

1. Measuring device description

Single jet water meters types CD SD PLUS and CD SD PLUS EVO are designed to measure, memorize 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 Council no. 2004/22/EC of measuring instruments, as amended.

The water meters type CD SD PLUS and CD SD PLUS EVO are single jet meters with dry dial. The water meters consist of brass main casing with screw thread and a dry mechanical indicating.

Single jet water meters model CD SD PLUS and CD SD PLUS EVO consist of a hot forged brass body, an inlet strainer, a rotary vane wheel with radial wheels supported by two steel pivots. A magnet on the upper part of the vane wheel drives by means of a separating plate a mechanical totalizing device. The totalizing device comprises eight numbered drums and one pointer and has a central shaft with a permanent magnet on the lower part. The device is protected and sealed by a transparent cap.

Adjustment is enabled by the angular orientation of the separating plate. The lower side of the separating plate is divided into sectors. The separating plate is secured by the cap.

There is a star wheel with six arms in mechanical indicating device which can be used for rapid testing.

The water meters type CD SD PLUS can be equipped with a Reed Impulse emitter or other types of certified pulse emitters, or can be pre-equipped for retrofitting a pulse emitter. The water meters type CD SD PLUS EVO can be equipped with radio module type FAW which don't influence metrological parameters and which is not part of certification.

Single jet water meters types CD SD PLUS and CD SD PLUS EVO are designed for horizontal or vertical installation, with the totalizing device placed in horizontal or vertical position.

The water meters are manufactured in accordance with the assembly drawings of the company Maddalena S.p.A., No. 225040M from 21.3.2013, 225041M from 21.3.2013, 225042M from 22.3.2013, 225043M from 7.10.2010, 225051M from 5.3.2013, 225052M from 6.3.2013, 225056M from 21.5.2013, 225057M from 21.5.2013 and 225058M from 22.5.2013.

2. Technical Data

Nominal diameter (DN) [mm]	15		20	
	H	V	H	V
Orientation limitation	H	V	H	V
Overload flowrate (Q_4) [m ³ /h]	≤ 3.13		≤ 5.00	
Permanent flowrate (Q_3) [m ³ /h]	≤ 2.50 ¹		≤ 4.00 ¹	
Transitional flowrate (Q_2) [m ³ /h]	≥ 0.040	≥ 0.080	≥ 0.064	≥ 0.128
Minimum flowrate (Q_1) [m ³ /h]	≥ 0.025	≥ 0.050	≥ 0.040	≥ 0.080
Ratio Q_3 / Q_1	≤ 100 for H installation ² ≤ 50 for V installation 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 flow zone (MPE _u)	± 2 % for water having a temperature ≤ 30 °C ± 3 % for water having a temperature > 30 °C			
Temperature class	T50 and T30/90			
Water pressure classes	MAP 16			
Pressure-loss classes	ΔP 63		ΔP 40	
Indicating range [m ³]	99 999			
Resolution of the indicating device [L]	0.05			
Resolution of the device for the rapid testing [pulse/L] – CD SD PLUS	92.8125		50.7272	
Resolution of the device for the rapid testing [pulse/L] – CD SD PLUS EVO	250.59375		136.96344	
Flow profile sensitivity classes	U0 D0			
Length [mm]	80-100-110-115-120-165-190		115-130-165-190	



Connection type – Screw thread size	G ¾B or G 7/8B / G ¾B or G 1 B	G ¾B or G 1 B
Reed Impulse emitter power supply (U_{\max} / I_{\max})	max. 24 V / 0.1 A	
Reed Impulse emitter K-factor [impulse / L]	0.1	
Environmental class: ³	C	
Electromagnetic class: ³	E1	
Mechanical class: ³	M1	

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 Valid for water meter without an electronic device; if it is equipped, these classes are set in combination with parameters of ancillary device.

3. Test

Technical tests of the water meters types CD SD PLUS and CD SD PLUS EVO 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-P0053-10 from 2 November 2010, No. 6015-PT-P0026-11 from 11 April 2011 and No. 6015-PT-P0025-13 from 15 June 2013.

5. Marking

The water meters type CD SD PLUS and CD SD PLUS EVO shall be clearly and indelibly marked with the following information:

- “CE” marking and metrology marking
- EC-type examination certificate number
- Manufacturer’s mark or name
- Year of manufacture (last two digits)
- Measuring instrument model
- Serial number (as close as possible to the totalising device)
- Unit of measurement (m^3)
- Accuracy class 2
- Numerical value of Q_3 in m^3/h ($Q_3 \times \times$)
- Numerical value of ratio Q_3 / Q_1 ($R \times \times$)
- Temperature class ($T \times \times$)
- Maximum admissible pressure (MAP $\times \times$)
- Maximum pressure loss class ($\Delta P \times \times$)
- Classes on sensitivity to irregularities in velocity field ($U \times D \times$)
- Orientation limitation (horizontal or vertical)
- Direction of flow arrow on both sides of the meter body

If the water meter is equipped with Reed Impulse emitter or Radio module, it shall also bear the following inscriptions:

- Output signal for ancillary devices (type/level)
- External power supply requirements: voltage – frequency
- The latest date that the radio module is to be replaced

5. Sealing

The water meter is secured by means of a transparent cover fitted to the body and identified by security mark (Figure 1).

The pulse emitter (if any) shall be secured by self-destructive label placed as described in Figure 2.

The radio module (if any) shall be secured by self-destructive label placed as described in Figure 3.



Figure 1: The water meter with security mark

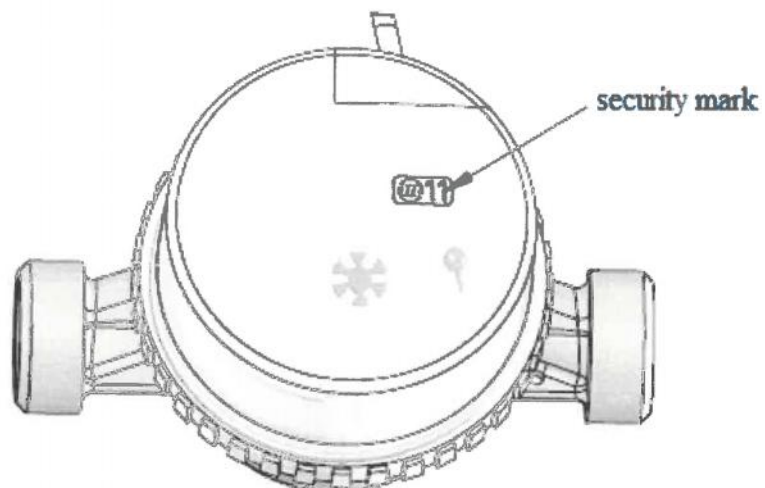


Figure 2: The CD SD PLUS with pulse emitter and sealing

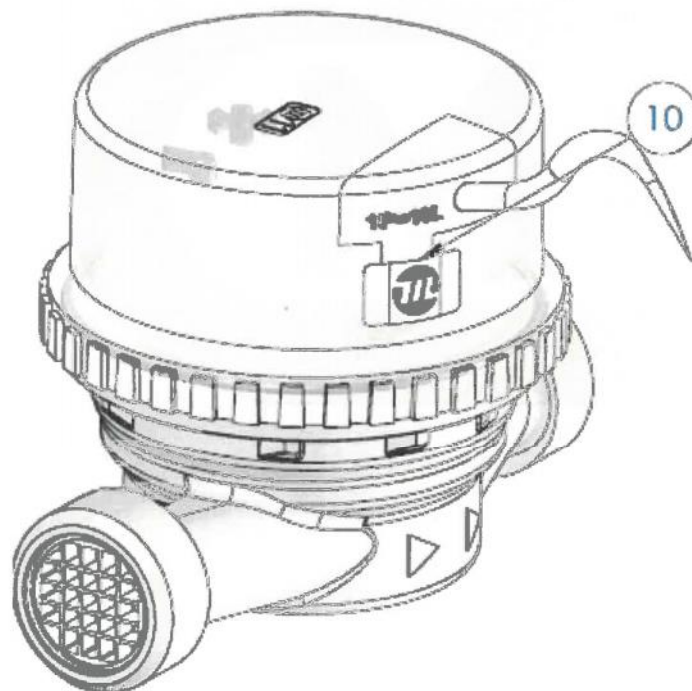


Figure 3: The CD SD PLUS EVO with radio module and sealing

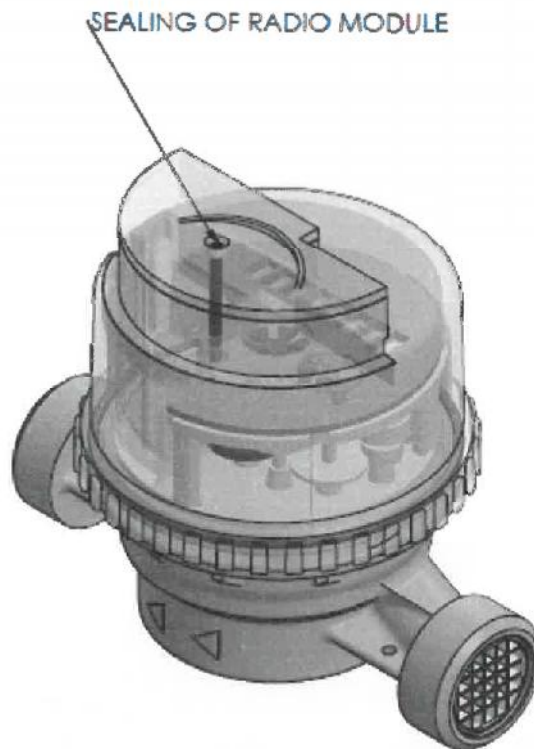


Figure 4: The dial of CD SD PLUS EVO water meter

