

Czech Metrology Institute

Notified Body No. 1383, Okružní 31
638 00 Brno

EC-TYPE EXAMINATION CERTIFICATE

Number: TCM 142/10 – 4758

Addition 1

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

Issued by: **Český metrologický institut**
Okružní 31
638 00 Brno
Czech Republic

Notified Body No. 1383

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.**
(Applicant) **No. 99, Lane 268, Beihai Road**
Ningbo 315033
China

In respect of: **water meter - volumetric**
type: PD-SDC
Accuracy class: 2
Temperature class: T30 and T50

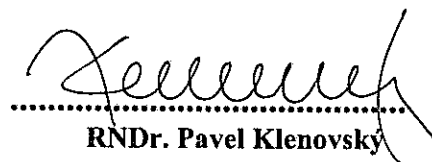
Valid until: **12 October 2020**

Document number: **0115-CS-A036-10**

Description: Essential characteristics, approved conditions and special conditions, if any, are described in this certificate. This certificate contains 16 pages.

Date of issue: 5 August 2011




RNDr. Pavel Klenovsky
Notified Body No.1383

1. Measuring device description

The volumetric 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. 2004/22/EC 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 brass or bronze casted body with connecting 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) with brass or plastic head ring with a plastic cover.

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

The water meters type PD-SDC(E6) consist of a brass or bronze casted body with connecting threads and inlet strainer, a wet measuring unit, a o-ring, a register chamber, a dry mechanical indicating device and brass head ring with a plastic cover.

The water meters type PD-SDC(E8) consist of a brass or bronze casted body with connecting threads and inlet strainer, o-ring, a wet measuring unit, pressure plate, gaskets, a screwed plate, a dry mechanical indicating device or super dry mechanical indicating device (Copper Can Calculator) and clamp on plastic cover.

The water meters type PD-SDC(T) consist of a brass or bronze casted body with connecting screw, an impact ring, a wet measuring unit, pressure plate, o-ring, gasket, screwed plate, a dry mechanical indicating device or super dry mechanical indicating device (Copper Can Calculator) and clamp on plastic cover. 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 plastic shaft with stainless steel holder, a bush, a plate, a piston with stainless steel shaft, a piston chamber cover, an o-ring, a transmission shaft with magnetic holder.

The mechanical indicating device, dry (Plastic Calculator) or super dry (Copper Can Calculator), can be formed by numbered rollers with five drums and four rotary pointers, or eight drums and one rotary pointer. There is star wheel with six arms which can be used for rapid testing in mechanical indicating device.

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

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

The water meters type PD-SDC shall be designate by these trademarks:



NWM



Water meters type PD-SDC are manufactured according to technical documentation of manufacturer

Q/ZNJ 17005-2010 Annex 1 from 1.10.2010 including the assembly drawings of manufacturer No.

ZN1 632.009,010,019; ZN1 632.015,022,025; ZN1 632.087,088; ZN1 632.070/089; ZN1 632.020,021.

2. Basic technical data

Basic technical data of water meters type PD-SDC:

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]:	$\leq 2.50^1$	$\leq 4.00^1$	$\leq 6.30^1$
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 :	$\leq 400^2$		
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):	$\pm 5\%$		
Maximum permissible error for the upper flowrate zone (MPE _u):	$\pm 2\%$ 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:	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:	G $\frac{3}{4}$ B or G1B	G1B	G1 $\frac{1}{2}$ B or G1 $\frac{1}{2}$ B
Reed switch power supply ($U_{\text{max}} / I_{\text{max}}$):	max. 24 V / 0.01 A		
Reed switch K-faktor [impulse / L]:	1, 0.1, 0.01 and 0.001		

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 10.

3. Test

Technical tests of the water meters type PD-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-A0044-10 from 11th October 2010 and No. 6015-PT-P0091-11 from 29th June 2011.

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 EC-type examination certificate
- Name or trademark of manufacturer
- Year of manufacturer (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 ($U \times D \times$)
- 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 on water meters types PD-SDC (E3) and PD-SDC (E6).

The connection of water meter body and indicating device has to be sealed by plastic cover on water meters types PD-SDC (E4), PD-SDC (E8) and PD-SDC (T). This plastic cover has to be identified by safeguarding marks.

The connection of the water meter body and the base has to be sealed for water meter type PD-SDC (T).

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

The location of seal is described in Figures 13 – 15.

Figure 1: The water meter type PD-SDC (E3) – view:

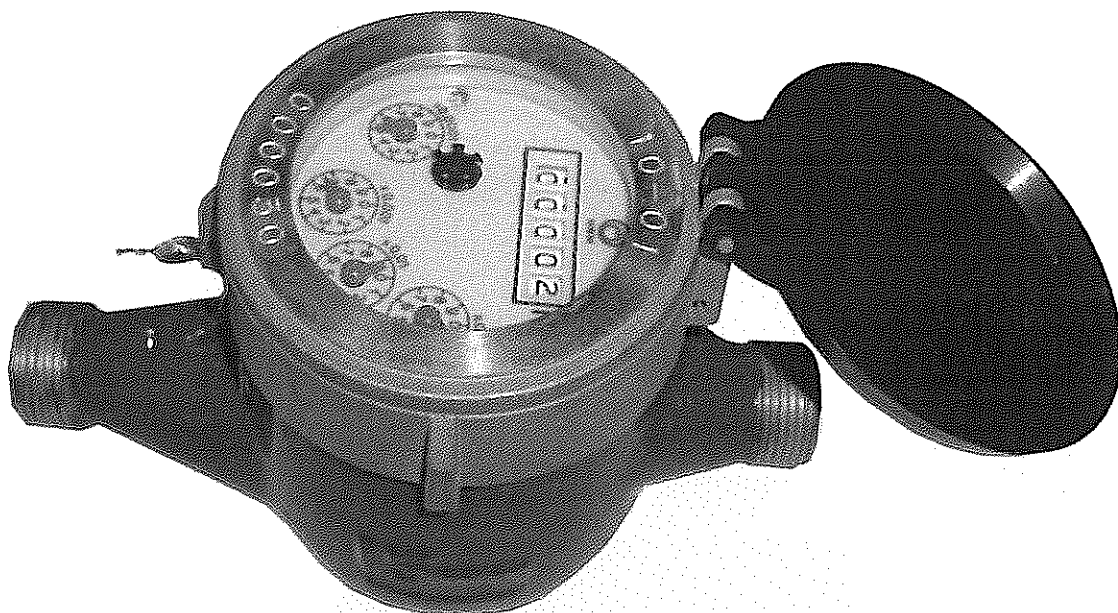


Figure 2: The water meter type PD-SDC (E4) – view:

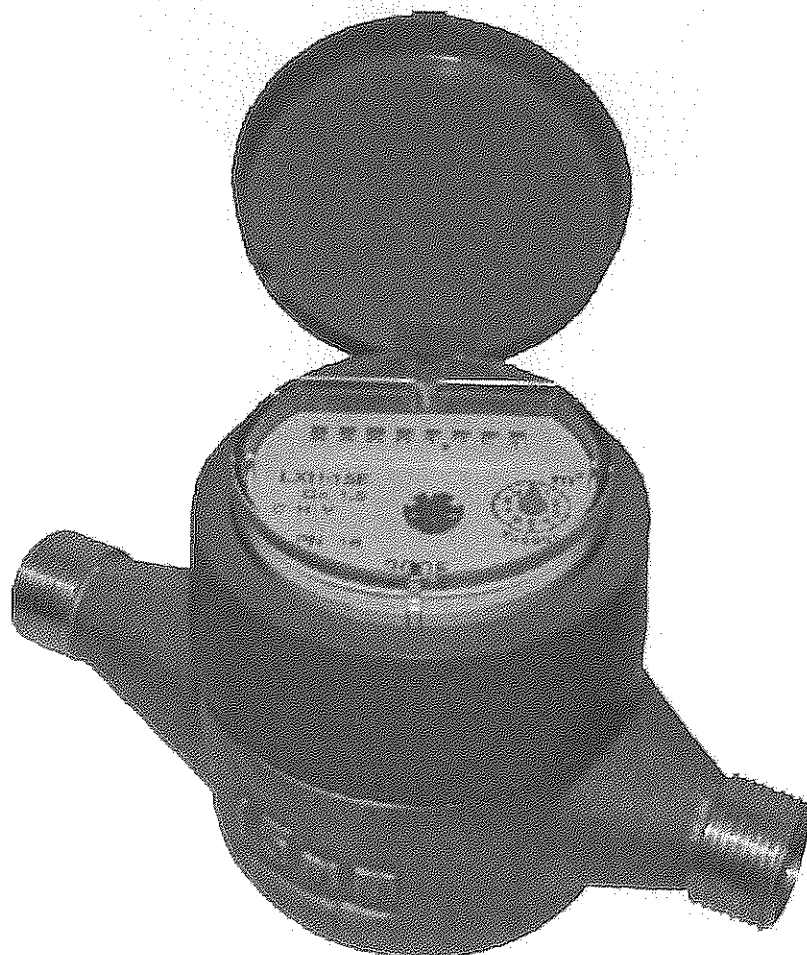


Figure 3: The water meter type PD-SDC (E4) with Super Dry Register (Cooper Can) – view:



Figure 4: The water meter type PD-SDC (E4) with plastic body – view:

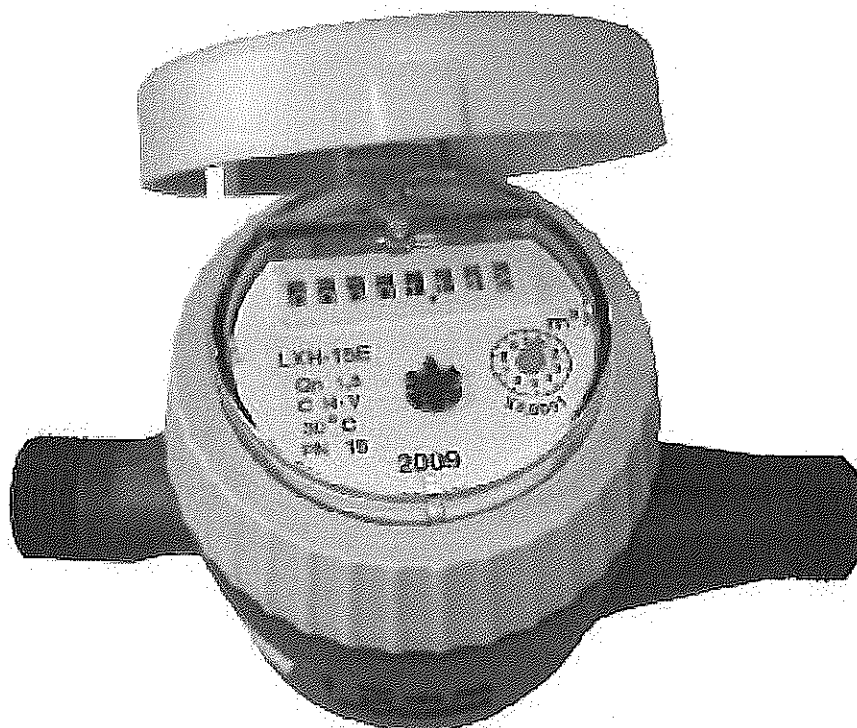


Figure 5: The water meter type PD-SDC (E6) – view:

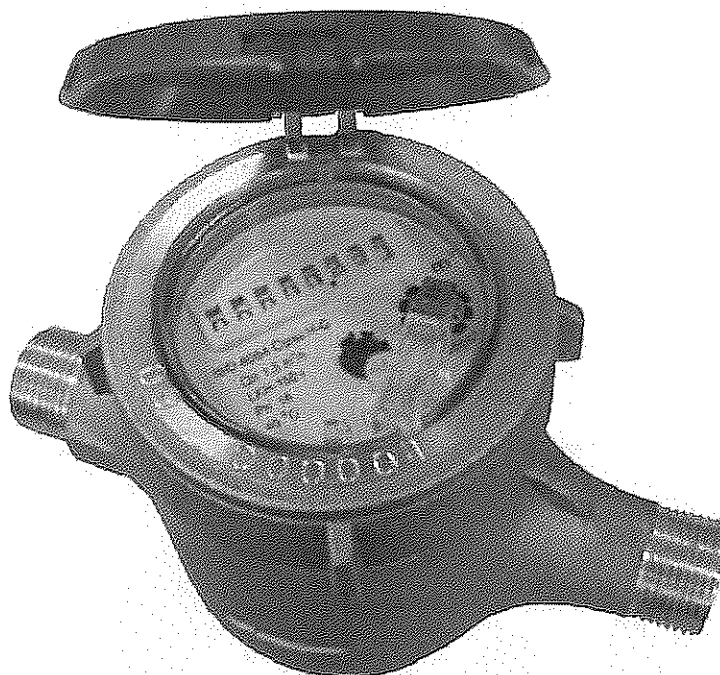


Figure 6: The water meter type PD-SDC (E8) – view:

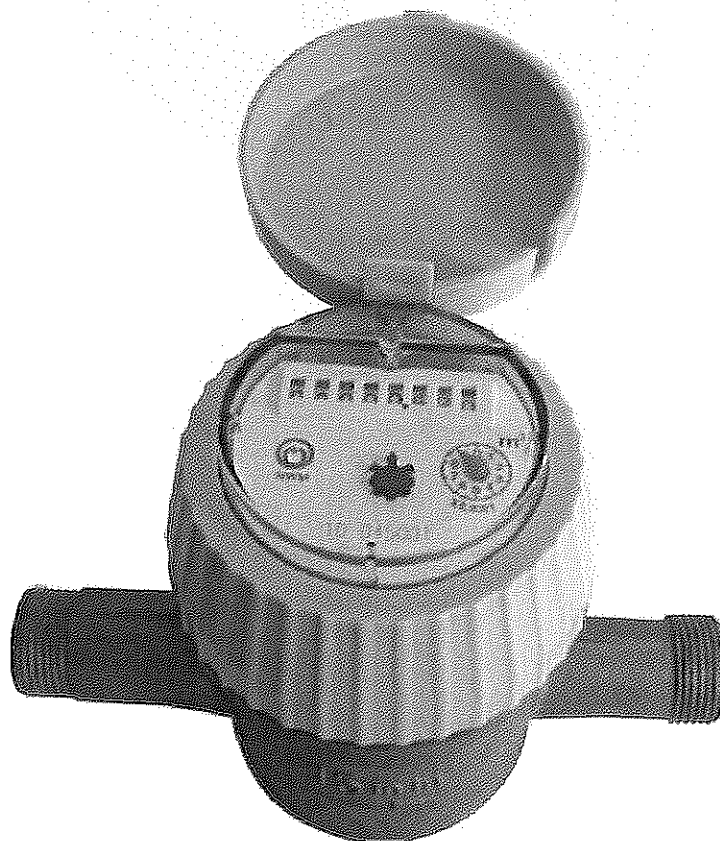


Figure 7: The water meter type PD-SDC (T) – view:

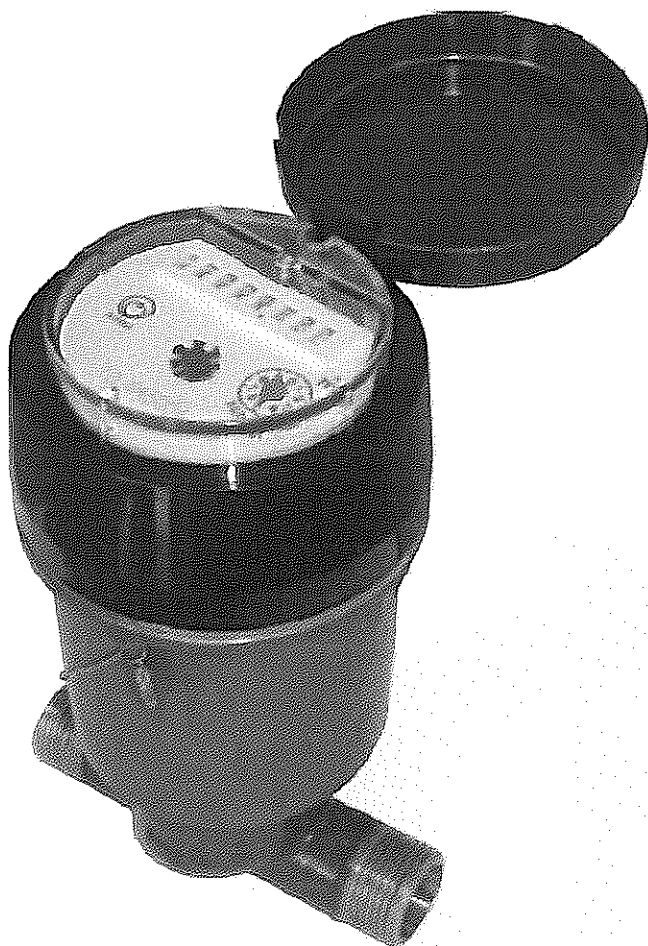


Figure 8: The water meter type PD-SDC (E3) assembly drawings:

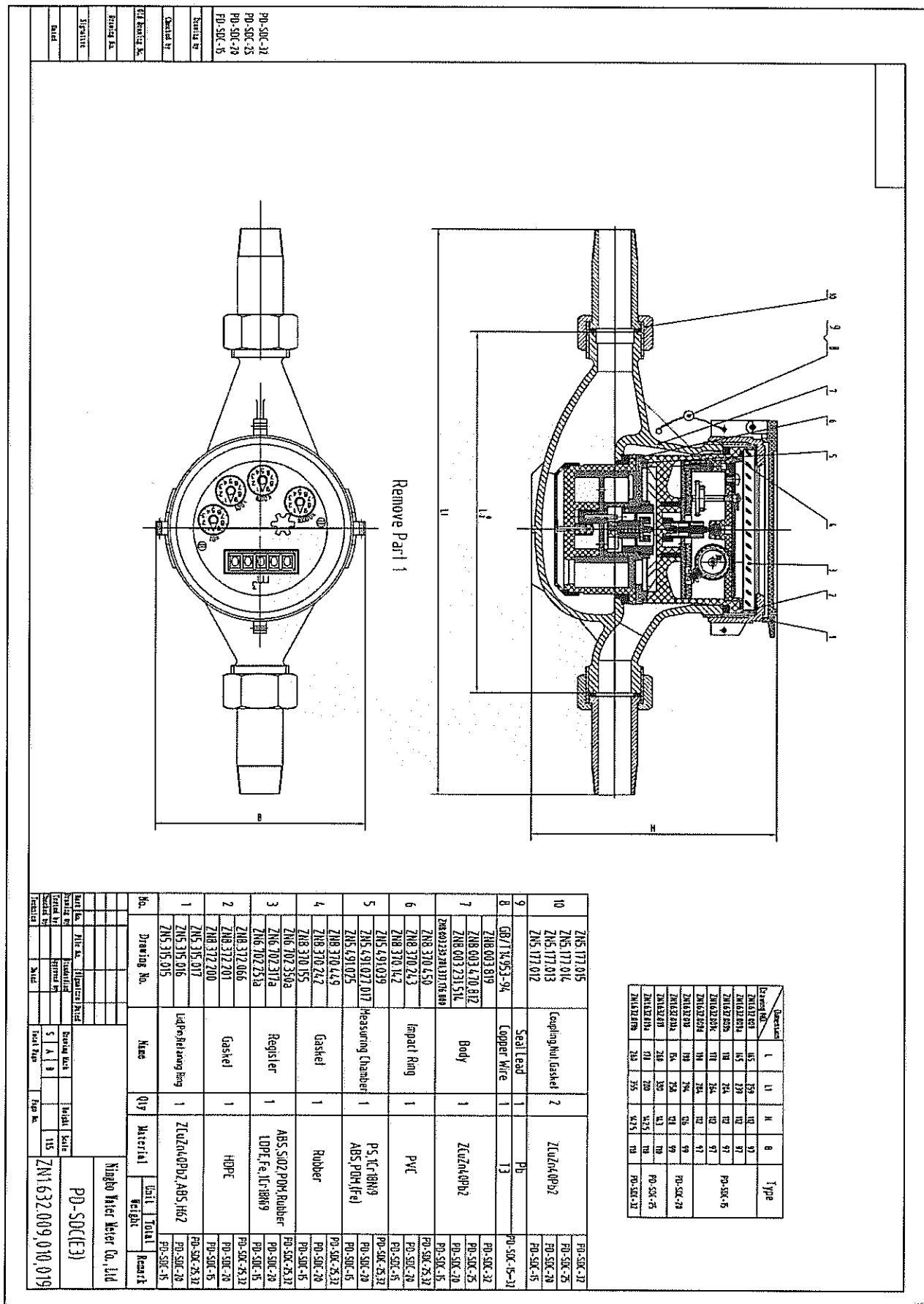


Figure 9: The water meter type PD-SDC (E4) assembly drawings:

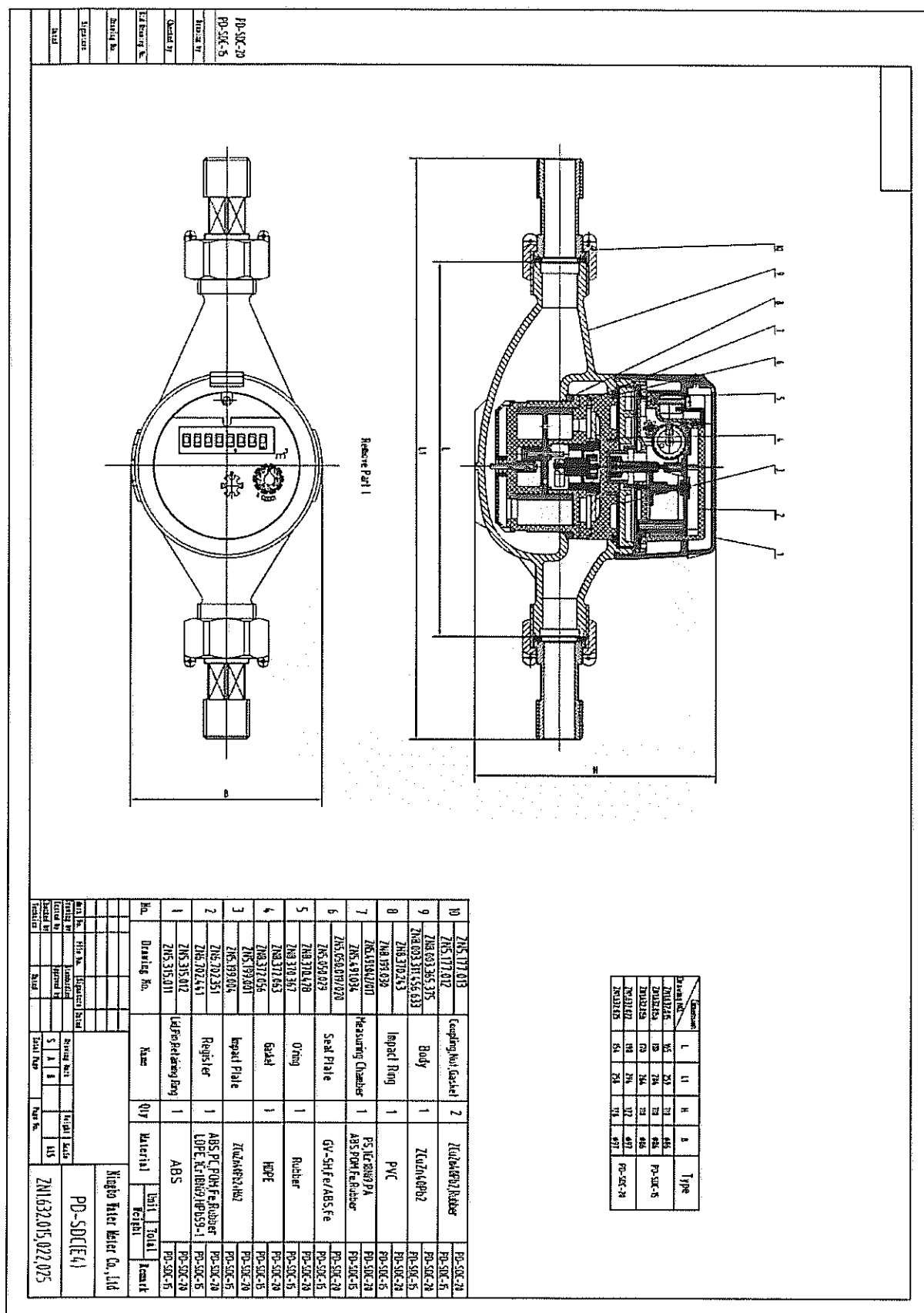


Figure 10: The water meter type PD-SDC (E6) assembly drawings:

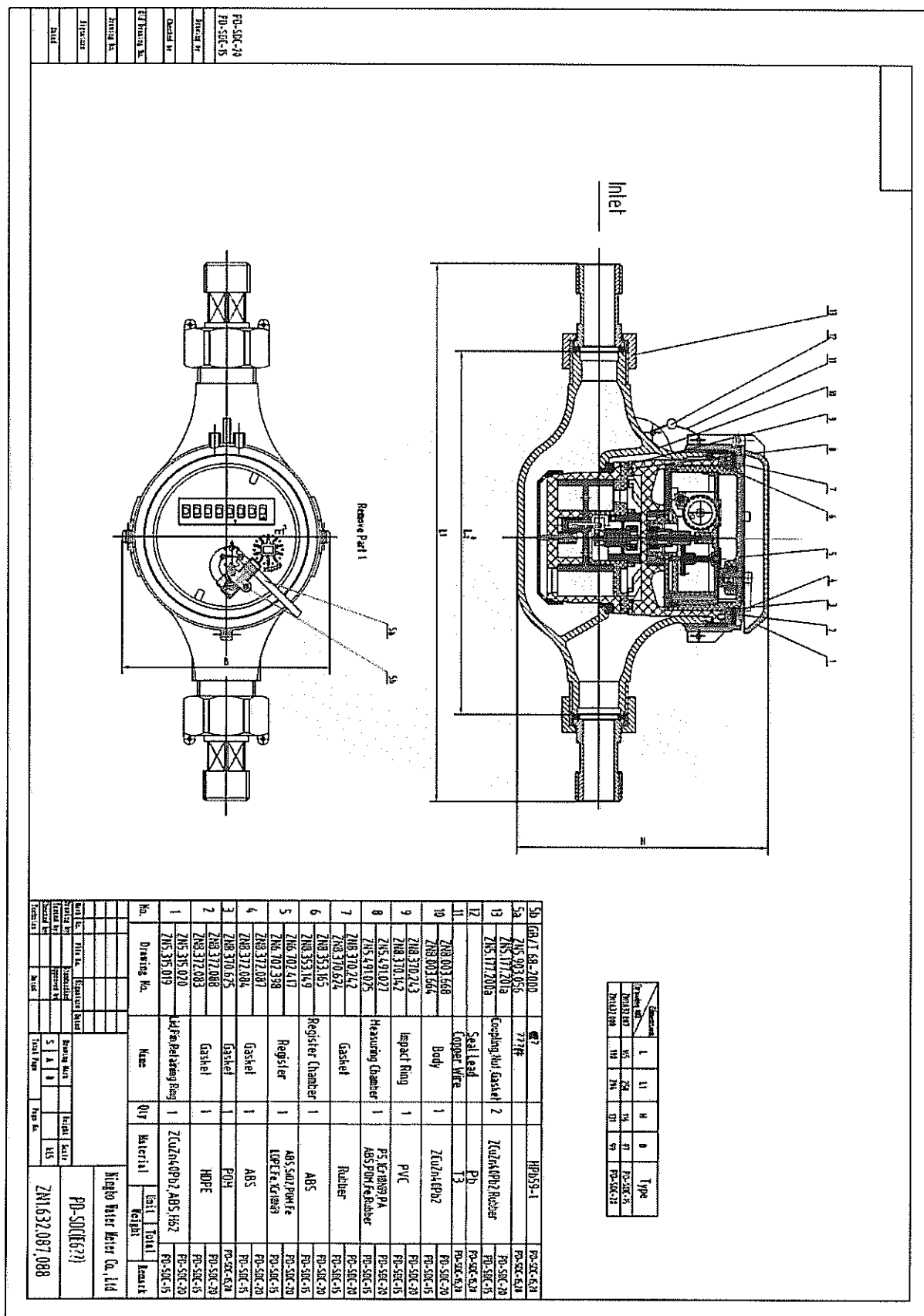
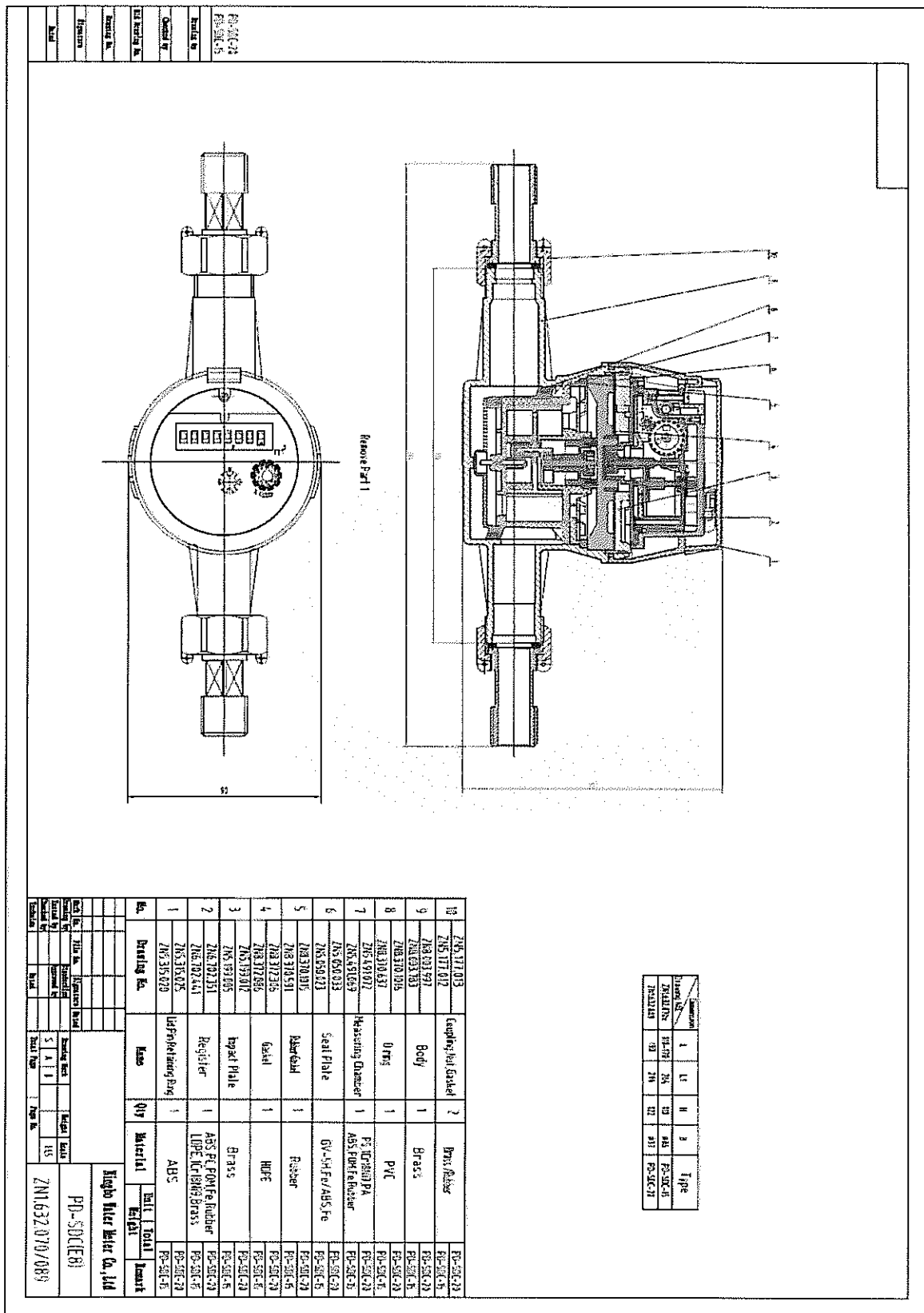


Figure 11: The water meter type PD-SDC (E8) assembly drawings:



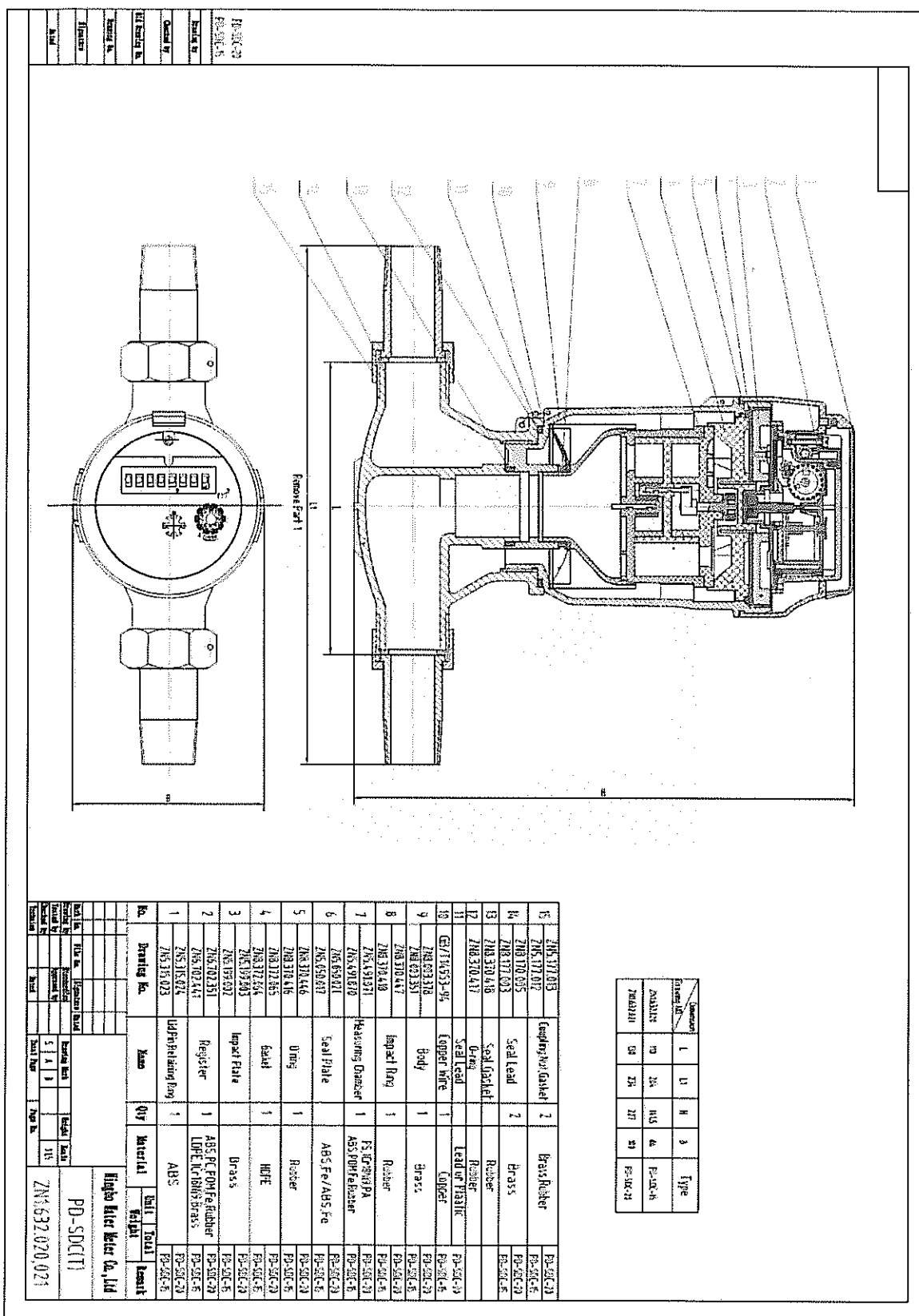


Figure 13: The sealing of the water meter type PD-SDC (E3):



Figure 14: The sealing of the water meter type PD-SDC (E4):



Figure 15: The sealing of the water meter type PD-SDC (T):



Figure 16: Example of the dial plates of the water meter type PD-SDC with register 5+4:

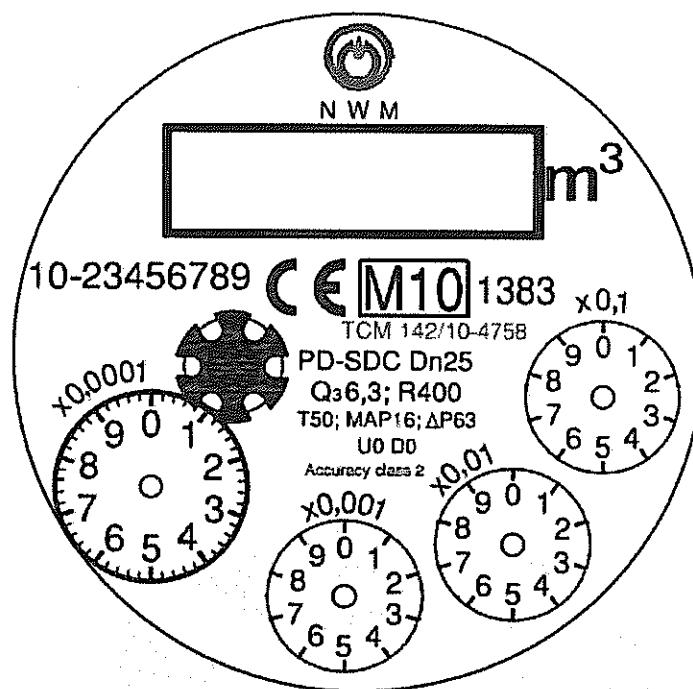
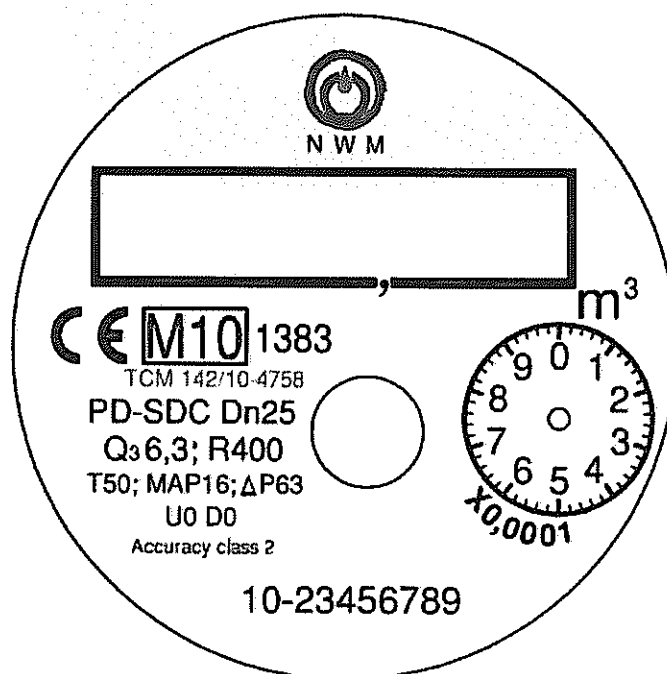
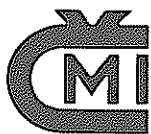


Figure 17: Example of the dial plates of the water meter type PD-SDC with register 8+1:





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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.**
(Applicant) **No. 99, Lane 268, Beihai Road**
Ningbo 315033
China

In respect of: **water meter - volumetric**
type: PD-SDC
Accuracy class: 2
Temperature class: T30 and T50

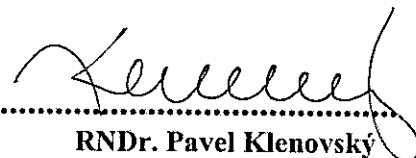
Valid until: **12 October 2020**

Document number: **0115-CS-A036-10**

Description: Essential characteristics, approved conditions and special conditions, if any, are described in this certificate. This certificate contains 11 pages.

Date of issue: 13 October 2010




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RNDr. Pavel Klenovský

Notified Body No.1383

1. Measuring device description

The volumetric 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. 2004/22/EC 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 brass or bronze casted body with connecting threads and inlet strainer (optional), a wet measuring unit, a dry mechanical indicating device with a glass disc a brass closing ring with a plastic cover or super dry mechanical indicating device (Copper Can Calculator) with brass head ring with a plastic cover.

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

The water meters type PD-SDC(E6) consist of a brass or bronze casted body with connecting threads and inlet strainer (optional), a wet measuring unit, a o-ring, a register chamber, a dry mechanical indicating device and brass head ring with a plastic cover.

The measuring unit consists of an internal strainer, a piston chamber with plastic shaft with stainless steel holder, a bush, a plate, a piston with stainless steel shaft, a piston chamber cover, an o-ring, a transmission shaft with magnetic holder.

The mechanical indicating device, dry (Plastic Calculator) or super dry (Copper Can Calculator), can be formed by numbered rollers with five drums and four rotary pointers, or eight drums and one rotary pointer. There is star wheel with six arms which can be used for rapid testing in mechanical indicating device.

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

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

The water meters type PD-SDC shall be designate by these trademarks:



NWM



Water meters type PD-SDC are manufactured according to technical documentation of manufacturer No. Q/ZNJ 17005-2010 Annex 1 from 1.10.2010.

2. Basic technical data

Basic technical data of water meters type PD-SDC:

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]:	$\leq 2.50^1$	$\leq 4.00^1$	$\leq 6.30^1$
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 :	$\leq 400^2$		
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):	$\pm 5 \%$		
Maximum permissible error for the upper flowrate zone (MPE _u):	$\pm 2 \%$ 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:	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-faktor [impulse / L]:	1, 0.1, 0.01 and 0.001		

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 10.

3. Test

Technical tests of the water meters type PD-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-A0044-10 from October 11th 2010..

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 EC-type examination certificate
- Name or trademark of manufacturer
- Year of manufacturer (last two digit) and serial number (as near as possible to the indicating device)
- Measuring device type
- Unit of measurement (m³)
- Accuracy class 2
- Numerical value Q_3 in m³/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 ($U \times D \times$)
- 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 on water meters types PD-SDC (E3) and PD-SDC (E6).

The connection of water meter body and indicating device has to be sealed by plastic cover on water meters types PD-SDC (E4). This plastic cover has to be identified by safeguarding marks.

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

The location of seal is described in Figure 9 and Figure 10.



Figure 1: The water meter type PD-SDC (E3) – view:

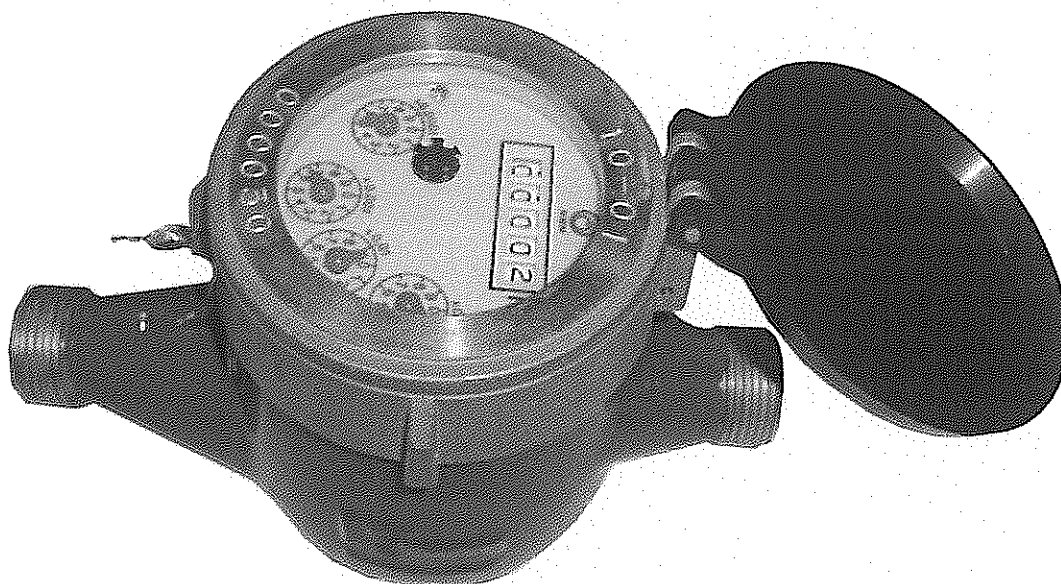


Figure 2: The water meter type PD-SDC (E4) – view:

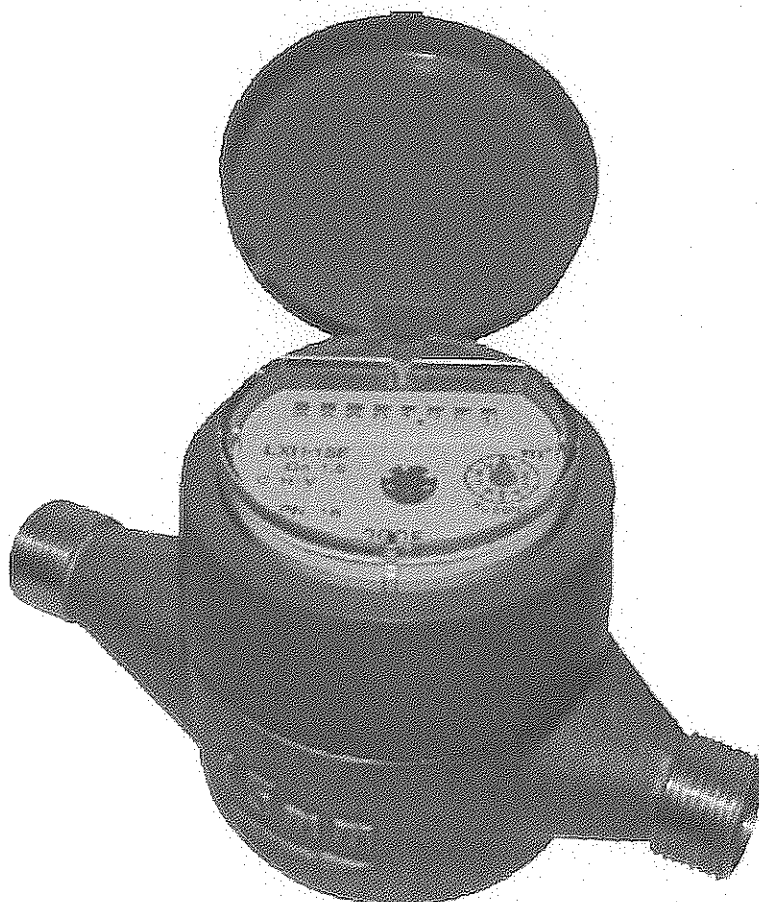


Figure 3: The water meter type PD-SDC (E4) with Super Dry Register (Cooper Can) – view:



Figure 4: The water meter type PD-SDC (E4) with plastic body – view:

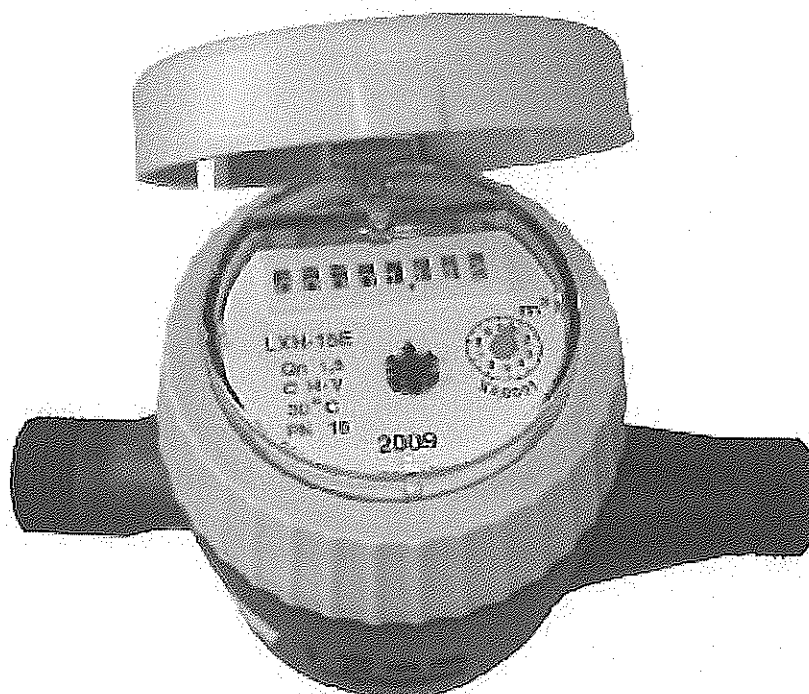


Figure 5: The water meter type PD-SDC (E6) – view:



Part No.	Description	Qty	Material	Unit	Total	Remarks
10	ZMS 117 015 ZMS 117 016 ZMS 117 013 ZMS 117 012	2	ZCuZn40Pb2	PD-SOC-32		
9	GD 1 K953-9K	1	Pb	PD-SOC-32		
8	ZMS 003 819 ZMS 003 812 ZMS 003 2315 K	1	ZCuZn40Pb2	PD-SOC-32		
7	ZMS 310 450 ZMS 310 243 ZMS 310 442	1	PVC	PD-SOC-32		
6	ZMS 491 019 ZMS 491 017	1	PS (C-18N9)	PD-SOC-32		
5	ZMS 310 449 ZMS 310 242	1	Rubber	PD-SOC-32		
4	ZMS 310 155 ZMS 310 242	1	Rubber	PD-SOC-32		
3	ZMS 702 310a ZMS 702 310b ZMS 702 251a	1	HOPE	PD-SOC-32		
2	ZMS 317 201 ZMS 317 200	1	HOPE	PD-SOC-32		
1	ZMS 315 017 ZMS 315 016 ZMS 315 015	1	ZCuZn40Pb2, ABS, H62	PD-SOC-32		

Figure 7: The water meter type PD-SDC (E4) assembly drawings:

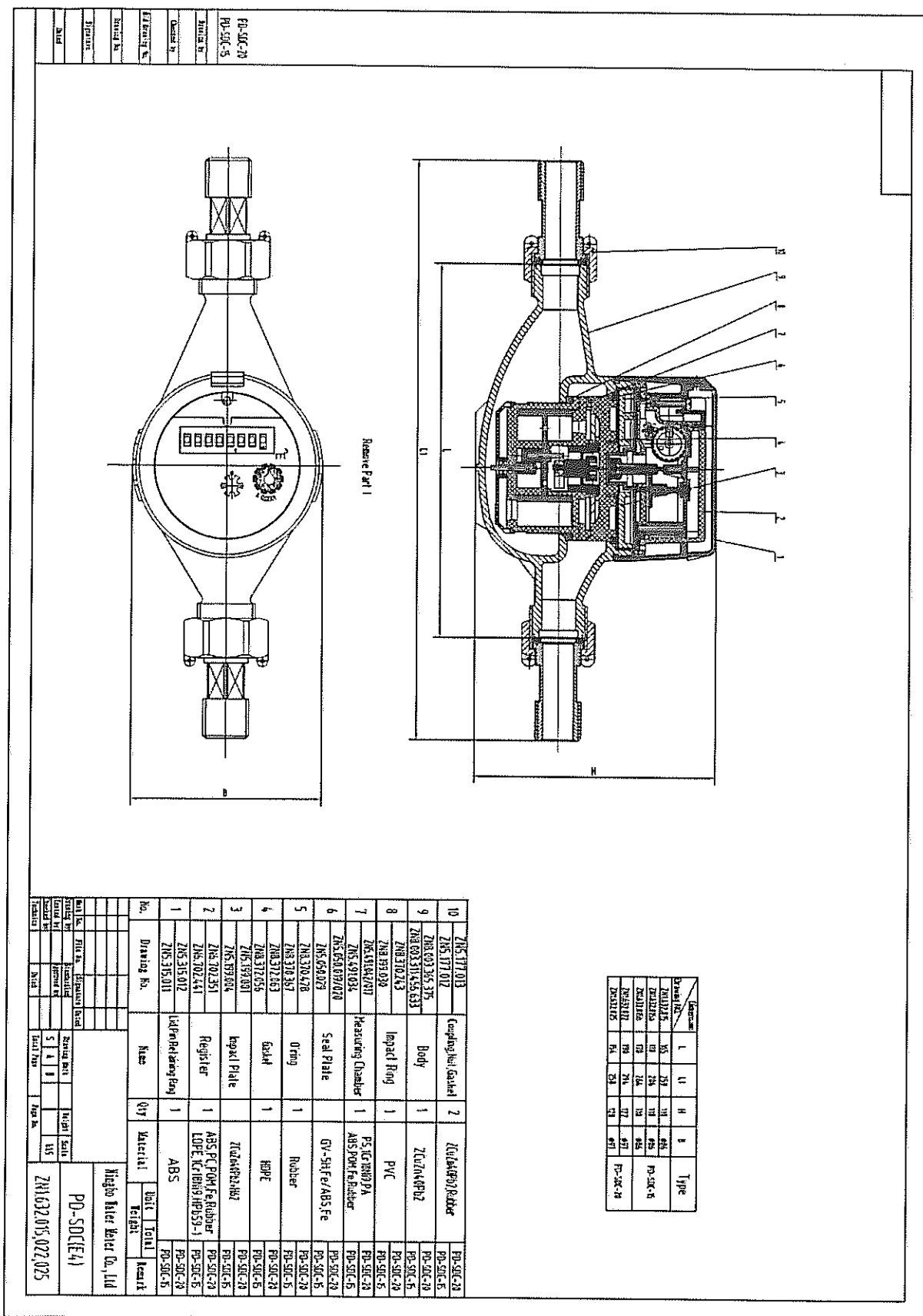


Figure 8: The water meter type PD-SDC (E6) assembly drawings:



Figure 9: The sealing of the water meter type PD-SDC (E3):



Figure 10: The sealing of the water meter type PD-SDC (E4):



Figure 11: The dial plates of the water meter type PD-SDC with register 5+4:

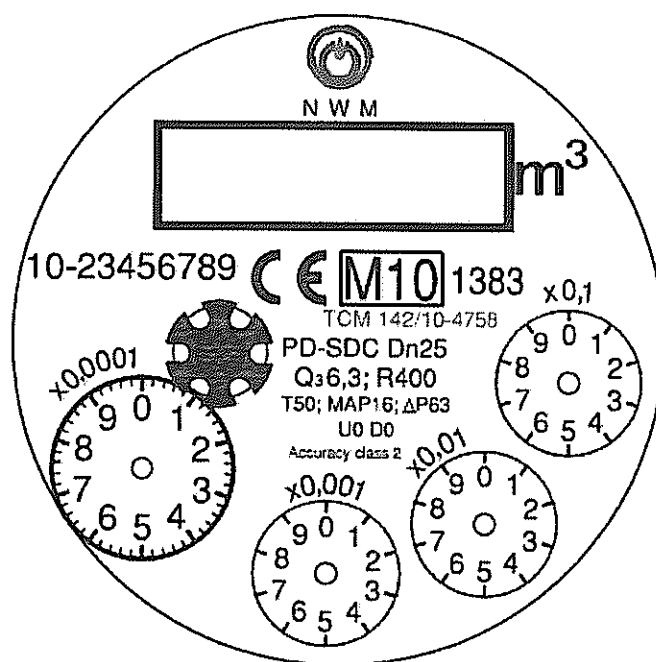


Figure 12: The dial plates of the water meter type PD-SDC with register 8+1:

