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Notified Body
No. 1383

EC-TYPE EXAMINATION CERTIFICATE

Number: TCM 142/11 – 4803

Addition 1

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

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: FLOW SYSTEMS
Rua Vasco da Gama 68
4750-220 Barcelos
Portugal

For: water meter – volumetric

type: SV-RTK

accuracy class: 2

temperature class: T30 and T50

Valid until: 6 January 2021

Document number: 0115-CS-A001-11

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

Date of issue: 28 November 2011

Český metrologický institut NOTIFIKOVANÁ OSOBA AO 250 1383
2

Certificate approved by:

RNDr. Pavel Klenovský

1. Measuring device description

The volumetric water meters type SV-RTK 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 SV-RTK are positive displacement meters with rotary piston.

The water meters type SV-RTK(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 SV-RTK(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, an 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 SV-RTK(E6) consist of a brass or bronze casted body with connecting threads and inlet strainer (optional), a wet measuring unit, an 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 mechanical indicating device, dry (Plastic Calculator), can optionally include a condensed wiper.

The water meters type SV-RTK can be equipped by a reed impulse transmitter which can be used for remote reading. The water meters can be equipped by inductive sensor which was not part of this certification.

The water meters type SV-RTK shall be installed to operate in arbitrary positions.
The water meters typee SV-RTK shall be designate by these trademarks:

FLOW SYSTEMS

FLOW SYSTEMS

The volumetric water meters type SV-RTK are manufactured according to assembly drawings of the company FLOW SYSTEMS, No. ZN1.632.009 010 019 from 12/2010, No. ZN1.632.066 080 from 12/2010, No. ZN1.632.015 022 025 from 12/2010 and No. ZN1.632.087 088 from 12/2010.

2. Basic technical data

Basic technical data of water meters type SV-RTK:

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]:	≤ 2.50 [1]	≤ 4.00 [1]	≤ 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:	≤ 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]:	99 999		

Nominal diameter (DN) [mm]:	15	20	25
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 G⅞B or G1B	G1B or G1¼B	G1¼B or G1½B
Reed switch power supply (U_{max} / I_{max}):	max. 24 V / 0.01 A		
Reed switch K-factor [impulse / L]:	1, 0.1, 0.01 and 0.001		
Inductive K-factor [impulse/L]:	1		

[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 SV-RTK 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-P0001-11 from January 4th 2011 and No. 6015-PT-P0142-11 from November 21st 2011.

4. The measuring device data

The water meters type SV-RTK 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 ×.×)
- 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

The connection of water meter body and brass head ring has to be sealed on water meters types SV-RTK (E3) and SV-RTK (E6).
The connection of water meter body and indicating device has to be sealed by plastic cover on water meters types SV-RTK (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 SV-RTK (E3) – view:

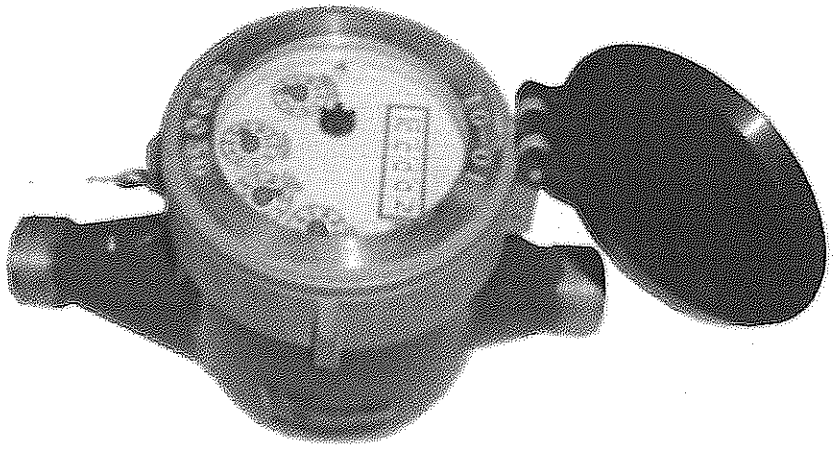

Figure 2: The water meter type SV-RTK (E4) – view:

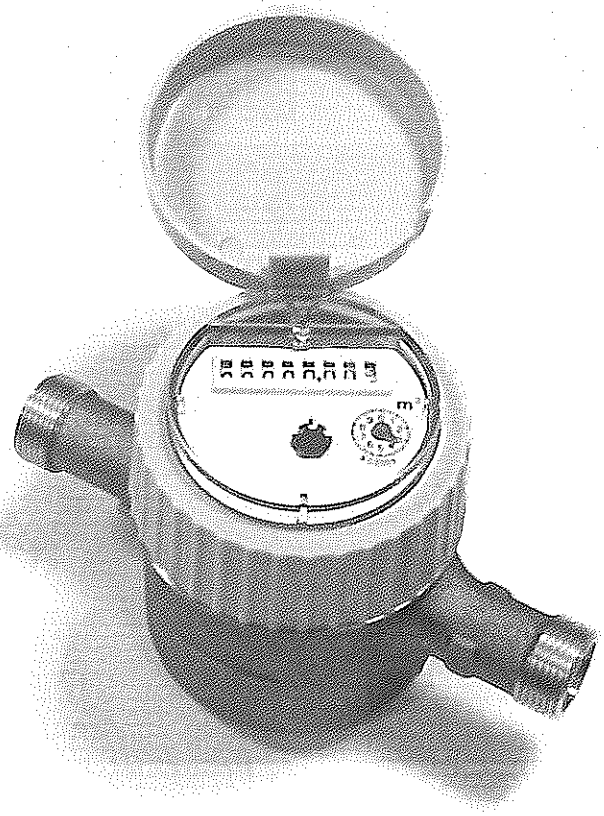

Figure 3: The water meter type SV-RTK (E4) with Super Dry Register (Cooper Can) – view:

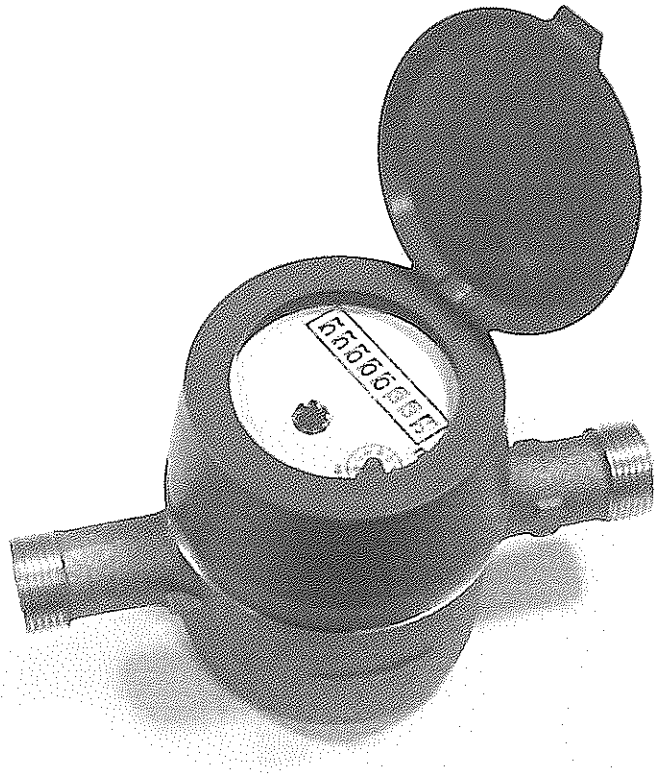

Figure 4: The water meter type SV-RTK (E4) with plastic body – view:

Figure 5: The water meter type SV-RTK (E6) – view:

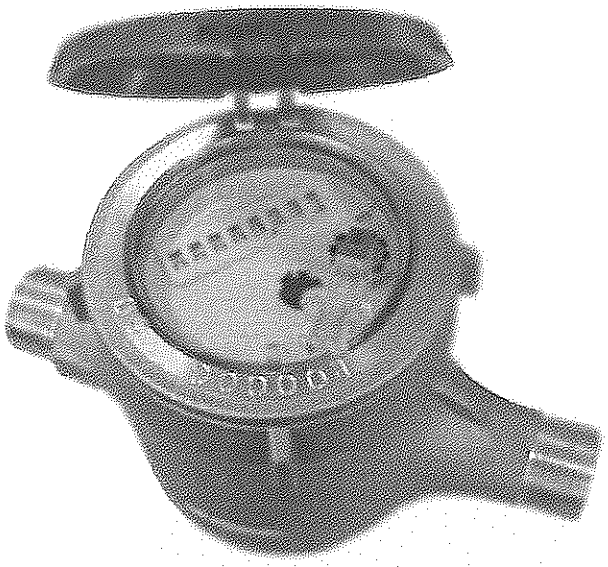

Figure 6: The water meter type SV-RTK (E3) assembly drawings:

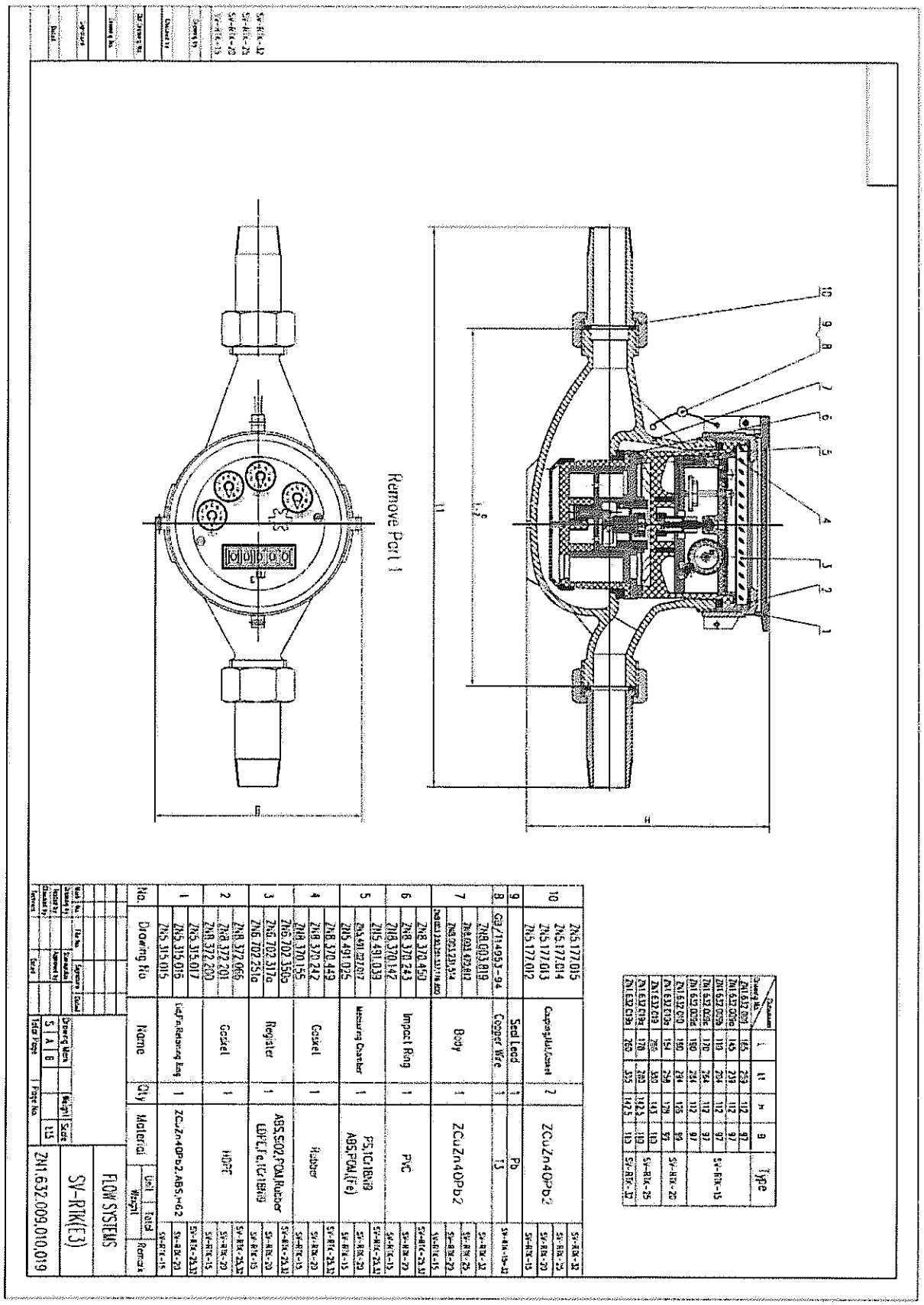

Figure 7: The water meter type SV-RTK (E4) assembly drawings:

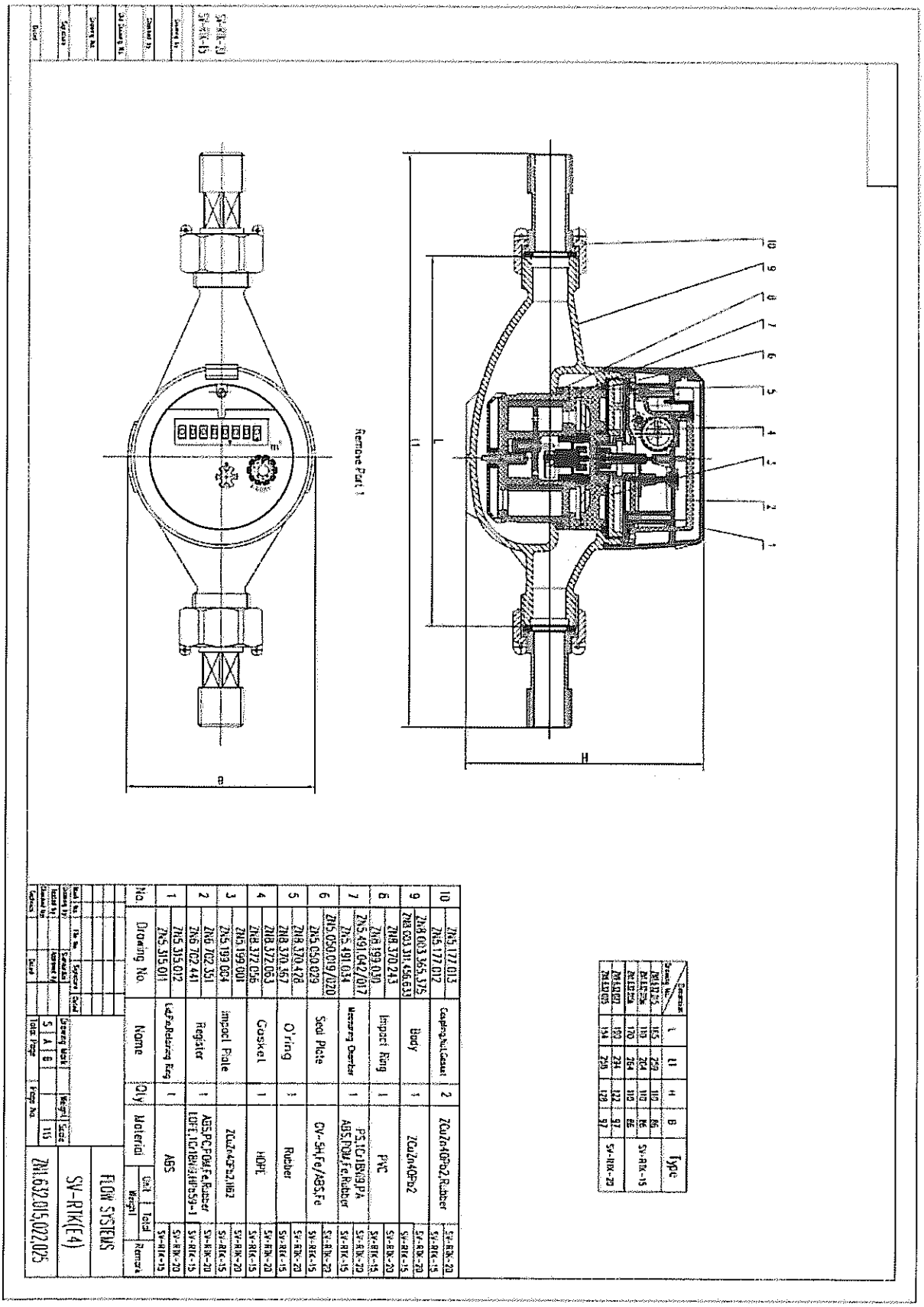

Figure 8: The water meter type SV-RTK (E6) assembly drawings:

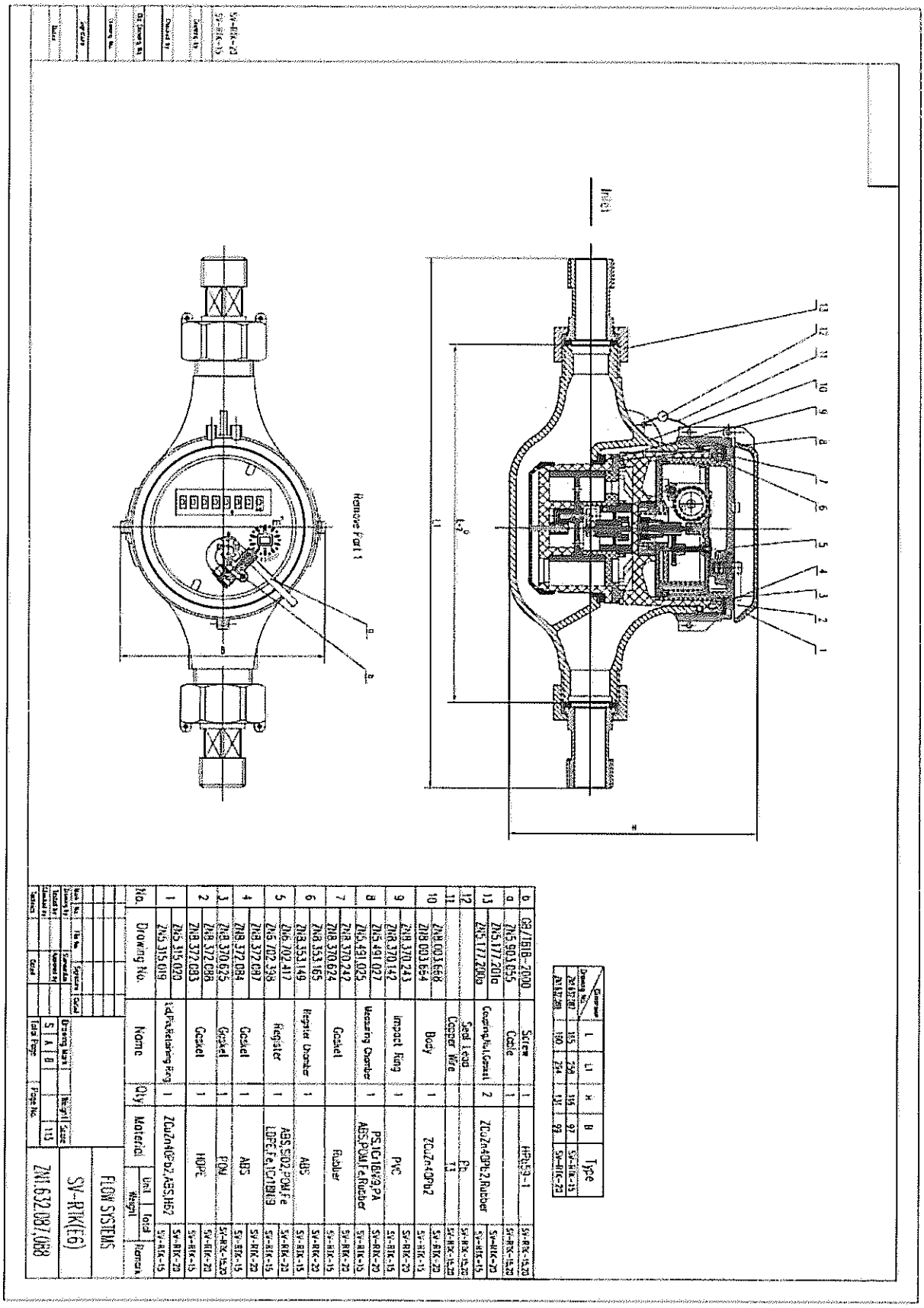

Figure 9: The sealing of the water meter type SV-RTK (E3):

Figure 10: The sealing of the water meter type SV-RTK (E4):

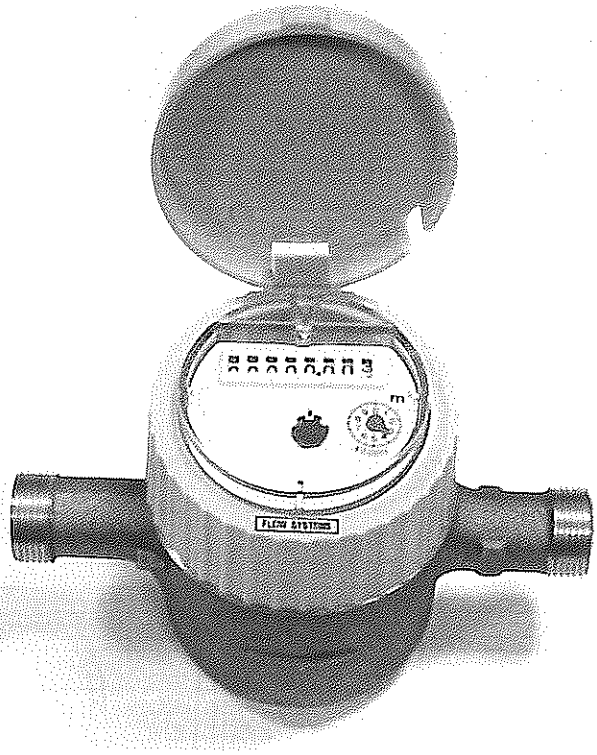

Figure 11: The dial plates of the water meter type SV-RTK with register 5+4:

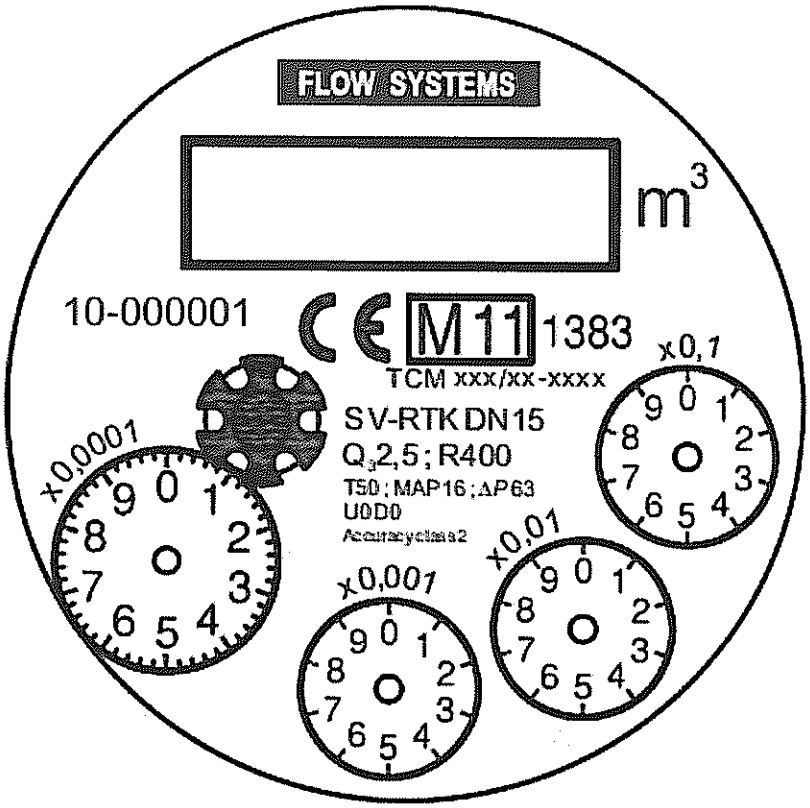

Figure 12: The dial plates of the water meter type SV-RTK with register 8+1: