



## EC-TYPE EXAMINATION CERTIFICATE

Number: TCM 142/14 - 5171

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- In accordance:** with Directive 2004/22/EC of the European Parliament and of the Council as amended implemented in Czech Republic by Government Order No. 464/2005 Coll. as amended that lays down technical requirements on measuring instruments.
- Manufacturer:** ŞENSOYLAR Klape Tesisat Malz. San. ve Tic. Ltd. Şti.  
Bakırcılar ve Prinççiler Sanayi Sitesi Menekşe Caddesi No:13  
İstanbul / Beylikdüzü  
Turkey
- For:** water meter - multi jet, dry dial  
type: ERCIYES MJD-xx-T  
Accuracy class: 2  
Temperature class: T30 or T50
- Valid until:** 22 June 2024
- Document No:** 0511-CS-A049-14
- Description:** Essential characteristics, approved conditions and special conditions, if any, are described in this certificate.
- Date of issue:** 23 June 2014

Certificate approved by:



RNDr. Pavel Klenovský

## 1. Measuring device description

The multi jet water meters type ERCIYES MJD-xx-T 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 ERCIYES MJD-xx-T, where xx means nominal diameter, are multi jet rotary vane wheel water meters with dry mechanical indicating device (Plastic Can Calculator) or supper dry mechanical indicating device (Copper Can Calculator).

The water meters type ERCIYES MJD-xx-T (E) consist of a brass, bronze, iron or plastic body with connecting threads or flanges and inlet strainer (optional), an adjusting screw, a wet measuring unit, a register chamber with magnetic protection ring and two agate bearings (there is only the top bearing for DN 15 and DN 20), a rubber gasket, a second magnetic protection ring, a dry or super dry mechanical indicating device, a rubber O-ring, a glass disc, a register holder ring, a rubber gasket and brass, bronze, steel or plastic head ring with a plastic cover.

The water meters type ERCIYES MJD-xx-T (E5) consist of a brass, bronze, iron or plastic body with connecting threads or flanges and an inlet strainer (optional), an adjusting screw, a wet measuring unit, a register chamber with magnetic protection ring and two agate bearings, a rubber gasket, a second magnetic protection ring, a dry or super dry mechanical indicating device, a register holder ring, a sliding gasket and brass, bronze, steel or plastic head ring with a plastic cover.

The water meters type ERCIYES MJD-xx-T (G) consist of a brass, bronze, iron or plastic body with connecting threads or flanges and inlet strainer (optional), an adjusting screw, a wet measuring unit, a pressure plate with magnetic protection ring and two agate bearings (there is only the top bearing for DN 15 and DN 20), a second magnetic protection ring, a rubber O-ring, a sliding gasket, a brass, bronze, steel or plastic inner head ring, a dry or super dry mechanical indicating device with transparent plastic cover and a plastic cup with a clamp on plastic cover.

The water meters type ERCIYES MJD-xx-T (Z) consist of a brass, bronze, iron or plastic body with connecting threads or flanges and an inlet strainer (optional), an adjusting screw, a wet measuring unit, a register chamber with magnetic protection ring and one agate bearing, a rubber gasket, a second magnetic protection ring, a rotary 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 head ring with a plastic cover cup.

The measuring unit consists of an internal strainer, a plastic distributor with tangential holes, a stainless shaft with plastic pivot, a rotary vane wheel with magnetic holder and plastic shaft.

There are two types of the mechanical indicating device.

The first one is formed by numbered rollers with five drums and four rotary pointers for water meters DN 15 to DN 32 and six drums and three or four rotary pointers for water meters DN 40 and DN 50.

The second one is formed by numbered rollers with eight drums and one rotary pointer for water meters DN 15 to DN 32 and eight drums and one or two pointers for water meters DN 40 and DN 50.

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

The water meters type ERCIYES MJD-xx-T can be equipped by a reed impulse transmitter which can be used for remote reading.

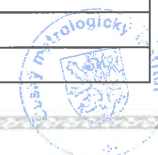
The water meters type ERCIYES MJD-xx-T shall be installed to operate in horizontal or vertical positions only, according to used meter body.

