm 5\%$				

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 16	ΔP 10	ΔP 10	ΔP 10	ΔP 16
Indicating range (6+2) [m ³]:	999 999				
Resolution of the indicating device [m ³]:	0.001				
Indicating range (6+2+1) [m ³]:	999 999				
Resolution of the indicating device [m ³]:	0.0005				
Indicating range (6+3) [m ³]:	999 999				
Resolution of the indicating device [m ³]:	0.0005				
Resolution of the device for the rapid testing [pulse/L]:	0.61903	0.61903	0.61903	0.42180	0.31824
Flow profile sensitivity classes:	U10 D5				
Orientation limitation:	H↑ for Q ₃ / Q ₁ = 100 any for Q ₃ / Q ₁ ≤ 80				
Minimum length L [mm]:	200	200	200	250	250
Maximum length L [mm]:	310	260	413	483	250
Connection type:	Flange or Groove Connection				
Reed switch power supply (U _{max} / I _{max}):	max. 24 V / 0.01 A				
Reed switch K-factor [impulse / L]:	0.1, 0.01 and 0.001				

¹ The ratio Q₃ / Q₁ 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 WP-SDC from DN 150 to 350:

Nominal diameter (DN) [mm]:	150	200	250	300	350
Overload flowrate (Q ₄) [m ³ /h]:	313	500	788	1250	1250
Permanent flowrate (Q ₃) [m ³ /h]:	250	400	630	1000	1000
Transitional flowrate (Q ₂) [m ³ /h] position H↑:	≥ 4.00	≥ 6.40	≥ 10.08	≥ 16.0	≥ 16.0
Transitional flowrate (Q ₂) [m ³ /h] any position other than H↑:	≥ 5.00	≥ 8.00	≥ 12.6	≥ 20.0	≥ 20.0
Minimum flowrate (Q ₁) [m ³ /h] position H↑:	≥ 2.50	≥ 4.00	≥ 6.30	≥ 10.0	≥ 10.0
Minimum flowrate (Q ₁) [m ³ /h] any position other than H↑:	≥ 3.13	≥ 5.00	≥ 7.88	≥ 12.5	≥ 12.5
Ratio Q ₃ / Q ₁ position H↑:	≤ 100 ¹				
Ratio Q ₃ / Q ₁ any position other than H↑:	≤ 80 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 10	ΔP 10	ΔP 10	ΔP 10	ΔP 10
Indicating range (6+2) [m ³]:	9 999 999				
Resolution of the indicating device [m ³]:	0.01				



Indicating range (6+2+1) [m ³]:	9 999 999		99 999 999		
Resolution of the indicating device [m ³]:	0.005		0.05		
Indicating range (6+3) [m ³]:	9 999 999		99 999 999		
Resolution of the indicating device m ³ :	0.005		0.05		
Resolution of the device for the rapid testing [pulse/L]:	0.06442	0.04218	0.01377	0.01122	0.01122
Flow profile sensitivity classes:	U10 D5				
Orientation limitation:	H↑ for $Q_3 / Q_1 = 100$ any for $Q_3 / Q_1 \leq 80$				
Minimum length L [mm]:	300	350	450	500	500
Maximum length L [mm]:	430	520	450	500	500
Connection type:	Flange or Groove Connection				
Reed switch power supply (U_{max} / I_{max}):	max. 24 V / 0.01 A				
Reed switch K-factor [impulse / L]:	0.01, 0.001 and 0.0001		0.001, 0.0001 and 0.00001		

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 WP-SDC from DN 400 to 500:

Nominal diameter (DN) [mm]:	400	500
Overload flowrate (Q_4) [m ³ /h]:	2000	3125
Permanent flowrate (Q_3) [m ³ /h]:	1600	2500
Transitional flowrate (Q_2) [m ³ /h] position H↑:	≥ 25.6	≥ 40.0
Transitional flowrate (Q_2) [m ³ /h] any position other than H↑:	≥ 32.0	≥ 50.0
Minimum flowrate (Q_1) [m ³ /h] position H↑:	≥ 16.0	≥ 25.0
Minimum flowrate (Q_1) [m ³ /h] any position other than H↑:	≥ 20.0	≥ 31.3
Ratio Q_3 / Q_1 position H↑:	≤ 100 ¹	
Ratio Q_3 / Q_1 any position other than H↑:	≤ 80 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 10	ΔP 10
Indicating range (6+2) [m ³]:	99 999 999	
Resolution of the indicating device [m ³]:	0.1	
Indicating range (6+2+1) [m ³]:	99 999 999	
Resolution of the indicating device [m ³]:	0.05	
Indicating range (6+3) [m ³]:	99 999 999	
Resolution of the indicating device [m ³]:	0.05	



Resolution of the device for the rapid testing [pulse/L]:	0.0061903	0.0036755
Flow profile sensitivity classes:	U10 D5	
Orientation limitation:	H↑ for $Q_3 / Q_1 = 100$ any for $Q_3 / Q_1 \leq 80$	
Minimum length L [mm]:	500	500
Maximum length L [mm]:	600	800
Connection type:	Flange or Groove Connection	
Reed switch power supply (U_{max} / I_{max}):	max. 24 V / 0.01 A	
Reed switch K-factor [impulse / L]:	0.001, 0.0001 and 0.00001	

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 WP-SDC were performed in compliance with the International Recommendation OIML R 49 Edition 2006 (E) with conformity to EN 14154-1:2005+A1:2007, Test Report No. 6015-PT-A0040-10 from 3rd June 2010 and according to EN ISO 4064:2017 and OIML R 49:2013 Test Report No. 6015-PT-P0006-20 from 24th February 2020.

