



**Czech Metrology Institute**

**Okružní 31, 638 00 Brno**

tel. +420 545 555 111, fax +420 545 222 728, [www.cmi.cz](http://www.cmi.cz)

**Notified Body**

**No. 1383**

## **EC-TYPE EXAMINATION CERTIFICATE**

**Number: TCM 142/12 – 4911**

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**In accordance with:** point 3 of annex 2 to Government Order No. 464/2005 Coll. (annex B of the Directive 2004/22/EC) from 19 October 2005 that lays down technical requirements on measuring instruments and implements in Czech Republic Directive 2004/22/EC of the European Parliament and of the Council.

**Manufacturer:** Ningbo Water Meter Co. LTD.  
No. 99, Lane 268, Beihai Road  
Ningbo 315033  
China

**For:** water meter - single jet  
type: WPI -SDC  
Accuracy class: 2  
Temperature class: T30 or T50

**Valid until:** 22 February 2022

**Document number:** 0115-CS-A004-12

**Description:** Essential characteristics, approved conditions and special conditions, if any, are described in this certificate. This certificate contains 9 pages.

**Date of issue:** 23 February 2012



**Certificate approved by:**

RNDr. Pavel Klenovský

## 1. Measuring device description

The water meters type WPI-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. 2004/22/EC of measuring instruments, as amended.

The water meters type WPI-SDC are single jet vane wheel meters with axis of the vane wheel perpendicular to the flow direction. The water meters type WPI-SDC consist of a cast iron or ductile iron body with connecting flanges and an exchangeable measuring unit. The measuring unit is connected to the body by a flange cover which is fixed by four screws and sealed by a rubber o-ring.

The measuring unit consists of a plastic holder with bushes for an impeller, an impeller with a stainless steel shaft, a calibration plate, a transmission, a center gear with a magnetic coupling, the flange cover made of iron and brass (or full brass) with an adjusting screw, a turning plastic register house fixed by an immovable plastic plate, a plastic bracket for an indicating device (in case of a copper can register only) a dry mechanical indicating device (plastic register) or a super dry mechanical indicating device (copper can register) and an upper plastic cover.

The indicating device of the water meters type WPI-SDC is equipped by numbered rollers with six drums and two rotary pointers and by a star wheel with six arms which can be used for rapid testing.

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

The water meters type WPI-SDC shall be installed to operate in horizontal position with the indicating device positioned at the top.

The water meters type WPI-SDC are manufactured according to technical documentation of manufacturer No. Q/ZNJ 17005-2011.5 Annex 1 from 30.06.2011. This documentation contains among others the assembly drawings No. ZN1.631.182 – 190 from 6/2011 for the copper can register variant and No. ZN1.631.191 - 199 from 6/2011 for the plastic register variant.

## 2. Basic technical data

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

Nominal diameter (DN) [mm]:	50	65	80	100	125
Overload flowrate ( $Q_4$ ) [ $\text{m}^3/\text{h}$ ]:	$\leq 78.8$	$\leq 78.8$	$\leq 125$	$\leq 200$	$\leq 313$
Permanent flowrate ( $Q_3$ ) [ $\text{m}^3/\text{h}$ ]:	$\leq 63^1$	$\leq 63^1$	$\leq 100^1$	$\leq 160^1$	$\leq 250^1$
Transitional flowrate ( $Q_2$ ) [ $\text{m}^3/\text{h}$ ]:	$\geq 2.52$	$\geq 2.52$	$\geq 4.00$	$\geq 6.40$	$\geq 10.0$
Minimum flowrate ( $Q_1$ ) [ $\text{m}^3/\text{h}$ ]:	$\geq 1.57$	$\geq 1.57$	$\geq 2.50$	$\geq 4.00$	$\geq 6.25$
Ratio $Q_3 / Q_1$ :	$\leq 40^2$				
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 <sub>l</sub> ):	$\pm 5 \%$				
Maximum permissible error for the upper flowrate zone (MPE <sub>u</sub> ):	$\pm 2 \%$ for water having a temperature $\leq 30^\circ\text{C}$ $\pm 3 \%$ for water having a temperature $> 30^\circ\text{C}$				
Temperature class:	T30 and T50				
Water pressure classes:	MAP 16				
Pressure-loss classes:	$\Delta P 25$	$\Delta P 10$	$\Delta P 10$	$\Delta P 10$	$\Delta P 10$
Indicating range (6+2) [ $\text{m}^3$ ]:	999 999				
Resolution of the indicating device [ $\text{m}^3$ ]:	0.001				
Resolution of the device for the rapid testing [pulse/L]:	0.52834	0.35664	0.24000	0.16364	0.12308
Flow profile sensitivity classes:	U10 D5				
Orientation limitation:	H				
Length L [mm]:	200	200	225	250	250
Connection type:	Flange connection				
Reed switch power supply ( $U_{\text{max}} / I_{\text{max}}$ ):	max. 24 V / 0.01 A				
Reed switch K-faktor [impulse / L]:	0.01 and 0.001				