Water meters type ERCIYES MJD-xx-T are manufactured according to technical documentation of manufacturer. Technical documentation contains among others assembly drawing No. ŞENSOYLAR TD14/03-001 to ŞENSOYLAR TD14/03-010 from 3/2014.

## 2. Basic technical data

Basic technical data of water meters type ERCIYES MJD-xx-T DN 15 to DN 25:

Nominal diameter (DN) [mm]:	15	20	25
Overload flowrate ( $Q_4$ ) [ $m^3/h$ ]:	$\leq 3.13$	$\leq 5.00$	$\leq 7.88$
Permanent flowrate ( $Q_3$ ) [ $m^3/h$ ]:	$\leq 2.50^1$	$\leq 4.00^1$	$\leq 6.30^1$
Transitional flowrate ( $Q_2$ ) [ $m^3/h$ ]:	$\geq 0.0500$	$\geq 0.0800$	$\geq 0.126$
Minimum flowrate ( $Q_1$ ) [ $m^3/h$ ]:	$\geq 0.0313$	$\geq 0.0500$	$\geq 0.0788$
Ratio $Q_3 / Q_1$ :	$\leq 80^2$		
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 <sub>l</sub> ):	± 5 %		
Maximum permissible error for the upper flowrate zone (MPE <sub>u</sub> ):	± 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 <sup>3</sup> ]:	99 999		
Resolution of the indicating device [m <sup>3</sup> ]:	0.00005		
Resolution of the device for the rapid testing [pulse/L]:	71.185	54.000	37.385
Flow profile sensitivity classes:	U0 D0		
Orientation limitation:	H or V according to used meter body		
Length of horizontal water meter L [mm]:	110 to 190	160 to 190	160 to 260
Length of horizontal water meter L [mm]:	100 to 105		105 to 110
Connection type– Screw thread size:	G <sup>3</sup> / <sub>4</sub> B or G1B	G1B	G1 <sup>1</sup> / <sub>4</sub> B or G1 <sup>1</sup> / <sub>2</sub> B
Reed switch power supply (U <sub>max</sub> / I <sub>max</sub> ):	max. 24 V / 0.01 A		
Reed switch K-faktor [impulse / L]:	0.001, 0.01, 0.1 and 1		

<sup>1</sup> The value of Q<sub>3</sub> shall be chosen from the R5 line of ISO 3:1973.

<sup>2</sup> The ratio Q<sub>3</sub> / Q<sub>1</sub> shall be chosen from the R10 line from ISO 3:1973 and this value shall be higher than 40.

#### Basic technical data of water meters type ERCIYES MJD-xx-T DN 32 to DN 50:

Nominal diameter (DN) [mm]:	32	40	50
Overload flowrate (Q <sub>4</sub> ) [m <sup>3</sup> /h]:	≤ 12.5	≤ 20.0	≤ 31.3
Permanent flowrate (Q <sub>3</sub> ) [m <sup>3</sup> /h]:	≤ 10.0 <sup>1</sup>	≤ 16.0 <sup>1</sup>	≤ 25.0 <sup>1</sup>
Transitional flowrate (Q <sub>2</sub> ) [m <sup>3</sup> /h]:	≥ 0.200	≥ 0.320	≥ 0.50
Minimum flowrate (Q <sub>1</sub> ) [m <sup>3</sup> /h]:	≥ 0.125	≥ 0.200	≥ 0.313
Ratio Q <sub>3</sub> / Q <sub>1</sub> :	≤ 80 <sup>2</sup>		
Ratio Q <sub>2</sub> / Q <sub>1</sub> :	1.6		
Ratio Q <sub>4</sub> / Q <sub>3</sub> :	1.25		
Accuracy class:	2		
Maximum permissible error for the lower flowrate zone (MPE <sub>l</sub> ):	± 5 %		
Maximum permissible error for the upper flowrate zone (MPE <sub>u</sub> ):	± 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 <sup>3</sup> ]:	99 999	999 999	
Resolution of the indicating device [m <sup>3</sup> ]:	0.00005	0.0005 or 0.00005	
Resolution of the device for the rapid testing [pulse/L]:	23.143	10.542	
Flow profile sensitivity classes:	U0 D0		
Orientation limitation:	H		
Length of horizontal water meter L [mm]:	160 to 260	200 to 300	270 to 300
Connection type– Screw thread size:	G1 <sup>1</sup> / <sub>2</sub> B	G2B	G2 <sup>1</sup> / <sub>2</sub> B or Flange
Reed switch power supply (U <sub>max</sub> / I <sub>max</sub> ):	max. 24 V / 0.01 A		
Reed switch K-faktor [impulse / L]:	0.001, 0.01, 0.1 and 1		

<sup>1</sup> The value of Q<sub>3</sub> shall be chosen from the R5 line of ISO 3:1973.