4 The measuring device data

The water meters type WP-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 digit) 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 ($Q_3 \times \times$)
- The ratio Q_3 / Q_1 , ($R \times \times$)
- The temperature class ($T \times \times$)
- The maximum admissible pressure (MAP $\times \times$)
- The pressure loss class ($\Delta P \times \times$)
- Classes on sensitivity to irregularities in velocity field ($U \times D \times$)
- Orientation limitation for given value of R (e.g. R100H↑, R80any)
- 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 the top part of the plastic cover of the indicating device and its lower part which is fixed to the flange cover of the water meter has to be sealed with a wire with lead or plastic seal for all water meter sizes and register types (see Figures 5 and 6).

For sizes DN50 to DN200 a connection of the water meter flange cover and a screw fixing the flange cover to the water meter body has to be sealed with a wire with lead or plastic seal (see Figure 5).

For sizes DN250 to DN500 a connection of the adjusting screw and a screw fixing the flange cover to the water meter body has to be sealed with a wire with lead or plastic seal (see Figure 6).

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.

Figure 1: Example of the water meter type WP-SDC DN50 with copper can register.



Figure 2: Example of the water meter type WP-SDC DN150 with plastic register.



Figure 3: Example of the the water meter type WP-SDC DN250 with copper can register and AMR pointer.



Figure 4: Example of the the water meter type WP-SDC DN400 with copper can register and AMR pointer.



Figure 5: Sealing of the water meter WP-SDC DN50 (left) and DN150 (right). Similar sealing is used for sizes DN50-DN200.



Figure 6: Sealing of the water meter WP-SDC DN400. Similar sealing is used for sizes DN250-DN500.

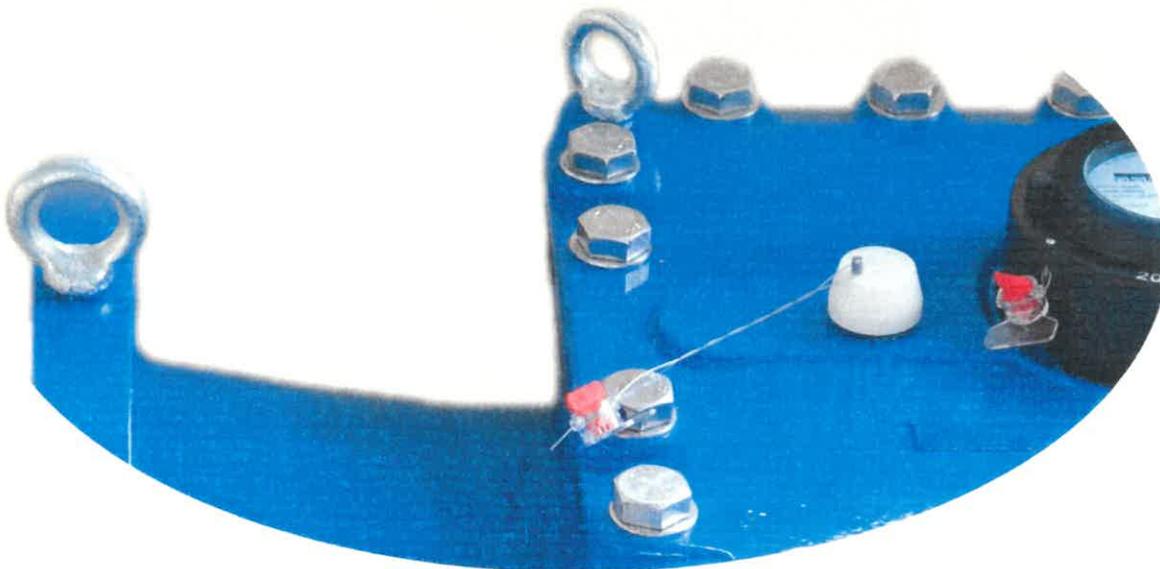


Figure 7: Examples of the dial plates of the water meter type WP-SDC, variant 6+2+1, copper can register, DN50. AMR pointer is also possible instead of the pointer with the highest resolution. Optionally, the serial number can be printed on the plastic cover of the register instead of on the dial.

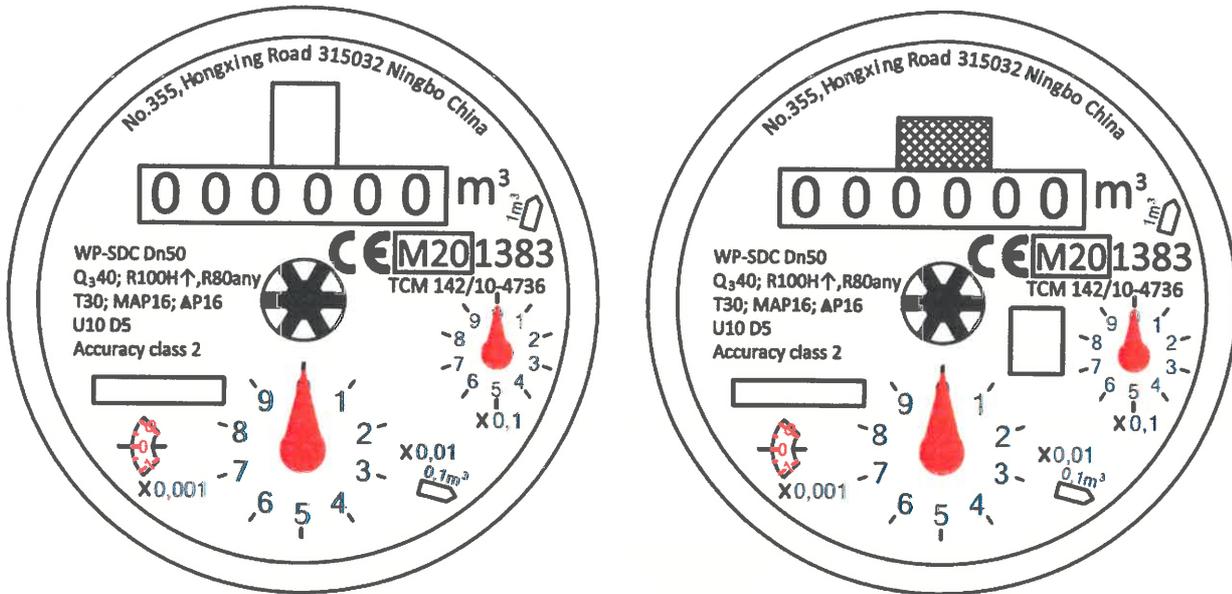
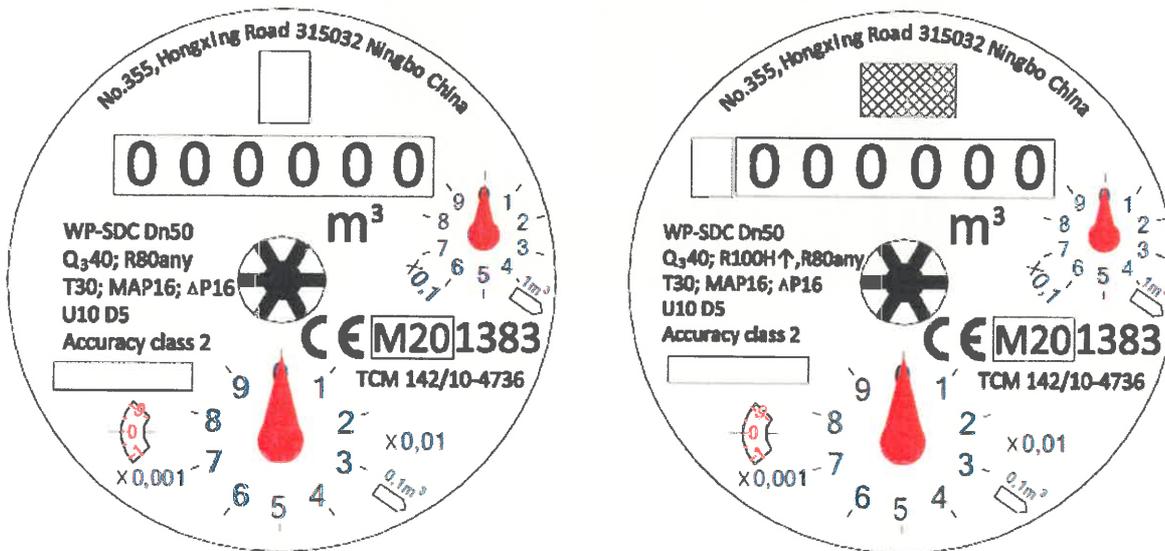


Figure 8: Examples of the dial plates of the water meter type WP-SDC, variant 6+2+1, plastic register, DN50. Optionally, the serial number can be printed on the plastic cover of the register instead of on the dial.



-  Manufacturers' logo or name
-  Customer's logo or name
-  Serial number



Figure 9: Examples of the dial plates of the water meter type WP-SDC, variant 6+3, copper can register, DN50. AMR pointer is also possible instead of the pointer with the highest resolution. Optionally, the serial number can be printed on the plastic cover of the register instead of on the dial.

