



OIML Member State
Czech Republic

OIML Certificate No.
R49/2013-A-CZ1-2021.03

OIML CERTIFICATE ISSUED UNDER SCHEME A

OIML Issuing Authority

Name: Czech Metrology Institute
Address: Okružní 31, 638 00 Brno, Czech Republic

Person responsible: Jan Kalandra

Applicant

Name: Zenner International GmbH & Co. KG
Address: Römerstadt 6; Saarbrücken PC: D 66121; Germany

Manufacturer

Name: Zenner International GmbH & Co. KG
Address: Römerstadt 6; Saarbrücken PC: D 66121; Germany

Identification of the certified type *(the detailed characteristics will be defined in the additional pages)*

water meter - multi jet, dry dial
type MTKD-S1

Designation of the module *(if applicable)*

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This OIML Certificate attests the conformity of the above identified type (represented by the sample(s) identified in the OIML type evaluation report) with the requirements of the following Recommendation of the International Organization of Legal Metrology (OIML):

OIML R 49

Edition (year): 2013

For accuracy class (if applicable): 2



This OIML Certificate relates only to metrological and technical characteristics of the type of measuring instrument covered by the relevant OIML Recommendation identified above.

This OIML Certificate does not bestow any form of legal international approval.

The conformity was established by the results of tests and examinations provided in the associated OIML type evaluation report:

- No. 0511-ER-V100-20 dated 15 September 2021 that includes 39 pages including annex 1
- Test report No. 6015-PT-P5003-21 that includes 97 pages including annexes 1 and 2

The technical documentation relating to the identified type is contained in documentation file:

0511-UL-V100-20

OIML Certificate History

Revision No.	Date	Description of the modification
Addition 0	8 October 2021	Issuing certificate

The OIML Issuing Authority

RNDr. Pavel Klenovský
Head of Certification Body

Date: 8 October 2021



Important note: Apart from the mention of the Certificate's reference number and the name of the OIML Member State in which the Certificate is issued, partial quotation of the Certificate and of the associated OIML type evaluation report(s) is not permitted, although either may be reproduced in full.

Measuring system description

The water meters type MTKD-S1 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 water meters type MTKD-S1 are multi jet rotary vane wheel water meters with dry mechanical indicating device.

The water meters type MTKD-S1 consist of measurement transducer, that is built in a brass body with a strainer and including an adjusting device, and a calculator with an indicating device and antimagnetic ring. The measurement transducer consists of an impeller box with tangential holes and with a stainless steel pin having a hard metal insert, an impeller with stainless steel axle, a permanent magnet and a bush with a stone and a pressure plate with a bush and a stone closing the water meter with an O-ring. Around the impeller box is a sealing ring separating the inlet and outlet chamber of the body.

The measurement transducer and the calculator are connected using a brass head ring or a protective hood with clips or a plastic lock ring around a protective hood. The mechanical indicating device is formed by numbered rollers with five black drums and two red drums and two pointers (model 7R) or with five black drums and three red drums and one pointer (model 8R).

The water meters type MTKD-S1 have following models of the indicating device:

- 7R MD with or without magnet pointer or modulator disc;
- 7R MD CC encased in a copper can and encapsulated by a glass or plastic hood; with or without modulator disc;
- 7R 45 MD inclined reading of numbered rollers; with or without magnet pointer or modulator disc;
- 7R 45 MD CC encased in a copper can and encapsulated by a glass or plastic hood; inclined reading of numbered rollers; with or without modulator disc;
- 8R MD with or without magnet pointer or modulator disc;
- 8R MD CC encased in a copper can and encapsulated by a glass or plastic hood; with or without modulator disc;
- 8R 45 MD inclined reading of numbered rollers; with or without magnet pointer or modulator disc;
- 8R 45 MD CC encased in a copper can and encapsulated by a glass or plastic hood; inclined reading of numbered rollers; with or without modulator disc.

For all registers and theirs versions (7R MD/ 8R MD/ 8R 45 MD) the hood and the bottom plate can be sealed by using an O-ring or both parts can be ultrasonic welded.

For all registers can be used a silica gel bag.

The adjustment works by using an adjusting screw. A sealed screw protects the access to the adjusting screw.

The water meters type MTKD-S1 shall be installed to operate in horizontal position with the indicating device positioned at the top. The water meters type MTKD-S1 are not designed to measure reverse flow.

Marking and inscriptions

The water meters types MTKD-S1 shall be clearly and indelibly marked with the following information:

- Unit of measurement (m^3)
- Numerical value Q_3 in m^3/h ($Q_3 \times \times$) and the ratio Q_3 / Q
- OIML certificate of conformity number
- Name of trademark of the manufacturer
- Year of manufacture, two last digits of the year of manufacture, or the month and year of manufacture and 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)
- Maximum admissible pressure (MAP $\times \times$)
- Letter H \uparrow (horizontal position with the indicating device at the top)
- The temperature class (T $\times \times$)
- The pressure loss class ($\Delta P \times \times$)



These markings shall comply with the requirements of OIML R 49 and shall be visible without dismantling the water meter after the instrument has been placed on the market or put into use.

Characteristics

Basic technical data of water meters types MTKD-S1:

Manufacturer:	Zenner International GmbH & Co. KG	
Model number:	MTKD-S1	
Dial types:	8R MD, 8R MD CC, 8R 45 MD, 8R 45 MD CC and 7R MD, 7R MD CC, 7R 45 MD, 7R 45 MD CC	
Nominal diameter:	15	
Type details:		
Q_1 [m ³ /h]:	flowrates are shown in Table <i>Basic metrological data</i> (flowrates)	
Q_2 [m ³ /h]:		
Q_3 [m ³ /h]:	1.6	2.5
Q_4 [m ³ /h]:	2.0	3.13
Q_3/Q_1 :	100; 80; 63; 50; 40	160; 125; 100; 80; 63; 50; 40
Q_2/Q_1 :	1.6	
Q_4/Q_3 :	1.25	
Measuring principle:	multi jet, dry dial	
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, T50	
Water pressure class:	MAP16	
Pressure loss class:	$\Delta P40$	$\Delta P63$
Environmental class:	-	
Electromagnetic environment:	-	
Mechanical class:	M1	
Maximum admissible temperature [°C]:	50	
Maximum admissible pressure [MPa]:	1.6	
Orientation limitation:	H↑ (horizontal position with the indicating device at the top)	
Indicating range [m ³]:	99 999	
Resolution of the indicating device [m ³]:	0.00002	
Resolution of the device for rapid testing [m ³]:	65.333	
EUT testing requirements (OIML R 49-2:2013, 8.1.8):		
Category:	Positive displacement meters and turbine water meters	
Case:	A	



Installation details:	
Connection type (screw thread):	G ¾ B
Minimum straight length of inlet pipe [mm]:	0
Minimum straight length of outlet pipe [mm]:	0
<i>Sensitivity classes:</i>	U0D0
Flow conditioner (details if required):	No
Mounting:	in line meter
Orientation:	H↑ (horizontal position with the indicating device at the top)
Other relevant information:	-
<i>Length [mm]:</i>	165, 170, 190

Basic metrological data (flowrates)

Manufacturer:	Zenner International GmbH & Co. KG												
Model number:	MTKD-S1												
Dial types:	8R MD, 8R MD CC, 8R 45 MD, 8R 45 MD CC and 7R MD, 7R MD CC, 7R 45 MD, 7R 45 MD CC												
<i>Nominal diameter:</i>	15												
Type details:													
Q_1 [m³/h]:	0.016	0.020	0.025	0.032	0.040	0.016	0.020	0.025	0.031	0.040	0.050	0.063	
Q_2 [m³/h]:	0.026	0.032	0.041	0.051	0.064	0.025	0.032	0.040	0.050	0.063	0.080	0.100	
Q_3 [m³/h]:	1.60	1.60	1.60	1.60	1.60	2.50	2.50	2.50	2.50	2.50	2.50	2.50	
Q_4 [m³/h]:	2.00	2.00	2.00	2.00	2.00	3.13	3.13	3.13	3.13	3.13	3.13	3.13	
Q_3/Q_1 :	100	80	63	50	40	160	125	100	80	63	50	40	

Securing components and verification marks

The MTKD-S1 meters have to be sealed by connecting the clips, lock or brass head screw ring to the adjusting screw using a wire with a lead seal such that the clips, lock or head ring and the adjusting screw cannot be turned without damaging the seal or the sealing wire.