<sup>2</sup> The ratio Q<sub>3</sub> / Q<sub>1</sub> shall be chosen from the R10 line from ISO 3:1973 and this value shall be higher than 40.

### 3. Test

Technical tests of the water meters type ERCIYES MJD-xx-T were performed in compliance with the International Recommendation OIML R 49 Edition 2006 (E) with conformity to EN 14154-1:2005+A2:2011, Test Report No. 6015-PT-P0033-14.



#### 4. The measuring device data

The water meters type ERCIYES MJD-xx-T shall be clearly and indelibly marked with the following information:

- The “CE” marking and supplementary metrology marking
- Number of EC-type examination certificate
- Manufacturer’s mark or name
- Year of manufacture (last two digit)
- 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 ( $U \times D \times$ )
- Orientation limitation (H / V)
- 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 head ring and adjusting screw has to be sealed on water meters types ERCIYES MJD-xx-T (E), ERCIYES MJD-xx-T (E5) and ERCIYES MJD-xx-T (Z).

The connection of water meter body and head ring has to be sealed and plastic clamp on cover has to be identified by safeguarding marks on water meters types ERCIYES MJD-xx-T (G).

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

The location of seal is described in Figure 7 and Figure 8.

Figure 1: The water meter type ERCIYES MJD-xx-T (E) with brass body– view:



Figure 2: The water meter type ERCIYES MJD-xx-T (E) with plastic body – view:



Figure 3: The water meter type ERCIYES MJD-xx-T (E) with vertical body – view:



Figure 4: The water meter type ERCIYES MJD-xx-T (E5) with inclined calculator – view:



Figure 5: The water meter type ERCIYES MJD-xx-T (G) – view:



Figure 6: The water meter type ERCIYES MJD-xx-T (Z) – view:



Figure 7: The sealing of the water meter type ERCIYES MJD-xx-T (E):



Figure 8: The sealing of the water meter type ERCIYES MJD-xx-T (G):





Figure 9: The dial plates of the water meter type ERCIYES MJD-xx-T with register 5+4:

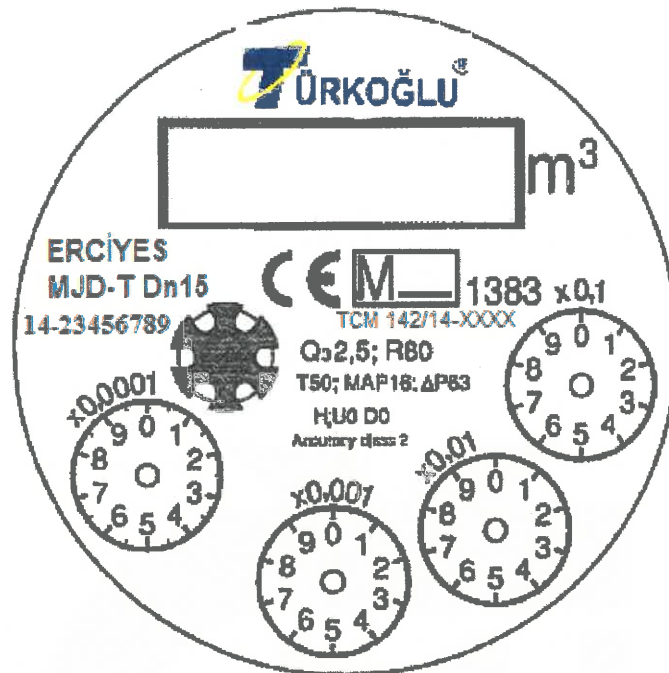


Figure 10: The dial plates of the water meter type ERCIYES MJD-xx-T with register 8+1:

