



EU-TYPE EXAMINATION CERTIFICATE

Number: TCM 142/08 – 4604

Addition 8

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

Page 1 from 11 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: MADDALENA S.p.A.
Via G. B. Maddalena 2/4
33040 Povoletto (UD)
Italy

For: water meter – multi jet
type: DS TRP

Accuracy class: 2

Temperature class: T30 and T50

Valid until: 24 June 2028

Document No: 0115-CS-A018-08

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

Date of issue: 5 April 2018

Certificate approved by:



V. 2.

RNDr. Pavel Klenovský

1. Characteristics of instrument

The multi jet water meter type DS TRP 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 multi jet water meters with protected registered drums type DS TRP consist of a brass casted body or cast iron body, an inlet strainer, a wet measuring unit with a plastic distributor with tangential holes, a rotary vane wheel and gears, a mechanical indicating device with pointers and protected registered drums, a upper glass disc and a brass closing ring with a cover. The numbered drums are installed in capsule filled by special liquid.

The adjustment is realized by adjusting screw. The access to the adjusting screw is protected by adjusting plug.

The water meters type DS TRP can be equipped by a Reed Impulse transmitter or electronic pulse emitter model QuadraPlus or others certified optionally or pre-equipped for a further installation. These pulse transmitters may be used for remote reading of the water meter, where national regulations permit.

The electronic pulse emitter type QuadraPlus operate on magnetic principle (three Hall sensors) and it can detect the flow direction (forward flow and return flow), magnetic influence and sensor removal by Fraud signal (after 20 s). The cable from QuadraPlus must not be longer than 3 meters and the other cables to electronic counter must not be longer than 3 meters or must not be connected with supply network.

The difference between water meters with specifications ($Q_3 = 2.5 \text{ m}^3/\text{h}$ and ratio R 40 to 200) and ($Q_3 = 4.0 \text{ m}^3/\text{h}$ and ratio R 40 to 250), $Q_3 = 6.3 \text{ m}^3/\text{h}$ and $Q_3 = 10 \text{ m}^3/\text{h}$ and $Q_3 = 16 \text{ m}^3/\text{h}$ and $Q_3 = 25 \text{ m}^3/\text{h}$ is in distributor and gears used only.

The water meters type DS TRP shall be installed to operate in horizontal position with indicating device positioned at the top. The water meters type DS TRP are designed also for vertical pipe with the totalizing device placed in horizontal position.

2. Main characteristics

Basic technical data of water meters type DS TRP DN15 to DN25:

Model number:	DS 15	DS 20	DS 25
Nominal diameter:	15 or 20		25 or 32
Type details:			
$Q_1 [\text{m}^3/\text{h}]$:	flowrates are shown in Table <i>flowrates</i>		
$Q_2 [\text{m}^3/\text{h}]$:			
$Q_3 [\text{m}^3/\text{h}]$:	2.5	4	6.3
$Q_4 [\text{m}^3/\text{h}]$:	3.13	5	7.9
Q_3/Q_1 : for $L > 110 \text{ mm}$	200; 160; 125; 100; 80; 63; 50; 40	250; 200; 160; 125; 100; 80; 63; 50; 40	200; 160; 125; 100; 80; 63; 50; 40
Q_3/Q_1 : for $L \leq 110 \text{ mm}$	160; 125; 100; 80; 63; 50; 40		-
Q_2/Q_1 :	1.6		
Q_3/Q_4 :	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 or T50		
Water pressure class:	MAP 16		
Pressure loss class:	$\Delta P 63$	$\Delta P 40$ for $Q_3 2.5 \text{ m}^3/\text{h}$ $\Delta P 63$ for $Q_3 4.0 \text{ m}^3/\text{h}$	$\Delta P 63$
Orientation limitation:	H↑ (horizontal position with the indicating device at the top)		
Indicating range [m^3]:	99 999 or 999 999		
Resolution of the indicating device [dm^3]:	0.05		
Resolution of the device for rapid testing [L]:	56.2422 or 43.1405	43.1405	24.923077

Installation details (mechanical):			
Connection type (screw thread):	G ¾ B or G 1 B for H↑ G 1 B for vertical pipe		G 1½ B or G 1½ B
Flow profile sensitivity classes:	U0D0		
Flow conditioner (details if required):	No		
Length [mm]:	110 to 190 for H↑ 105 for vertical pipe	160 to 190 for H↑ 105 for vertical pipe	220 to 260
Supplementary devices:			
Type	Reed sensor		
Power supply:	max. 24 V / 0.1 A		
K-factor [pulse/Litres]:	1; 0.1; 0.01 or 0.001		
Type	QuadraPlus pulse emitter output		
Power supply:	max. 30 V DC / 0.1 A		
K-factor [pulse/Litres]:	1; 0.1		
Life of battery for QuadraPlus [years]	15		
Software version of QuadraPlus:	V1.39		
Checksum of QuadraPlus:	46A998E3		

Basic technical data of water meters type DS TRP DN32 to DN50:

Model number:	DS 32	DS 40	DS 50
Nominal diameter:	32	40	50
Type details:			
Q_1 [m³/h]:	flowrates are shown in Table <i>flowrates</i>		
Q_2 [m³/h]:			
Q_3 [m³/h]:	10.0	16.0	25.0
Q_4 [m³/h]:	12.5	20.0	31.3
Q_3/Q_1 :	200; 160; 125; 100; 80; 63; 50; 40		
Q_2/Q_1 :	1.6		
Q_3/Q_4 :	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 or T50		
Water pressure class:	MAP 16		
Pressure loss class:	ΔP 63		
Orientation limitation:	H↑ (horizontal position with the indicating device at the top)		
Indicating range [m³]:	999 999		
Resolution of the indicating device [dm³]:	0.05		
Resolution of the device for rapid testing [L]:	18.08036	16.66667	11.97917
Installation details (mechanical):			
Connection type (screw thread or flange):	G 1½ B	G 2 B or Flange	G 2½ B or Flange
Flow profile sensitivity classes:	U0D0		
Flow conditioner (details if required):	No		
Length [mm]:	220 to 260	300	270 or 300

Supplementary devices:	
Type	Reed sensor
Power supply:	max. 24 V / 0.1 A
K-factor [pulse/Litres]:	1; 0.1; 0.01 or 0.001
Type	QuadraPlus pulse emitter output
Power supply:	max. 30 V DC / 0.1 A
K-factor [pulse/Litres]:	1; 0.1
Life of battery for QuadraPlus [years]	15
Software version of QuadraPlus:	V1.39
Checksum of QuadraPlus:	46A998E3

Basic metrological data (*flowrates*)

Manufacturer:	Maddalena S.p.A.											
Model number:	DS 15	DS 20	DS 25	DS 32	DS 40	DS 50	DS 15	DS 20	DS 25	DS 32	DS 40	DS 50
Nominal diameter:	15 / 20	15 / 20	25 / 32	32	40	50	15 / 20	15 / 20	25 / 32	32	40	50

Type details:

Q_1 [m ³ /h]:	-	0.0160	-	-	-	-	0.0125	0.0200	0.0315	0.050	0.080	0.125
Q_2 [m ³ /h]:	-	0.0256	-	-	-	-	0.0200	0.0320	0.0504	0.080	0.128	0.200
Q_3 [m ³ /h]:	-	4.0	-	-	-	-	2.5	4.0	6.3	10.0	16.0	25.0
Q_4 [m ³ /h]:	-	5.0	-	-	-	-	3.1	5.0	7.9	12.5	20.0	31.3
Q_3/Q_1 :	-	250	-	-	-	-	200					

Q_1 [m ³ /h]:	0.0156	0.0250	0.0394	0.0625	0.100	0.156	0.020	0.032	0.050	0.080	0.128	0.200
Q_2 [m ³ /h]:	0.0250	0.0400	0.0630	0.1000	0.160	0.250	0.032	0.051	0.080	0.128	0.205	0.320
Q_3 [m ³ /h]:	2.5	4.0	6.3	10.0	16.0	25.0	2.5	4.0	6.3	10.0	16.0	25.0
Q_4 [m ³ /h]:	3.1	5.0	7.9	12.5	20.0	31.3	3.1	5.0	7.9	12.5	20.0	31.3
Q_3/Q_1 :	160						125					

Q_1 [m ³ /h]:	0.025	0.040	0.063	0.100	0.160	0.250	0.031	0.050	0.079	0.125	0.200	0.313
Q_2 [m ³ /h]:	0.040	0.064	0.101	0.160	0.256	0.400	0.050	0.080	0.126	0.200	0.320	0.500
Q_3 [m ³ /h]:	2.5	4.0	6.3	10.0	16.0	25.0	2.5	4.0	6.3	10.0	16.0	25.0
Q_4 [m ³ /h]:	3.1	5.0	7.9	12.5	20.0	31.3	3.1	5.0	7.9	12.5	20.0	31.3
Q_3/Q_1 :	100						80					

Q_1 [m ³ /h]:	0.040	0.063	0.100	0.159	0.254	0.397	0.050	0.080	0.126	0.200	0.320	0.500
Q_2 [m ³ /h]:	0.063	0.102	0.160	0.254	0.406	0.635	0.080	0.128	0.202	0.320	0.512	0.800
Q_3 [m ³ /h]:	2.5	4.0	6.3	10.0	16.0	25.0	2.5	4.0	6.3	10.0	16.0	25.0
Q_4 [m ³ /h]:	3.1	5.0	7.9	12.5	20.0	31.3	3.1	5.0	7.9	12.5	20.0	31.3
Q_3/Q_1 :	63						50					

Q_1 [m ³ /h]:	0.063	0.100	0.158	0.250	0.400	0.625	-	-	-	-	-	-
Q_2 [m ³ /h]:	0.100	0.160	0.252	0.400	0.640	1.000	-	-	-	-	-	-
Q_3 [m ³ /h]:	2.5	4.0	6.3	10.0	16.0	25.0	-	-	-	-	-	-
Q_4 [m ³ /h]:	3.1	5.0	7.9	12.5	20.0	31.3	-	-	-	-	-	-
Q_3/Q_1 :	40						-					

3. Test

Technical tests of the DS TRP water meters were performed in compliance with the International Recommendation OIML R 49 Edition 2006 (E) with conformity to EN 14154:2011, Test Reports No. 6015-PT-P0002-08, No. 6015-PT-P0024-08, No. 6015-PT-P0010-09, No. 6015-PT-P0017-10, 6015-PT-P0052-10 and No. 6015-PT-P0038-13.

Technical assessment of the DS TRP water meters was performed in compliance with the Directive 2014/32/EU, Test Reports No. 6015-PT-P0014-16 and 6015-PT-P0029-17.

Technical tests of the DS TRP water meters were performed in compliance with the International Recommendation OIML R 49 Edition 2013 (E) with conformity to ISO 4064:2017, Test Report No. 6015-PT-P0019-18.

4. Conformity marks and inscription

The water meters type DS TRP shall be clearly and indelibly marked with the following information:

- Water meter type
- Unit of measurement (m^3)
- Numerical value Q_3 in m^3/h ($Q_3 \times .\times$) and the ratio Q_3 / Q_1 ,
- 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)
- Orientation limitation ($H\uparrow$)
- Maximum admissible pressure ($\text{MAP}\times\times$)
- The temperature class ($T\times\times$)
- The pressure loss class ($\Delta P\times\times$)
- CE marking and metrology marking in line with the Directive 2014/32/EU

and if the water meter is equipped with impulse transmitter:

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

and if the water meter is equipped with QuadraPlus pulse emitter:

- Output signals for ancillary devices (type / levels)
- The latest date the pulse emitter has to be replaced
- Software version and checksum

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 5.

5. Additional specifications

The water meters type DS TRP shall be put onto 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 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 water meter closing ring with adjusting plug and connection of water meter body and pulse transmitters if any have to be sealed. The location of seal is described in Figures 1 to 4.

7. Drawing of the instrument

Water meters type DS TRP are manufactured according to the technical documentation of manufacturer. Technical documentation contains following drawings:

Document reference	Date	Brief description
225001M	30.9.2013	exploded view
225004M	30.9.2013	exploded view
225022M	20.3.2018	dial plate
225023M	7.11.2008	impulse emitter
225025M	7.11.2008	sealing
22500089	30.3.2016	body for vertical pipe line
22500131	26.3.2018	register exploded view DN15 – DN20 (56.4422 p/L)
22500132	26.3.2018	body drawing DS15
22500133	26.3.2018	register exploded view DN15 (43.1405 p/L)
22500134	26.3.2018	body drawing DS20
22500135	26.3.2018	body drawing DS25
22500136	26.3.2018	body drawing DS32
22500137	26.3.2018	body drawing DS40
22500139	26.3.2018	body drawing DS40
22500140	26.3.2018	register exploded view DN25 (24.923077 p/L)
22500141	26.3.2018	register exploded view DN40 (16.66667p/L)
22500142	26.3.2018	register exploded view DN50 (11.97917 p/L)
22500143	26.3.2018	register exploded view DN32 (18.08036 p/L)
223966P	5.5.2010	sealing Quadrplus

History of additions

Addition No.	Description
Addition 0	Issuing certificate
Addition 1	Added DN 25 and DN 32
Addition 2	Added DN 40 and DN 50
Addition 3	Added Quadrplus
Addition 4	Changed drawing of register
Addition 5	Added vertical position
Addition 6	Added resolution of the device for the rapid testing, drawing of vertical body version
Addition 7	Adding postal address of manufacturer
Addition 8	Revision according to the ISO 4064-1:2017, respectively OIML R 49-1:2013

Figure 1: The sealing of the DS TRP water meter

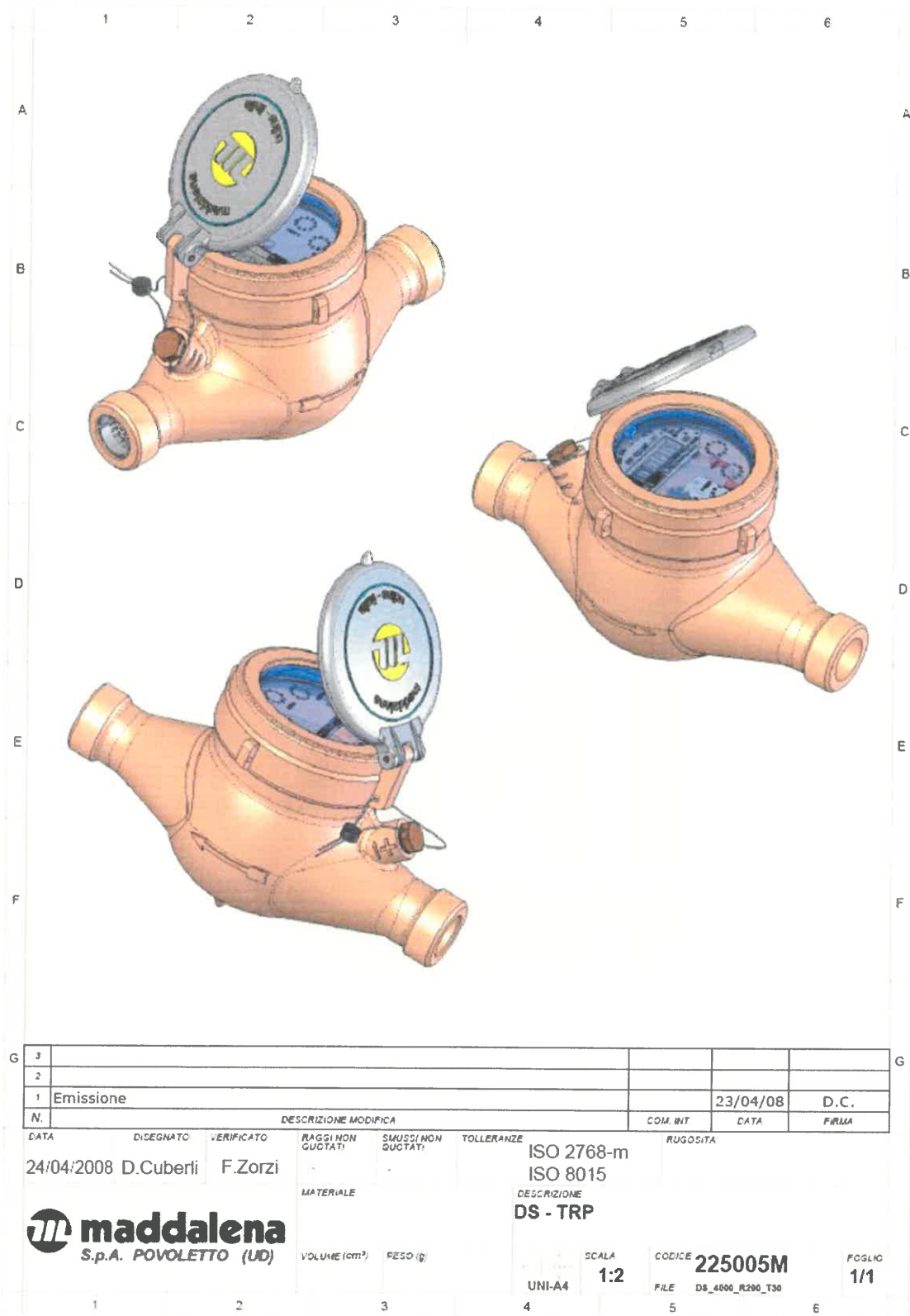


Figure 2: The sealing of the DS TRP water meter with pulse emitter

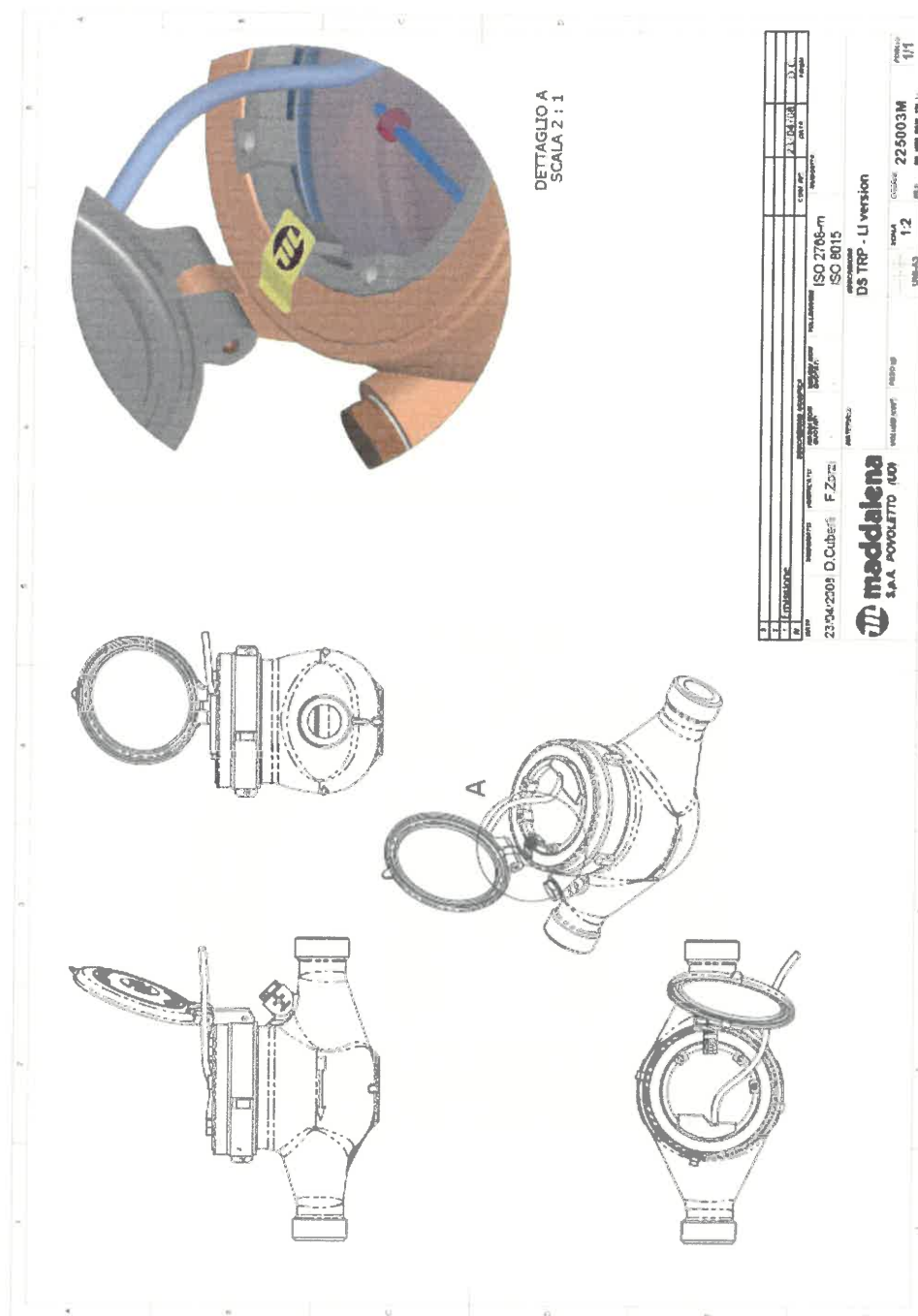


Figure 3: Sealing of the DS TRP water meter with Quadraplus

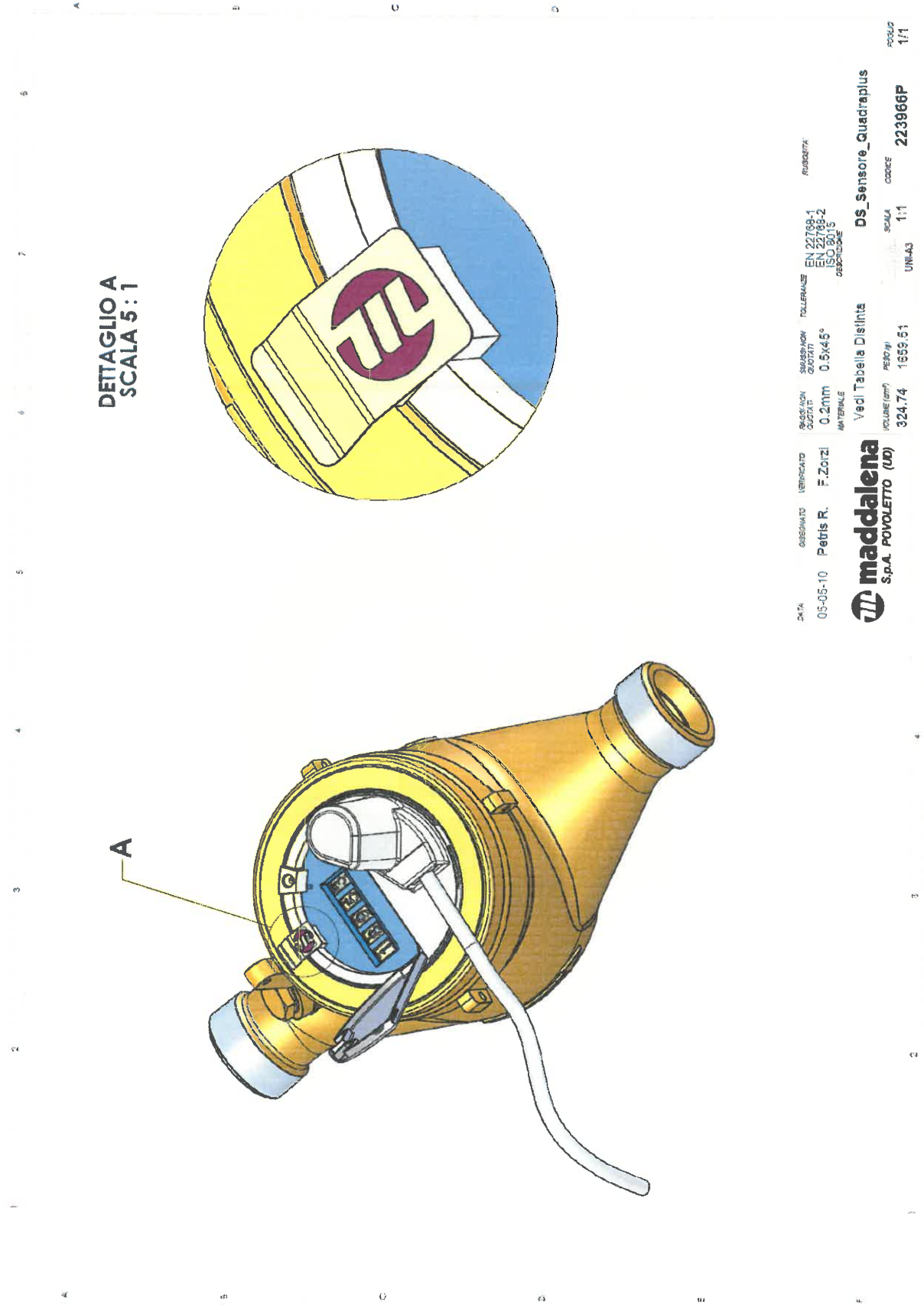


Figure 4: The body for vertical version and sealing of the DS TRP water meter



N.	DESCRIZIONE MODIFICA				Mod. Tec.	Data	Firma	Verifica
DATA	DISEGNATO	VERIFICATO	RAGGI NON QUOTATI	SMUSSI NON QUOTATI	TOLLERANZE	RUGOSITA'		
30/03/2016	R.Petris	A.Geatti			EN 22768-1 EN 22768-2 (ISO 2768-mK) ISO 8015			
			MATERIALE		DESCRIZIONE			
					DS TRP - BODY VERTICAL VERSION			
www.maddalena.it			VOLUME (cm³)	PESO (g)	SCALA	CODICE	FOGLIO	
					UNI-A4	1:1	22500089	1/1
1	2	3	4	5	6			

Figure 5: The dial of the DS TRP water meter

