



EU-TYPE EXAMINATION CERTIFICATE

Number: TCM 142/10 - 4792

Addition 5

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

Page 1 from 22 pages

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.
No. 355, Hongxing Road, Jiangbei Dist.
315032 Ningbo,
China

For: water meter - multi jet, dry dial
Type: MJ-SDC

Accuracy class: 2
Temperature class: T30, T50 or T90

Valid until: 11 May 2031

Document No: 0115-CS-A018-11

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

Date of issue: 27 May 2025

Certificate approved by:



RNDr. Pavel Klenovský

1 Characteristics of the instrument

The water meters type MJ-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 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 water meters type MJ-SDC are multi jet rotary vane wheel water meters with dry mechanical indicating device (plastic can calculator) or supper dry mechanical indicating device (copper can or stainless steel can calculator). The water meters consist of a brass, bronze, iron or plastic body with connecting threads or flanges and inlet strainer (optional), adjusting screw, wet measuring unit and other parts which can differ for different variants of the meter and are described below. The measuring unit of the meters consists of an internal strainer, a plastic distributor with tangential holes, a stainless steel shaft with plastic pivot, a rotary vane wheel with magnet and plastic shaft. For T90 class meters the magnet transmitting the vane wheel rotation to the indicating device is cast in the plastic bushing.

The water meters type MJ-SDC (E) have a register chamber with magnetic protection rings and two agate bearings (there is only the top bearing for DN 15 and DN 20), a rubber O-ring, a dry or super dry mechanical indicating device with a glass window, a register holder ring and brass, bronze, steel or plastic screw head ring with a plastic lid.

The water meters type MJ-SDC (E5) have a register chamber with magnetic protection rings and two agate bearings, a rubber O-ring, a dry or super dry mechanical indicating device, a register holder ring, a sliding gasket and brass, bronze, steel or plastic screw head ring with a plastic lid.

The water meters type MJ-SDC (G) have a pressure plate with magnetic protection rings and two agate bearings (there is only the top bearing for DN 15 and DN 20), a rubber O-ring, a sliding gasket, a brass, bronze, steel or plastic inner head ring, a dry or super dry mechanical indicating device and a plastic clamp on cover with a lid.

The water meters type MJ-SDC (Z) have a register chamber with magnetic protection rings and one agate bearing, a rubber O-ring, a dry or super dry mechanical indicating device, a register holder ring (not for DN 15 and DN 20), a rubber gasket and brass, bronze, steel or plastic screw head ring with a plastic lid.

The water meters type MJ-SDC (G7) differ from the variant MJ-SDC (G) by a modified impeller which enables better accuracy for lower flow rates.

The water meters type MJ-SDC (Z1) have the same measuring part as MJ-SDC (G7) and differ from that by mounting of a register which is the same as for the (Z) variant, namely the screw head ring is used.

The water meters type MJ-SDC (VC) are equipped with valve at the outlet part of their body. They are available in sizes DN15-DN25. The electronic unit which enables closing the valve remotely is not a part of this certification. The measuring part of the (VC) variant is the same as the measuring part of the (G) variant.

The water meters type MJ-SDC (EC) have a register equipped with an inbuilt optical encoder device and a head for automatic reading. They are available in sizes DN15-DN50. The mechanical part of this meter is based on the variant MJ-SDC (G7). The electronic part of the meter is not a part of this certification.

The mechanical indicating device in case of the sizes DN15 to DN32 is formed by numbered rollers with 5 drums and 4 rotary pointers, 6 drums and 3 rotary pointers, 7 drums and 2 rotary pointers or 8 drums and 1 rotary pointer. In case of sizes the DN40 to DN50 it is formed by numbered rollers with 6 drums and 4 rotary pointers, 6 drums and 3 rotary pointers or 8 drums and 2 rotary pointers.

These calculators can be designated for inclined reading. There is a star wheel with six arms in the mechanical indicating device which can be used for rapid testing.

The water meters type MJ-SDC can be equipped by 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 MJ-SDC shall be installed to operate in horizontal position with indicating device at the top or, in case of the vertical meter body (Figure 3), in vertical position with flow direction up.

2 Main characteristics

Basic technical data of the water meters type MJ-SDC:

Manufacturer:	Ningbo Water Meter (Group) Co., Ltd.					
Model number:	MJ-SDC					
Nominal diameter:	15	20	25	32	40	50
Type details:						
Q_1 [m ³ /h]:	flowrates are shown in Table <i>Basic metrological data (flowrates)</i>					
Q_2 [m ³ /h]:						
Q_3 [m ³ /h]:						
Q_4 [m ³ /h]:						
Q_3/Q_1 :	variants E, E5, G, Z: 80 variants G7, Z1, EC, VC: 80, 100, 125, 160	variants E, E5, G, Z, VC: 80 variants G7, Z1, EC: 80, 100, 125, 160				
Q_2/Q_1 :	1.6					
Q_4/Q_3 :	1.25					
Measuring principle:	Turbine water meter, multi jet, dry dial					
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, T50 or T90 for $Q_3/Q_1 = 80$ T30 or T50 for $Q_3/Q_1 = 100, 125, 160$ variant EC: T30 or T50 only					
Water pressure class:	MAP 16					
Pressure loss class:	ΔP 63					
Maximum admissible temperature [°C]:	30, 50 or 90					
Maximum admissible pressure [MPa]:	1.6					
Orientation limitation:	Horizontal with indicating device at the top (H↑) or, in case of the vertical meter body, vertical with flow direction up (V↑)			Horizontal with indicating device at the top (H↑)		
Indicating range [m ³]:	99 999 or 9 999 (for VC variant)			99 999	999 999	
Resolution of the indicating device [dm ³]:	0.05				0.5 or 0.05	
Resolution of the device for rapid testing [pulse/L]:	71.1852	54.0000 60.0000 (G7,Z1,EC var. only)	37.3846	23.1429	10.5417	10.5417
EUT testing requirements (OIML R 49-2:2013, 8.1.8):						
Category:	Turbine water meter with no electronic devices					
Case:	A					
Installation details:						
Connection type - screw thread, size:	G½B or G1B	G1B	G1¼B or G1½B	G1½B	G2B	G2½B or Flange
Minimum straight length of inlet pipe [mm]:	0					
Minimum straight length of outlet pipe [mm]:	0					
Flow profile sensitivity class:	U0 D0					

Flow conditioner (details if required):	no					
Mounting:	in-line					
Orientation:	see "Orientation limitation"					
Length [mm] for horizontal body:	110 to 190	160 to 190	160 to 260	160 to 260	200 to 300	270 to 300
Length [mm] for vertical body:	100 to 105	100 to 105	105 to 110	-	-	-
Reverse flow:	Not designed to measure					
Information specified by the manufacturer (information in the table below is not certified)						
Reed switch power supply (U_{max} / I_{max}):	max. 3.6 V / 0.12 A					
Reed switch K-factor (impulse / L):	0.001, 0.01, 0.1 or 1; variant EC: 0.01					
Environmental class:	variant EC: O, variant VC: B					
Electromagnetic environment:	variant EC: E2, variant VC: E1					

Basic metrological data (flowrates):

Manufacturer:	Ningbo Water Meter (Group) Co., Ltd.											
Model number:	MJ-SDC											
Nominal diameter:	15	20	25	32	40	50	15	20	25	32	40	50
Type details:												
Q_1 [m ³ /h]:	0.03125	0.05	0.07875	0.125	0.2	0.3125	0.025	0.04	0.063	0.1	0.16	0.25
Q_2 [m ³ /h]:	0.05	0.08	0.126	0.2	0.32	0.5	0.04	0.064	0.1008	0.16	0.256	0.4
Q_3 [m ³ /h]:	2.5	4	6.3	10	16	25	2.5	4	6.3	10	16	25
Q_4 [m ³ /h]:	3.125	5	7.875	12.5	20	31.25	3.125	5	7.875	12.5	20	31.25
Q_3/Q_1 :	80						100					

Manufacturer:	Ningbo Water Meter (Group) Co., Ltd.											
Model number:	MJ-SDC											
Nominal diameter:	15	20	25	32	40	50	15	20	25	32	40	50
Type details:												
Q_1 [m ³ /h]:	0.02	0.032	0.0504	0.08	0.128	0.2	0.015625	0.025	0.039375	0.0625	0.1	0.15625
Q_2 [m ³ /h]:	0.032	0.0512	0.08064	0.128	0.2048	0.32	0.025	0.04	0.063	0.1	0.16	0.25
Q_3 [m ³ /h]:	2.5	4	6.3	10	16	25	2.5	4	6.3	10	16	25
Q_4 [m ³ /h]:	3.125	5	7.875	12.5	20	31.25	3.125	5	7.875	12.5	20	31.25
Q_3/Q_1 :	125						160					

3 Tests

Technical tests of the water meters type MJ-SDC were performed in compliance with the International Recommendation OIML R 49 Edition 2013 (E) with conformity to EN ISO 4064:2017, Test Reports No. 6015-PT-P0025-25, 6015-PT-P0017-23, 6015-PT-P0022-21, 6015-PT-P0009-20, 6015-PT-P0059-13 and 6015-PT-A0038-11 and Type Evaluation Report No. 0511-ER-V153-24.

4 Conformity marks and inscriptions

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

- Water meter type
- Unit of measurement (m³)
- Numerical value Q_3 in m³/h ($Q_3 \times \times$) and the ratio Q_3/Q_1 ($R \times \times$),
- 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 ××)
- Orientation limitation mark (H↑ or V↑)
- The temperature class (T××)
- The pressure loss class (ΔP ××)
- The installation sensitivity class (U× D×)
- CE marking and metrology marking in line with the Directive 2014/32/EU

There are additional data required if the water meter is equipped with an ancillary device:

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

These markings shall be visible without dismantling the water meter after the instrument has been placed on the market or put into use. Examples are in Figures 16-25.

5 Additional specifications

The water meters type MJ-SDC shall be put on 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 EN ISO 4064-1:2017, 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

The connection of head ring and adjusting screw has to be sealed by a wire with a lead or plastic seal for water meter variants MJ-SDC (E), MJ-SDC (E5), MJ-SDC (Z) and MJ-SDC (Z1) (see Figure 11).

The connection of water meter body and adjusting screw has to be sealed by a wire with a lead or plastic seal and the plastic clamp on cover has to be marked by a sticker which cannot be removed undamaged for water meters MJ-SDC (G) and MJ-SDC (G7) (see Figure 12). Optionally, for water meters MJ-SDC (G7) the connection of the adjusting screw and a clamp on cover can be sealed by a wire with a lead or plastic seal (Figure 9). Similar way of sealing is used also for the variant MJ-SDC (EC) (see Figure 15).

For the MJ-SDC (VC) variant the connection of water meter body and the plastic cover holding the register of the water meter and containing the valve control unit must be sealed by a wire with a lead or plastic seal (see Figure 14). 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 (see Figure 7).

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

7 Drawings of the instruments

Water meters type MJ-SDC are manufactured according to the technical documentation of manufacturer No. Q/ZNJ 17005-2017.12 Annex 1 from 31. 12. 2017. Technical documentation contains the following drawings:

Document reference	Date	Brief description
ZN1.630.437,438	1/2008	MJ-SDC (E) assembly drawing DN 15-20
ZN1.630.118, 119	5/2008	MJ-SDC (Z) assembly drawing DN 15-20
ZN1.630.408, 409	5/2008	MJ-SDC (E5) assembly drawing DN 15-20, inclined register plastic
ZN1.630.246, 247	5/2008	MJ-SDC (E5) assembly drawing DN 15-20, inclined register
ZN1.630.430, 431	8/2008	MJ-SDC (G) assembly drawing DN 15-20, 5 rollers
ZN1.630.323, 324	8/2008	MJ-SDC (G) assembly drawing DN 15-20, plastic, 8 rollers
ZN1.630.460, 461	9/2008	MJ-SDC (E) assembly drawing DN 15-20, plastic

ZN1.630.716 - 719	1/2011	MJ-SDC (Z) assembly drawing DN 15-32
ZN1.630.323R-324R, 430R, 513R-518R, 681R-682R, 759R-778R	8/2008	MJ-SDC (G) assembly drawing T90 DN15-50
ZN1.630.437R-438R, 443R, 460R-461R, 480R-481R, 494R-496R, 500R-502R, 691R-692R	6/2008	MJ-SDC (E) assembly drawing T90 DN15-50
ZN1.630.716R-719R, 725R, 734R-735R, 882R-886R	6/2011	MJ-SDC (Z) assembly drawing T90 DN 15-50
ZN1.636.392, 393	2/2017	MJ-SDC (G7) assembly drawing DN 25-32
ZN1.636.694, 695	2/2018	MJ-SDC (G7) assembly drawing DN 40-50
ZN1.636.690, 691	2/2017	MJ-SDC (G7) assembly drawing DN 15-20
ZN1.636.696, 826	2/2018	MJ-SDC (G7) assembly drawing DN 50 with flange
ZN5.490.1338, 1339	2/2019	MJ-SDC (VC) assembly drawing DN 15-20
ZN1.637.461~462	2/2019	MJ-SDC (VC) assembly drawing DN 15-20
ZN1.637.533	10/2019	MJ-SDC (VC) assembly drawing DN 25
ZN5.490.1382	10/2019	MJ-SDC (VC) assembly drawing DN 25
ZN1.636.991~992	1/2023	MJ-SDC (EC) assembly drawing DN 15-20
ZN1.636.1126, 1127	1/2023	MJ-SDC (EC) assembly drawing DN 25-50
exploded drawings with material list		
dial drawings		
sealing drawings		

History of additions

Addition No.	Description
Addition 0	Issuing the certificate
Addition 1	Adding the temperature class T90
Addition 2	Tests according to the standard EN ISO 4064:2017; adding the variants G7, Z1, VC
Addition 3	Extending the certificate validity
Addition 4	Adding the variant EC
Addition 5	Values of Q_3/Q_1 for the VC variant, DN15-20, extended up to 160



Figure 1: Example of the water meter type MJ-SDC (E) with brass body:



Figure 2: Example of the water meter type MJ-SDC (E) with plastic body:



Figure 3: Example of the water meter type MJ-SDC (E) with vertical body:



Figure 4: Example of the water meter type MJ-SDC (E5) with inclined calculator:



Figure 5: Example of the water meter type MJ-SDC (G):



Figure 6: Example of the water meter type MJ-SDC (Z):



Figure 7: Example of the water meter type MJ-SDC prepared for AMR mounting and equipped with safety pin:



Figure 8: Example of the water meter type MJ-SDC (G7) with brass body:



Figure 9: Example of the water meter type MJ-SDC (G7) with plastic body – view and sealing:



Figure 10: Example of the water meter type MJ-SDC (Z1) – view and sealing:



Figure 11: The sealing of the water meter type MJ-SDC (E), (E5), (Z) and (Z1):

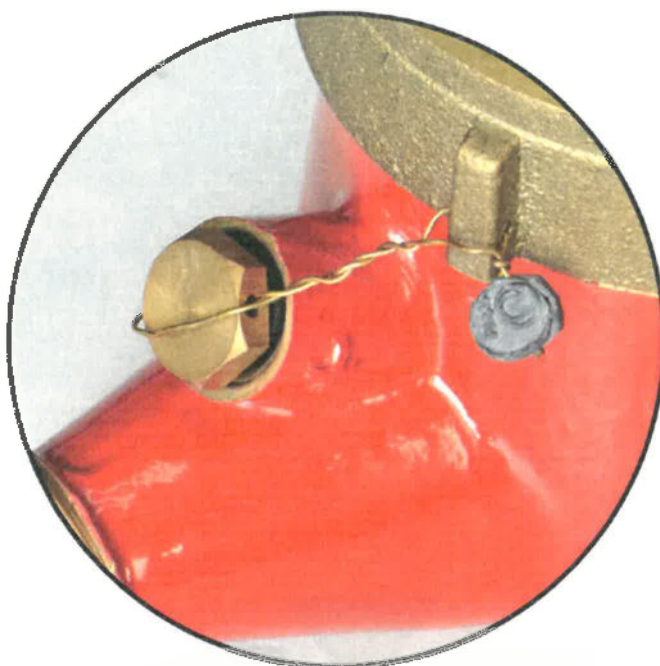


Figure 12: The sealing of the water meter type MJ-SDC (G) and variant of sealing of the water meter MJ-SDC (G7):

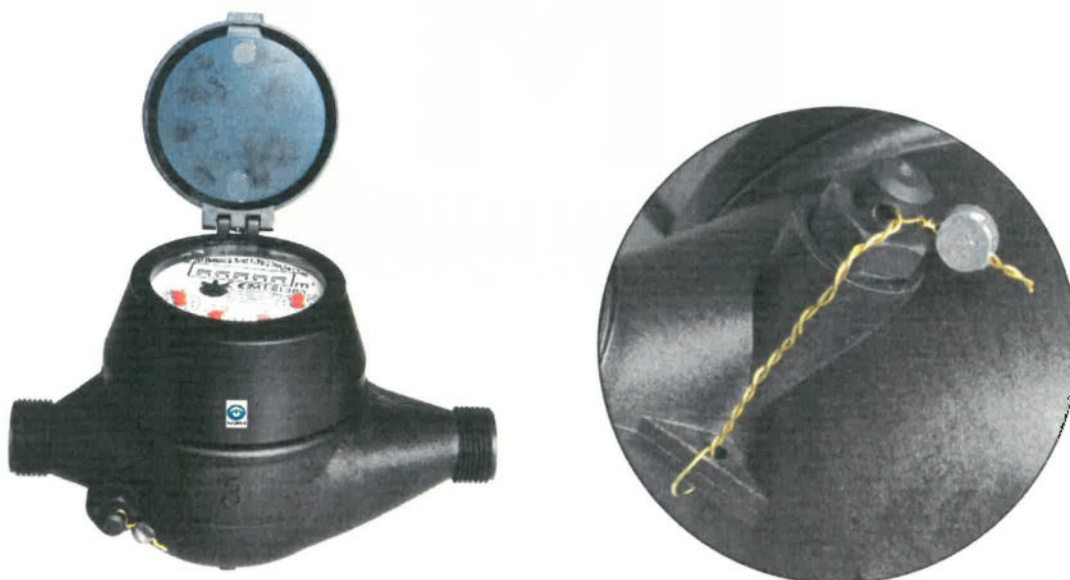


Figure 15: Example of the water meter type MJ-SDC (EC) – view and sealing:



Figure 16: Example of the dial plates of the water meter type MJ-SDC (E) DN15 to DN32 with registers 5+4, 8+1 and 7+2. For the variant MJ-SDC (G) the dials are the same except the shape of the head ring. Variants with magnetic pointer for reed impulse transmitter or inductive pointer for AMR reading are also possible. (For description of the used graphical elements see Figure 26.)

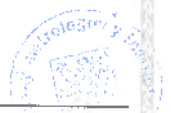
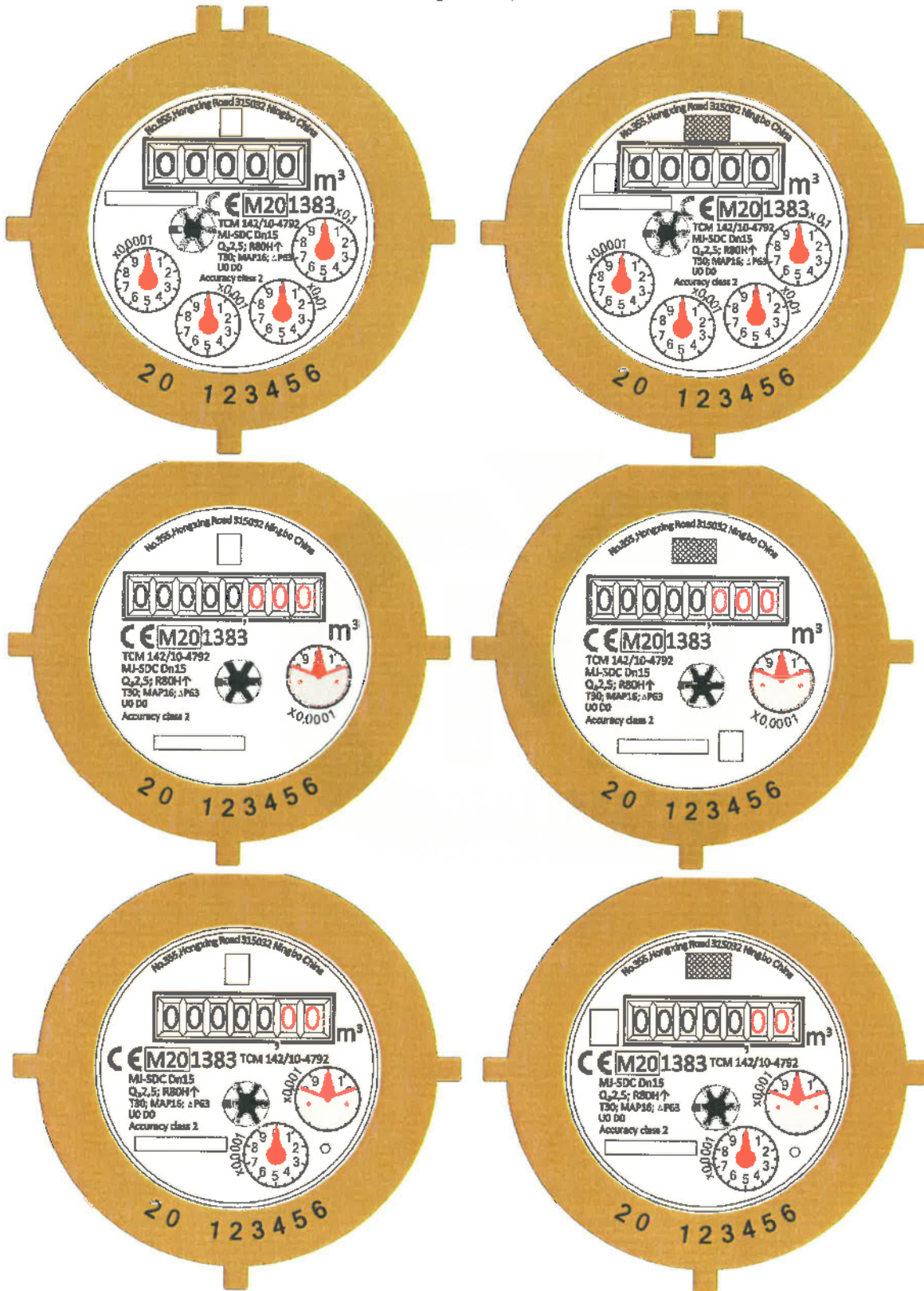


Figure 17: Example of the dial plates of the water meter type MJ-SDC (E) DN40 to DN50 with registers 6+4 and 8+2. For the variant MJ-SDC (G) the dials are the same except the shape of the head ring. Variants with magnetic pointer for reed impulse transmitter or inductive pointer for AMR reading are also possible. (For description of the used graphical elements see Figure 26.)

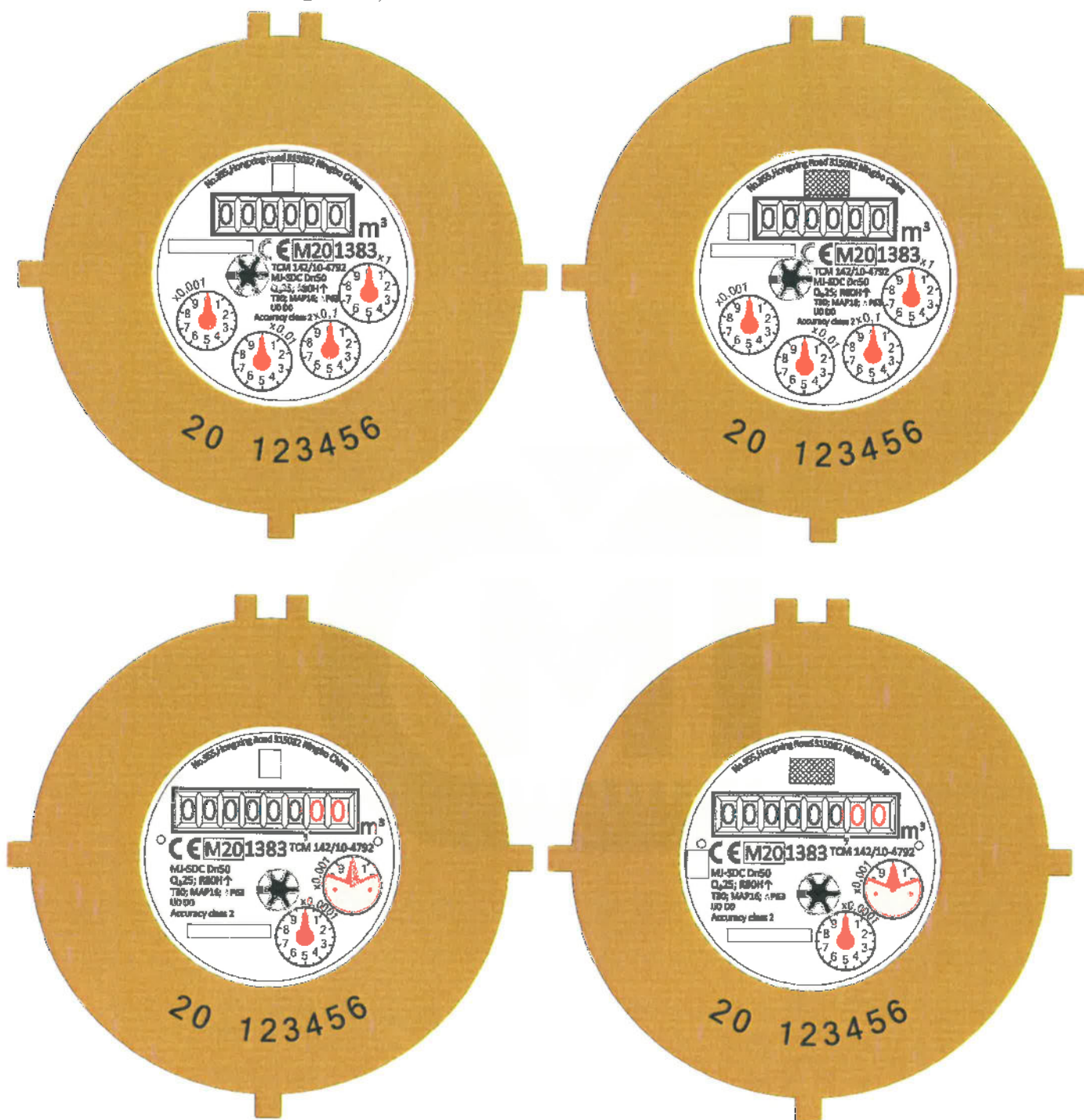


Figure 18: Variant of the dial with plastic plate on the metal ring for the MJ-SDC (E) meters. The CE marking and TCM number is moved to the plastic plate. This design can be used also for all other dial types for meters with metal head ring. (For description of the used graphical elements see Figure 26.)

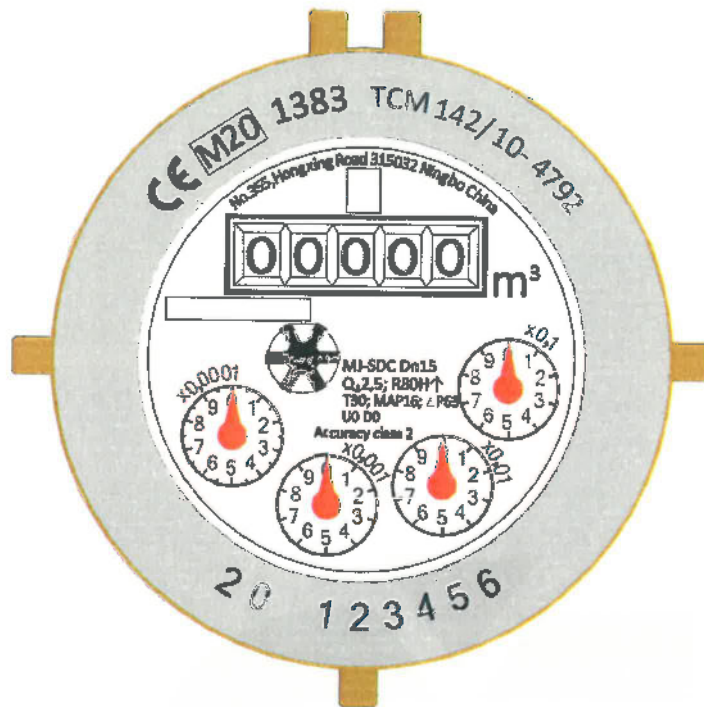


Figure 19: Examples of the dial plates of the water meter type MJ-SDC (Z) DN15 to DN32 with 5+4 register. The 6+4 dial for DN40 to DN50 size looks the same except the number of drums. (For description of the used graphical elements see Figure 26.)

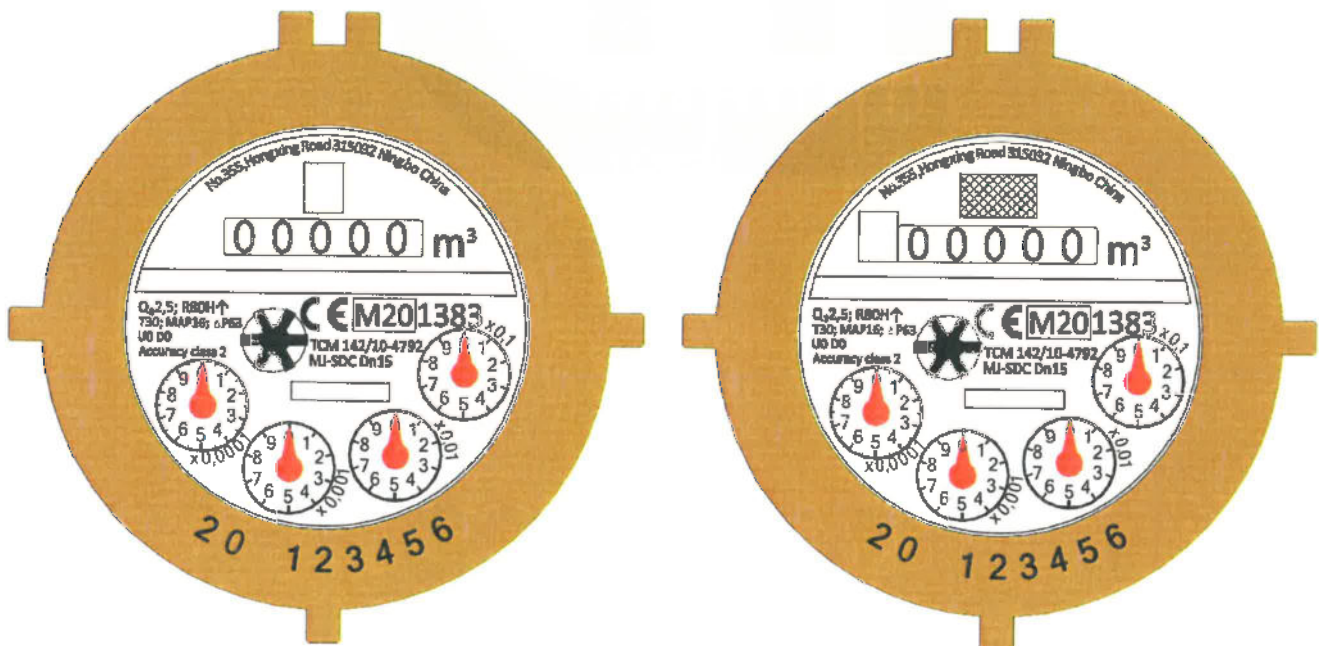


Figure 20: Examples of the dial plates of the water meter type MJ-SDC (Z) DN15 to DN32 with registers 7+2 and 8+1. Variants with magnetic pointer for reed impulse transmitter or inductive pointer for AMR reading are also possible. (For description of the used graphical elements see Figure 26.)

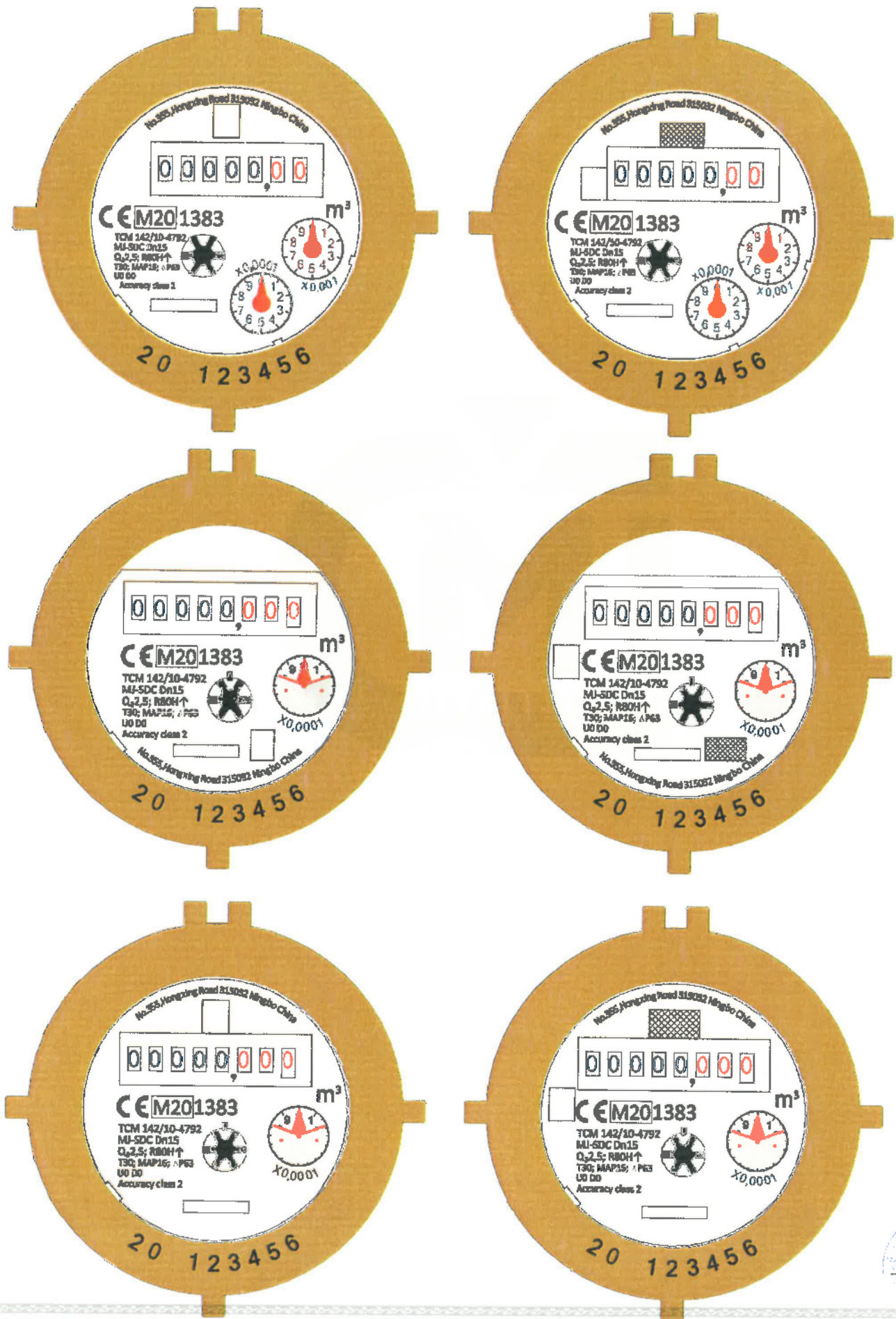


Figure 21: Examples of the dial plates of the water meter type MJ-SDC (Z) DN40 to DN50 with register 8+2. Variants with magnetic pointer for reed impulse transmitter or inductive pointer for AMR reading are also possible. (For description of the used graphical elements see Figure 26.)

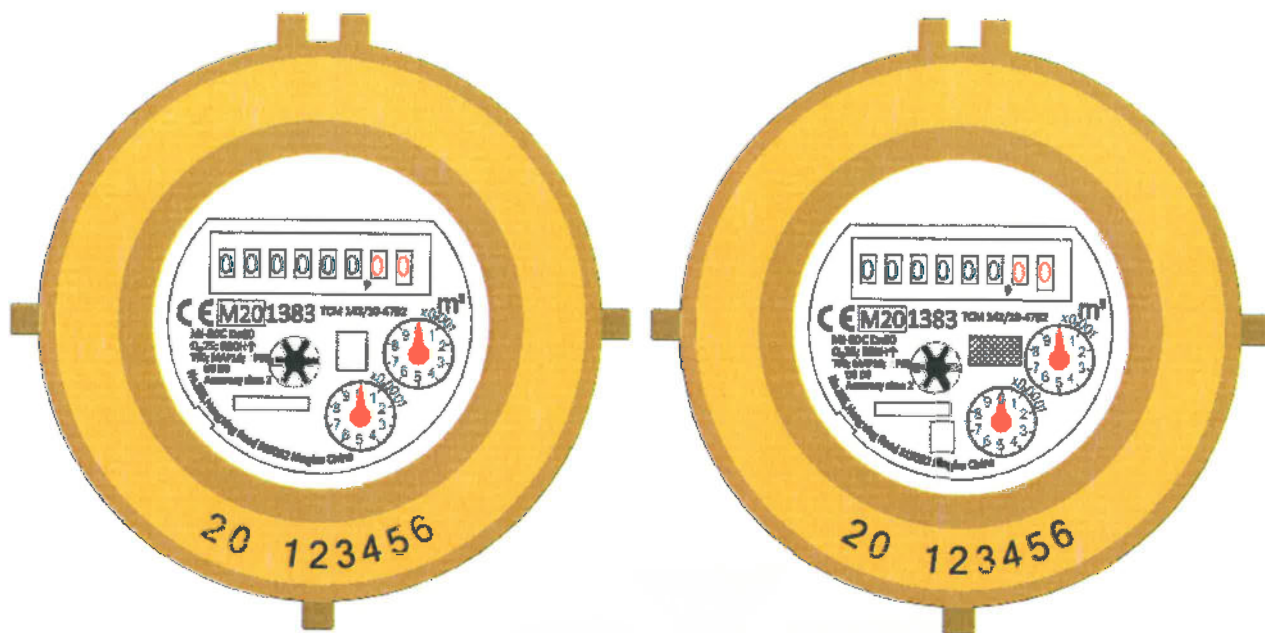


Figure 22: Examples of the dial plates of the water meter type MJ-SDC (G7) and MJ-SDC (Z1) DN15 to DN32. Variants with magnetic pointer for reed impulse transmitter or inductive pointer for AMR reading are also possible. (For description of the used graphical elements see Figure 26.)

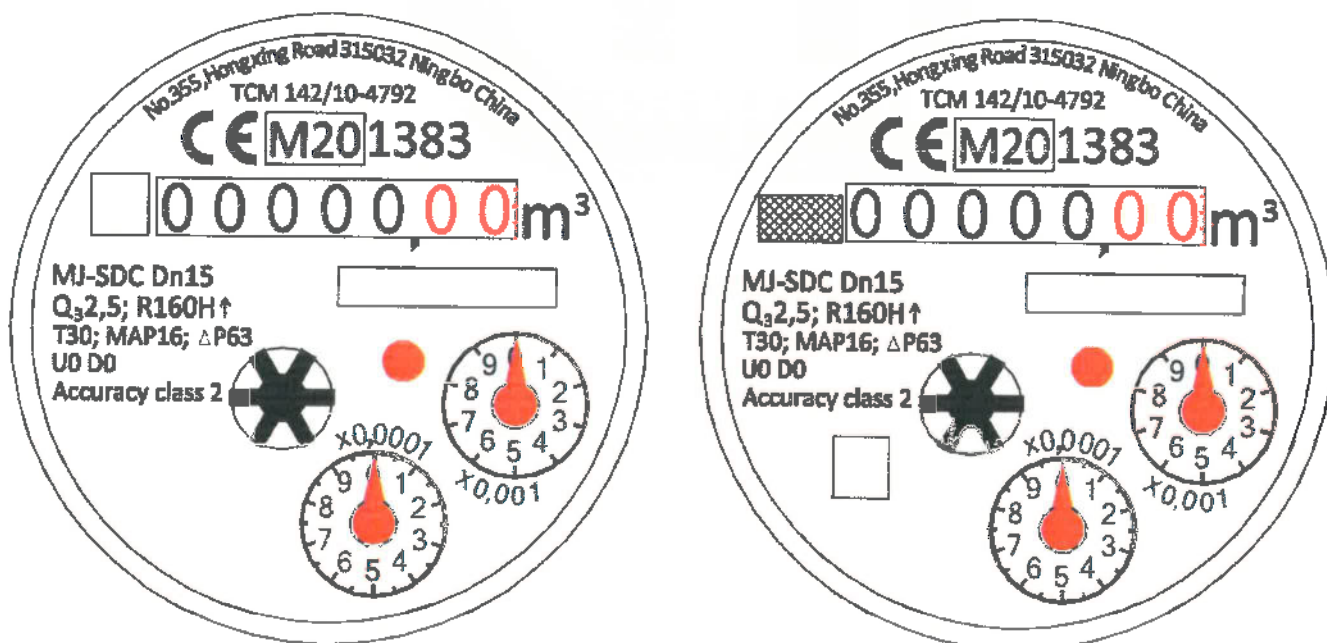


Figure 23: Examples of the dial plates of the water meter type MJ-SDC (G7) and MJ-SDC (Z1) DN15 to DN32 with a separate inductive pointer. Variant with magnetic pointer instead of the inductive pointer is also possible. Inductive pointer marked 1L has a reading rate 1L/pulse. Inductive pointer marked 10L has a reading rate 10 L/pulse. One pulse corresponds to one revolution of the inductive pointer. (For description of the used graphical elements see Figure 26.)



Figure 24: Examples of the dial plates of the water meter type MJ-SDC (VC). (For description of the used graphical elements see Figure 26.)

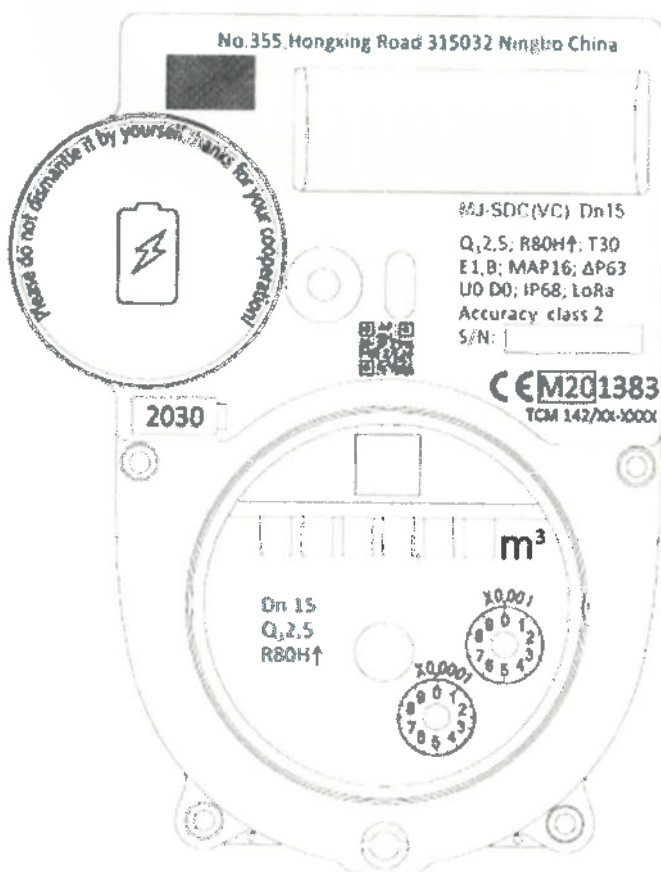
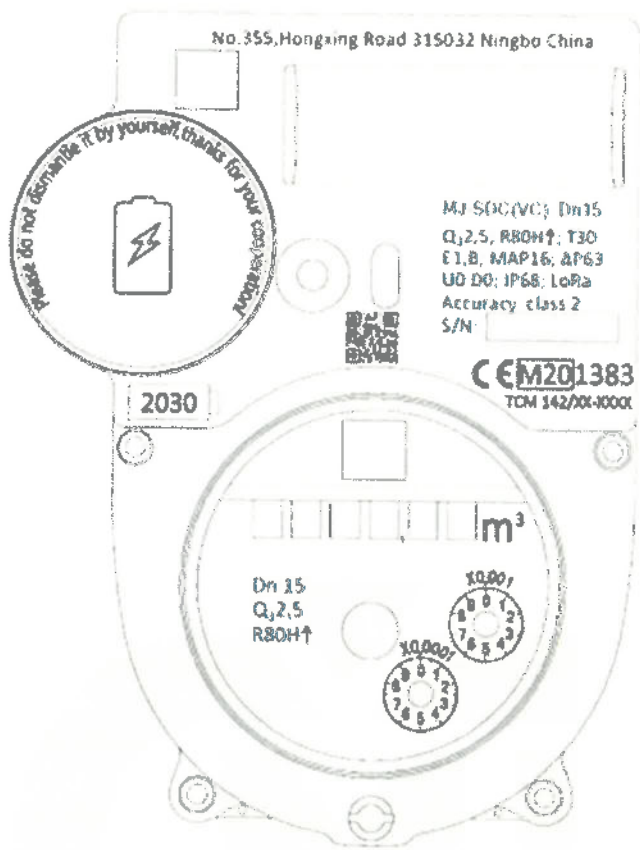


Figure 25: Examples of the dial plates of the water meter type MJ-SDC (EC). (For description of the used graphical elements see Figure 26.)

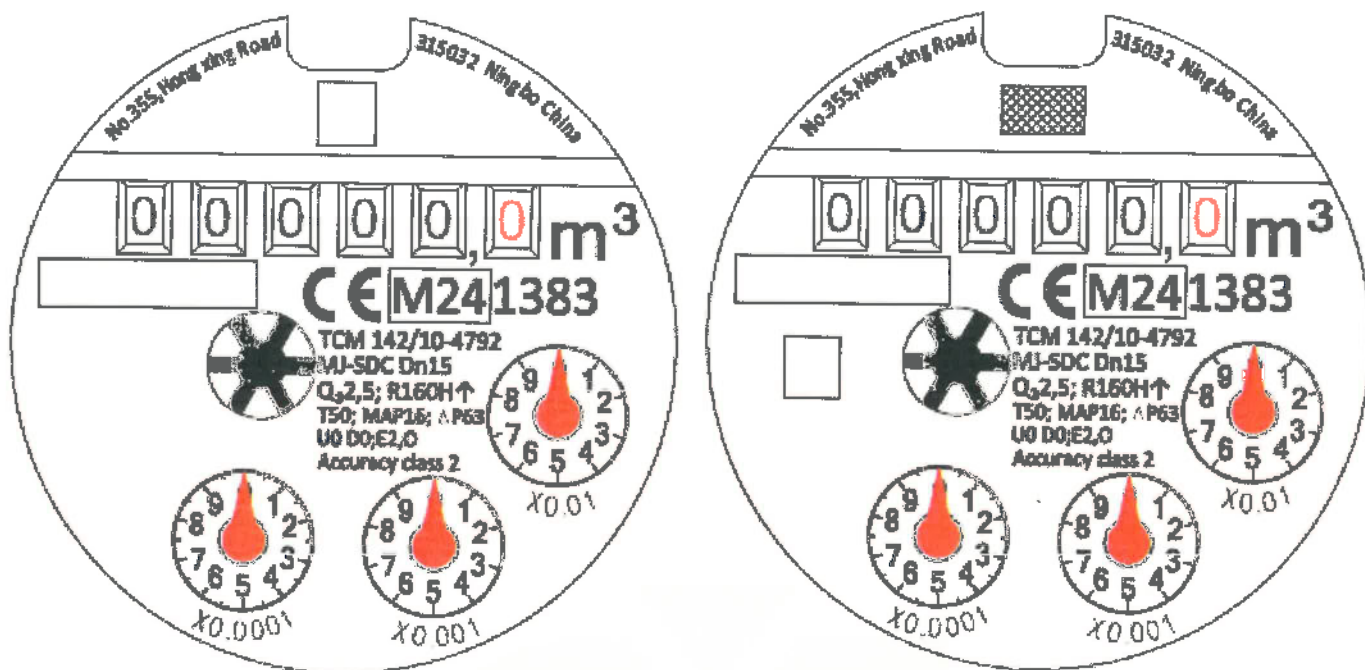
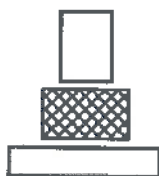


Figure 26: Legend for the graphical elements used in the dial drawings



- Manufacturer's name, registered trade name or registered trade mark
- Customer's name, registered trade name or registered trade mark
- Serial number