<sup>1</sup> The value of  $Q_3$  shall be chosen from the R5 line of ISO 3:1973.

<sup>2</sup> The ratio  $Q_3 / Q_1$  shall be chosen from the R10 line from ISO 3:1973 and this value shall be higher than 10.

Basic technical data of water meters type WPI-SDC from DN 150 to DN 300:

Nominal diameter (DN) [mm]:	150	200	250	300
Overload flowrate ( $Q_4$ ) [ $\text{m}^3/\text{h}$ ]:	$\leq 500$	$\leq 788$	$\leq 1250$	$\leq 2000$
Permanent flowrate ( $Q_3$ ) [ $\text{m}^3/\text{h}$ ]:	$\leq 400$ <sup>1</sup>	$\leq 630$ <sup>1</sup>	$\leq 1000$ <sup>1</sup>	$\leq 1600$ <sup>1</sup>
Transitional flowrate ( $Q_2$ ) [ $\text{m}^3/\text{h}$ ]:	$\geq 16.0$	$\geq 25.2$	$\geq 40.0$	$\geq 64.0$
Minimum flowrate ( $Q_1$ ) [ $\text{m}^3/\text{h}$ ]:	$\geq 10.0$	$\geq 15.7$	$\geq 25.0$	$\geq 40.0$
Ratio $Q_3 / Q_1$ :	$\leq 40$ <sup>2</sup>			
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 <sub>l</sub> ):	$\pm 5 \%$			
Maximum permissible error for the upper flowrate zone (MPE <sub>u</sub> ):	$\pm 2 \%$ for water having a temperature $\leq 30 \text{ }^\circ\text{C}$ $\pm 3 \%$ for water having a temperature $> 30 \text{ }^\circ\text{C}$			
Temperature class:	T30 and T50			
Water pressure classes:	MAP 16			
Pressure-loss classes:	$\Delta P 10$	$\Delta P 10$	$\Delta P 10$	$\Delta P 10$
Indicating range (6+2) [ $\text{m}^3$ ]:	9 999 999			
Resolution of the indicating device [ $\text{m}^3$ ]:	0.01			
Resolution of the device for the rapid testing [pulse/L]:	0.078329	0.038636	0.024000	0.016364
Flow profile sensitivity classes:	U10 D5			
Orientation limitation:	H			
Length L [mm]:	300	350	450	500
Connection type:	Flange connection			
Reed switch power supply ( $U_{\text{max}} / I_{\text{max}}$ ):	max. 24 V / 0.01 A			
Reed switch K-factor [impulse / L]:	0.001 and 0.0001			

<sup>1</sup> The value of  $Q_3$  shall be chosen from the R5 line of ISO 3:1973.

<sup>2</sup> The ratio  $Q_3 / Q_1$  shall be chosen from the R10 line from ISO 3:1973 and this value shall be higher than 10.

### 3. Test

Technical tests of the water meters type WPI-SDC were performed in compliance with the International Recommendation OIML R 49 Edition 2006 (E) with conformity to EN 14154:2005+A1:2007, Test Report No. 6015-PT-P0006-12 from January 12<sup>th</sup> 2012.

### 4. The measuring device data

The water meters type WPI-SDC 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
- Year of manufacturer (last two digit) and serial number (as near as possible to the indicating device)
- Measuring device type
- Unit of measurement ( $\text{m}^3$ )
- Accuracy class 2
- Numerical value  $Q_3$  in  $\text{m}^3/\text{h}$  ( $Q_3 \times \times$ )
- 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 (H / V)
- 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

Two of the screws connecting the water meter body and the water meter flange cover have to be sealed by wires with a seal. The connection of the upper plastic cover and the plastic register house has to be sealed by a sealing pin. The locations of the seals are described in Figures 5 and 6.

Figure 1: The water meter type WPI-SDC DN 50 with copper can register – view:



Figure 2: The water meter type WPI-SDC DN 50 with plastic register – view:

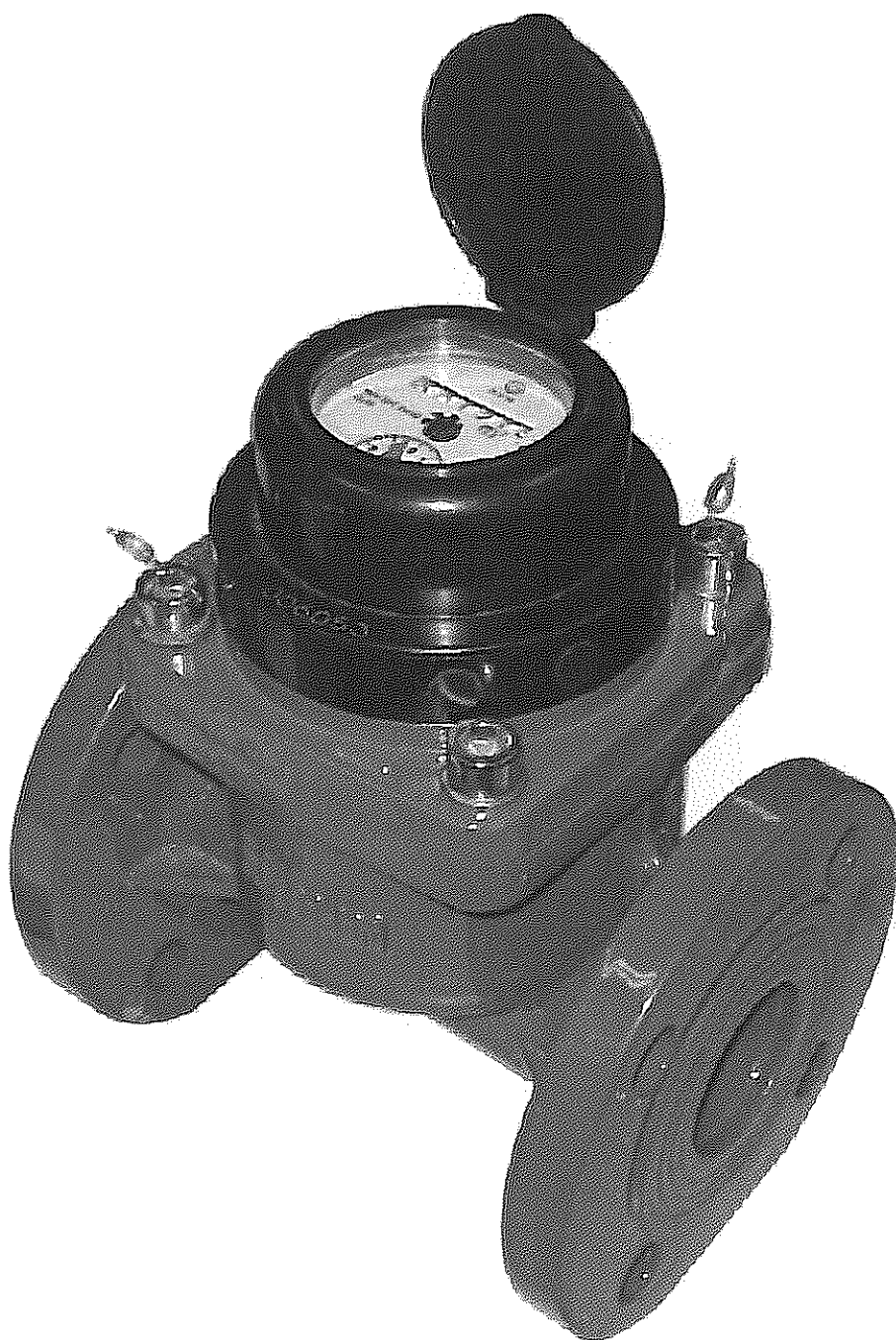


Figure 3: The water meter type WPI-SDC with copper can register assembly drawings:

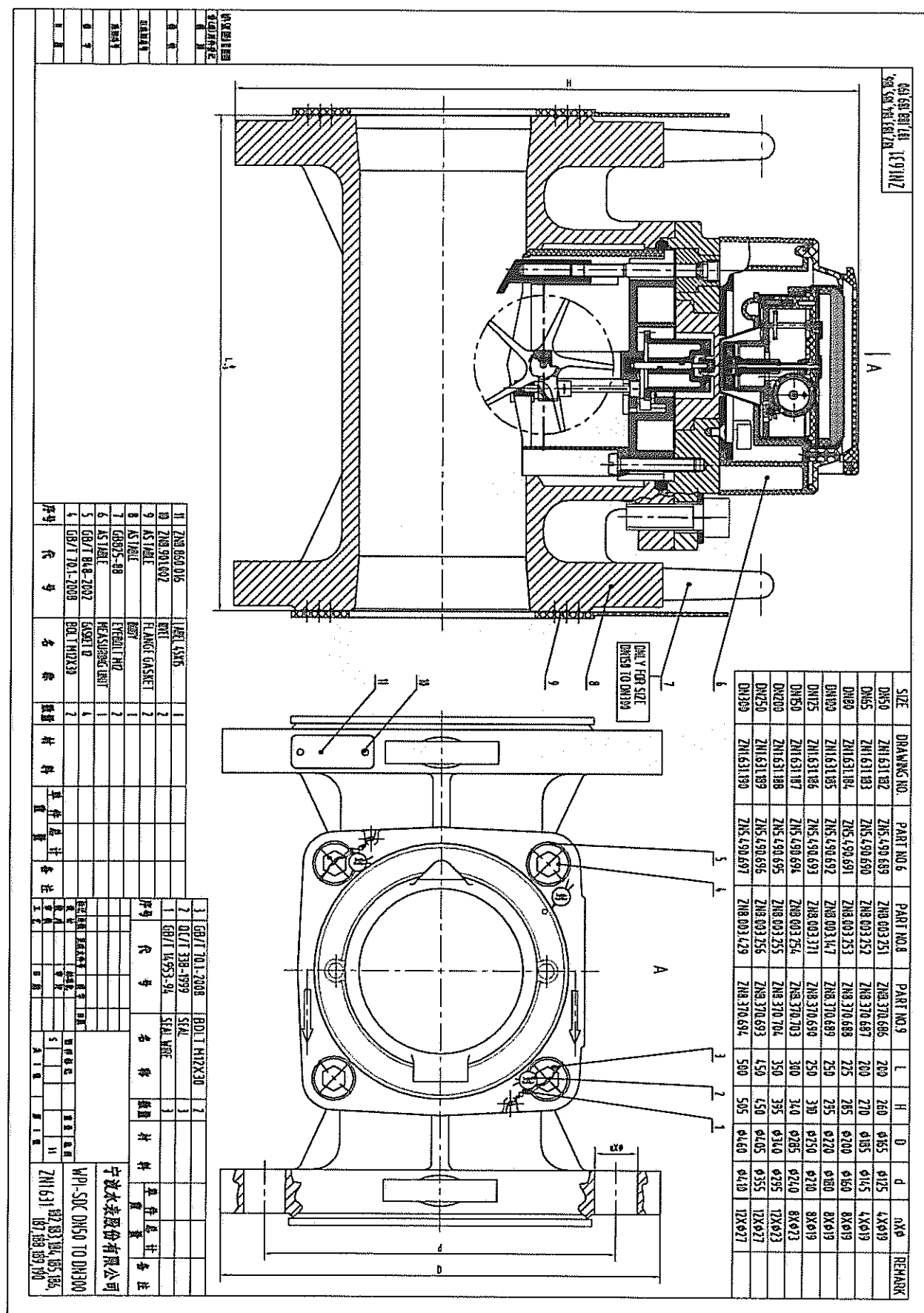


Figure 4: The water meter type WPI-SDC with plastic register assembly drawings:

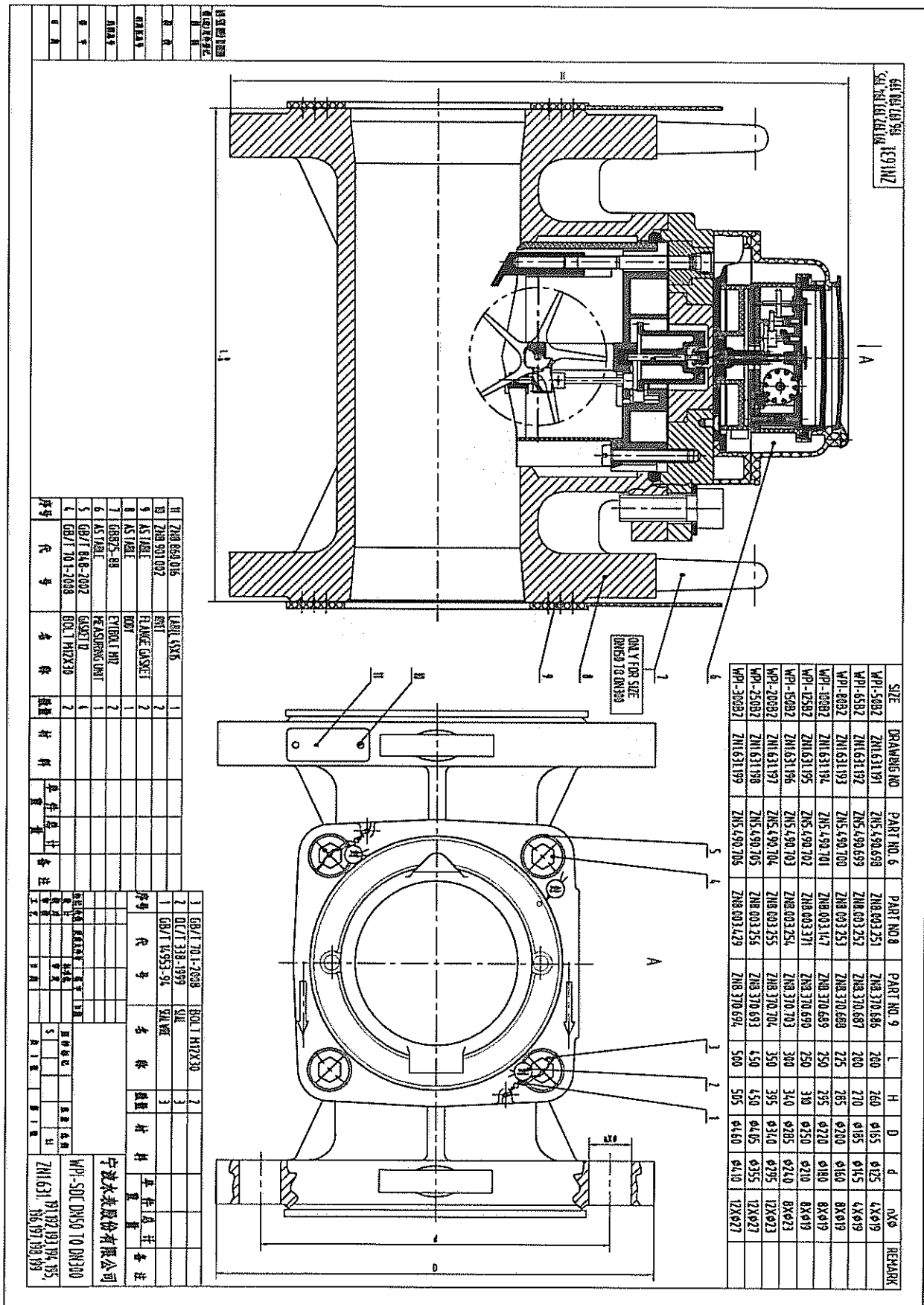


Figure 5: The sealing of the water meter type WPI-SDC with the copper can register:

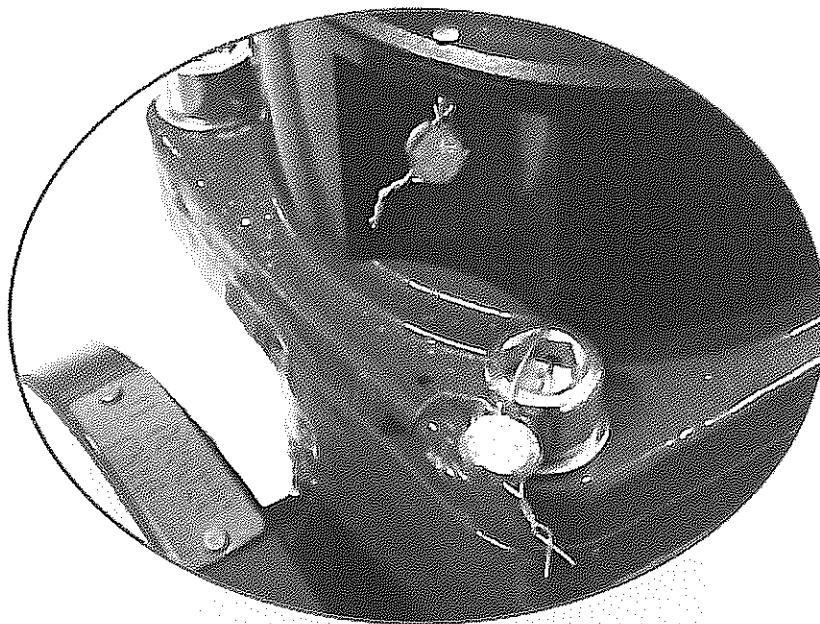


Figure 6: The sealing of the water meter type WPI-SDC with the plastic register:

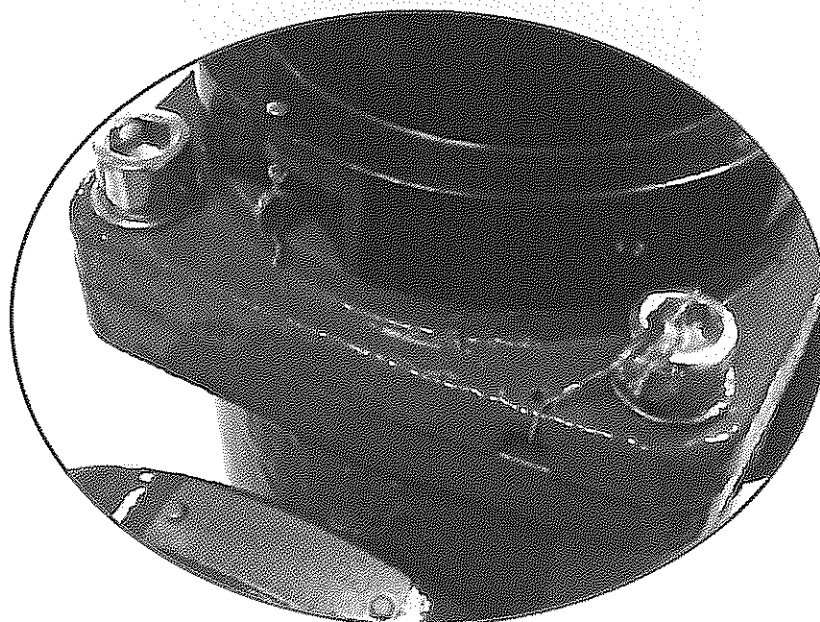


Figure 7: The dial plates of the water meter type WPI-SDC with copper can register – variant only with manufacturer's logo:

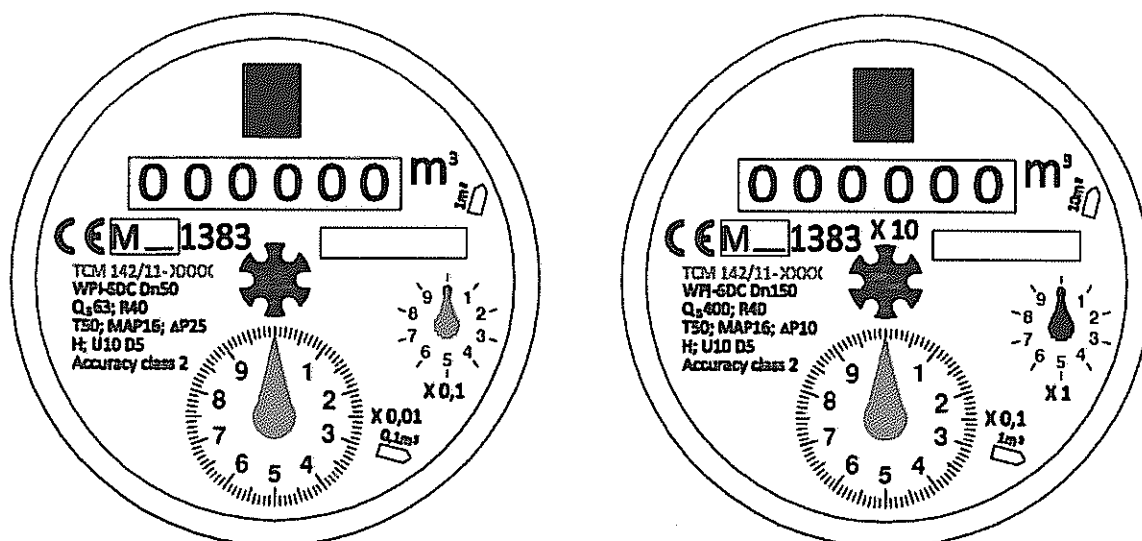
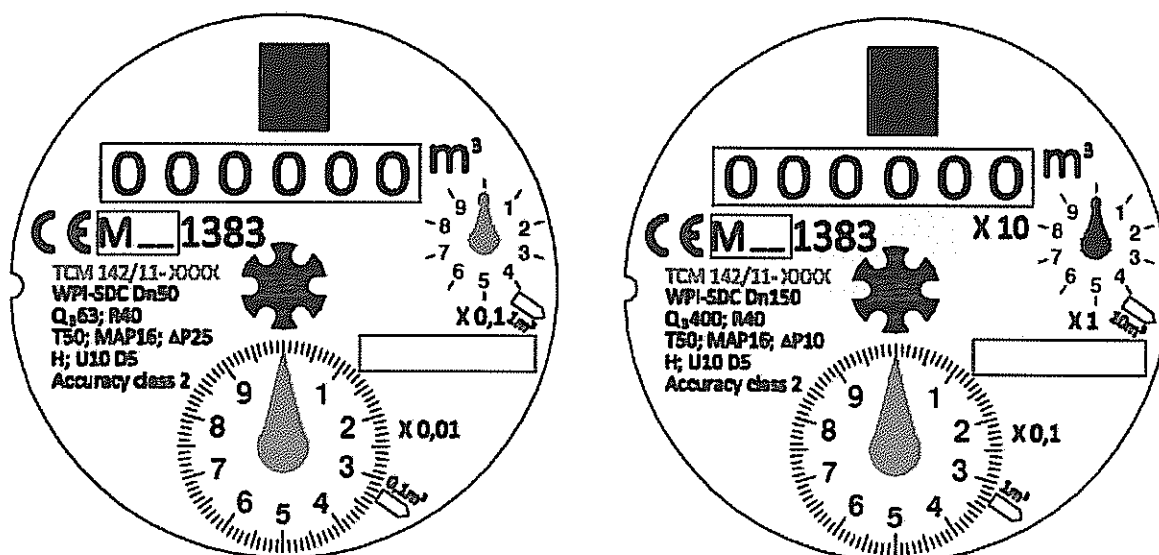


Figure 8: The dial plates of the water meter type WPI-SDC with plastic register – variant only with manufacturer's logo:



Manufacturer's logo or name



Manufacture year and serial number

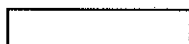


Figure 9: The dial plates of the water meter type WPI-SDC with copper can register – variant with manufacturers and customers logo:

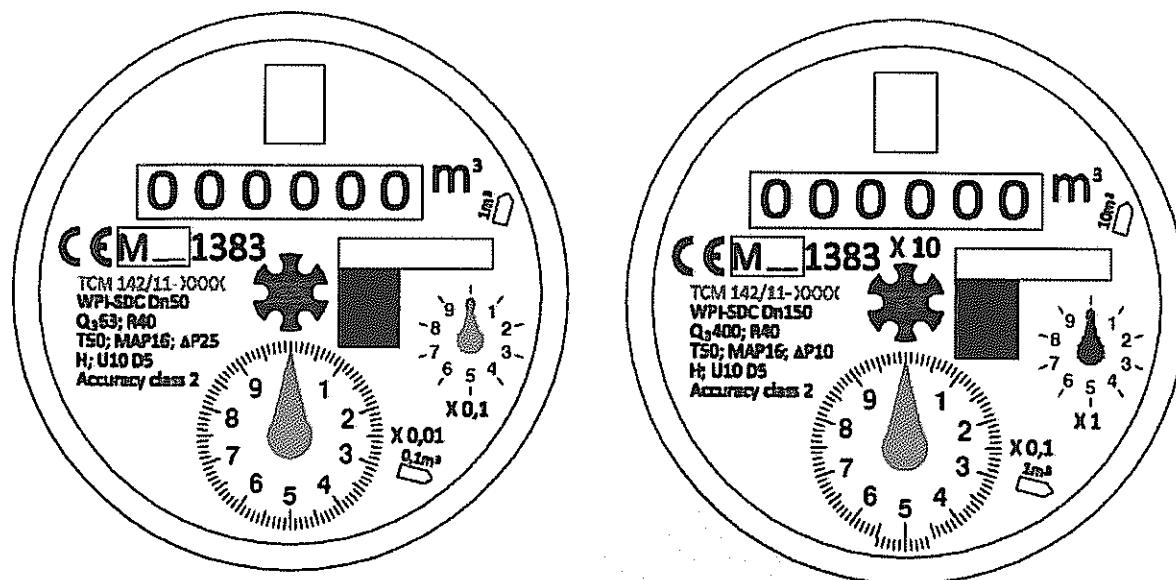
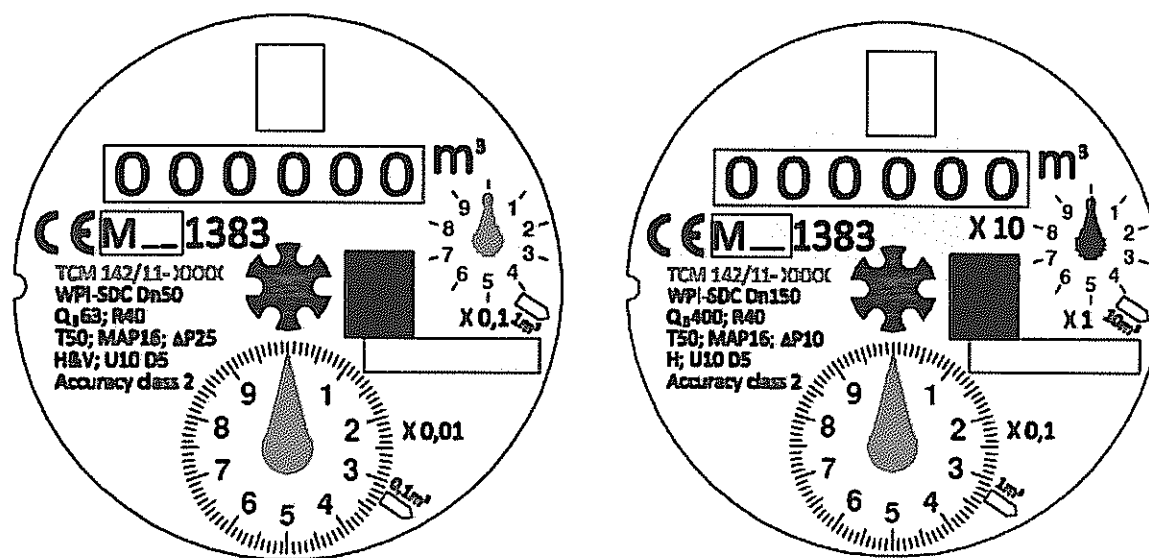
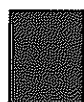


Figure 10: The dial plates of the water meter type WPI-SDC with plastic register – variant with manufacturers and customers logo:



Manufacture's mark or name



Customer's logo or name



Manufacture year and serial number

