ICS 91.140.60 SLOVENSKÁ TECHNICKÁ NORMA November 2017

STN	**Vodomery na meranie studenej pitnej vody a teplej vody Časť 2: Skúšobné metódy (ISO 4064-2: 2014)**	**STN EN ISO 4064-2** 25 7728

Water meters for cold potable water and hot water - Part 2: Test methods (ISO 4064-2:2014)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 10/17

Obsahuje: EN ISO 4064-2:2017, ISO 4064-2:2014

Oznámením tejto normy sa ruší
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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 4064-2

May 2017

ICS 91.140.60

Supersedes EN ISO 4064-2:2014

English Version

Water meters for cold potable water and hot water - Part 2: Test methods (ISO 4064-2:2014)

Compteurs d'eau potable froide et d'eau chaude - Partie 2: Méthodes d'essai (ISO 4064-2:2014)

Wasserzähler zum Messen von kaltem Trinkwasser und heißem Wasser - Teil 2: Prüfverfahren (ISO 4064-2:2014)

This European Standard was approved by CEN on 11 May 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

The text of ISO 4064-2:2014 has been prepared by Technical Committee ISO/TC 30 “Measurement of fluid flow in closed conduits” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 4064-2:2017 by Technical Committee CEN/TC 92 “Water meters” the secretariat of which is held by SNV.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2017, and conflicting national standards shall be withdrawn at the latest by November 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 4064-2:2014.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directives, see informative Annex ZA, which is an integral part of this document.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 4064-2:2014 has been approved by CEN as EN ISO 4064-2:2017 without any modification.

Annex ZA
(informative)

Relationship between this European Standard and the essential requirements of Directive 2014/32/EU aimed to be covered

This European Standard has been prepared under a Commission's standardization request Mandate to CEN and CENELEC for standardisation in the field of measuring instruments "M/374 EN" to provide one voluntary means of conforming to essential requirements of Directive 2014/32/EC EU of the European Parliament and the Council of 26 February 2014 on measuring instruments (Text with EEA relevance).

Once this standard is cited in the Official Journal of the European Union under that Directive 2014/32/EU, compliance with the normative clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive 2014/32/EU, and associated EFTA regulations.

Introduction:

The column "Comment" the term "Addressed" indicates the compliance between EN ISO 4064-2:2014 and the relevant requirement in Directive 2014/32/EU. The term "Not (fully) addressed" indicates that compliance may not (fully) be realised, whilst "Addressed" may also be qualified in other ways. In the case the requirement is "Not fully addressed", a short statement may explain what is covered. The indication "Not applicable" means that the requirement in Annex I of Directive 2014/32/EU is not relevant for Water Meters

The original Directive 2004/22/EU had been amended by Directive 137/2009/EC. These have been fully replaced by Directive 2014/32/EU. This latest directive has already been amended by Directive 2015/13/EU.

The numbering in the first column will reflects the structure of the new Directive 2014/32/EU.

For purpose of cross-reference the second column indicates the structure of the original Directive 2004/22/EU.

Table ZA.1 — Correspondence between this European Standard and Annex I of Directive 2014/32/EU.

Essential Requirements (ERs) of Directive 32/2014/EU **Annex I Essential Requirements** **Note: Amended by Directive 2015/13/EU**	**Essential Requirements (ERs) of Directive 22/2004/EC** **Annex I Essential Requirements** **Note: Amended by Directive 2009/137**	**Clause(s)/subclause(s) of this EN**	**Qualifying remarks/Notes**
I.1.1 and 1.2 Allowable errors, Rated operating conditions	I.1.1 and 1.2 Allowable errors, Rated operating conditions	7.4 4	Reference conditions
I.1.3.1 Climatic environments, temperature limits	I.1.3.1 Climatic environments, temperature limits	8.2 8.3 8.4	Addressed
I.1.3.2 Mechanical environments	I.1.3.2 Mechanical environments	8.6 8.7	Addressed
I.1.3.3 Electromagnetic environments	I.1.3.3 Electromagnetic environments	8.5 8.8 8.9 8.10 8.11 8.12 8.13 8.14 8.15	Addressed
I.1.3.4 Other influences	I.1.3.4 Other influences	7.4.4 8.5.3 8.5.4	Addressed
I.1.4.1 Basic rules for testing	I.1.4.1 Basic rules for testing	7.2.2 7.4.2 7.4.3 7.4.4 7.4.5 8.1	Addressed
I.1.4.2 Ambient humidity	I.1.4.2 Ambient humidity	6.4 / 8.4	Addressed, damp heat cyclic only
I.2 Reproducibility	I.2 Reproducibility	EN ISO 4064-1, 7.2.9.3	Addressed
I.3 Repeatability	I.3 Repeatability	7.4.4 Covered by performance tests	Addressed via acceptance criteria of tests

I.4 Discrimination and sensitivity	I.4 Discrimination and sensitivity	6.4.3.6 Covered by performance tests	Addressed via acceptance criteria of tests
I.5 Durability	I.5 Durability	7.11	Addressed via acceptance criteria of tests
I.6 Reliability	I.6 Reliability	7.11	Addressed via acceptance criteria of tests
I.7 Suitability			
I.7.1 Fraudulent use	I.7.1 Fraudulent use	6.2 6.4.4 7.12	Addressed (sealing is addressed in 4064-1, 6.8)
I.7.2 Suitable for use	I.7.2 Suitable for use	6.4.3 7 8	Addressed
I.7.3 Unduly biasing	I.7.3 Unduly biasing	7.4 8.17	Addressed (test at Q4 in 7.4)
I.7.4 Insensitivity to measurand fluctuations	I.7.4 Insensitivity to measurand fluctuations	8.17	Typically not applicable however, absence of flow addresses in of EN ISO 4064-2, 8.17
I.7.5 Robustness and suitability of materials	I.7.5 Robustness and suitability of materials	Addressed by 7.11 and other parts sections 7 and 8	Also addressed in EN ISO 4064-1, 6.1
I.7.6 Allow for control after placing on the market	I.7.6 Allow for control after placing on the market.	6.4.3.6.1 6.4.3.6.2 6.4.4 Annex A	Also addressed in EN ISO 4064-1, 6.8
I.8.1 Not to be influenced in any admissible way	I.8.1 Not to be influenced in any admissible way	Not addressed in EN ISO 4064-2	Addressed in EN ISO 4064-1, 5.1.1 and 6.3
I.8.2 Securing of hardware components	I.8.2 Securing of hardware components	Not addressed in EN ISO 4064-2	Addressed in EN ISO 4064-1, 6.8
I.8.3 Securing and identification of software	I.8.3 Securing and identification of software	Not addressed in EN ISO 4064-2	Addressed in EN ISO 4064-1, 6.8
I.8.4 Measurement data adequately protected against corruption	I.8.4 Measurement data adequately protected against corruption	Not addressed in EN ISO 4064-2	Addressed in EN ISO 4064, 1, 6.8
I.8.5 Total quantity supplied not to be reset	I.8.5 Total quantity supplied not to be reset	Not addressed in EN ISO 4064-2	Addressed in EN ISO 4064-1, 6.8

I.9.1 Inscriptions	I.9.1 Inscriptions	6.4.2	Addressed
I.9.2 Marking of packaging and documents	I.9.2 Marking of packaging and documents	Not addressed in EN ISO 4064-2	Addressed in EN ISO 4064-1, 6.6
I.9.3 Information on operation	I.9.3 Information on operation	Not addressed in EN ISO 4064-2	Addressed EN ISO 4064-5, 4.2
I.9.4 Necessity of instruction manual	I.9.4 Necessity of instruction manual	Not addressed in EN ISO 4064-2	Addressed EN ISO 4064-5, 4.2
I.9.5 Scale interval for the measurand	I.9.5 Scale interval for the measurand	6.4.3.6.2.1	Addressed
I.9.6 Material measure	I.9.6 Unit of measurement	6.4.3.2	Addressed
I.9.7 Unit of measurement	I.9.7 Unit of measurement	Not addressed in EN ISO 4064-2	Addressed in EN ISO 4064-1, 6.7.1.2
I.9.8 Marking properties	I.9.8 Marking properties	6.4.2	Addressed
I.10.1 Display or hard copy	I.10.1 Display or hard copy	6.4.3	Addressed
I.10.2 Reading properties	I.10.2 Reading properties	6.4.3.1	Addressed
I.10.3 Hard-copy or print properties	I.10.3 Hard-copy or print properties	-	Not applicable
I.10.4 Direct sales trading transactions	I.10.4 Direct sales trading transactions	-	Not applicable
I.10.5 Properties of display for remote reading	I.10.5 Properties of display for remote reading	6.4.3	Addressed
I.11.1 Recording properties of non-utility measuring instrument	I.11.1 Recording properties of non-utility measuring instrument	-	Not applicable
I.11.2 Availability of durable proof of measurement result	I.11.2 Availability of durable proof of measurement result	-	Not applicable
I.12 Conformity evaluation	I.12 Conformity evaluation	10	Addressed also in EN ISO 4064-1, 3.6 and 7.3
Specific Requirements of Annex III for WATER METERS (MI-001)	**Specific Requirements of Annex MI-001 for WATER METERS**	**Clause(s)/subclause(s) of this European Standard**	**Qualifying remarks/Notes**
Rated Operating Conditions	Rated Operating Conditions	4	Reference conditions only
MI.1 Values of flow rate range Note: addresses amendment of Directive 2015/13/EU	MI.1 Values of flow rate range Note: addresses amendment of Directive 2015/13/EU	7.4	Addressed
MI.2 Temperature range of the water	MI.2 Temperature range of the water	7.5 7.6	Addressed
MI.3 Relative pressure of the	MI.3 Relative pressure of the	7.3	Addressed

water	water	7.7	
MI.4 Nominal value of AC voltage supply and limits of DC supply	MI.4 Nominal value of AC voltage supply and limits of DC supply	Not addressed in EN ISO 4064-2	But addressen in EN ISO 4064-5, 4.1
MI.5 MPE ± 2 % for water temperature ≤ 30 °C for flow rate between Q2 (included) and Q4	MI.5 MPE ± 2 % for water temperature ≤ 30 °C for flow rate between Q2 (included) and Q4	7.4.5	Addressed
MI.5 MPE ±3% for water temperature > 30 °C for flow rate between Q2 (included) and Q4	MI.5 MPE ±3% for water temperature > 30 °C for flow rate between Q2 (included) and Q4	7.4.5	Addressed
MI.6 MPE ± 5 % for any water temperature for flow rate between Q1 and Q2 (excluded)	MI.6 MPE ± 5 % for any water temperature for flow rate between Q1 and Q2 (excluded)	7.4.5	Addressed
MI.6 Non exploitation of MPE	(see: Directive 137/2009/EC Requirements below)		
MI.7.1.1 Electromagnetic immunity	MI.7.1.1 Electromagnetic immunity	8.1.3 8.12 8.13	Addressed
MI.7.1.2 Condition after electromagnetic disturbance	MI.7.1.2 Condition after electromagnetic disturbance	8.1.3 8.12 8.13	Addressed
MI 7.1.3 Critical change value	MI 7.1.3 Critical change value	8.1.3 8.12 8.13	Addressed
MI 7.2.1 Variation of measurement after durability	MI 7.2.1 Variation of measurement after durability	7.11	Addressed
MI 7.2.2 Error of indication after durability	MI 7.2.2 Error of indication after durability	7.11	Addressed
MI.8.1 Meter able to be installed in defined position	MI.8.1 Meter able to be installed in defined position	7.4	Addressed
MI.8.2 Meter is not designed to measure reverse flow	MI.8.2 Meter is not designed to measure reverse flow	7.8	Addressed
MI.9 Cubic metre	MI.9 Cubic metre	6.4.3.2	Addressed
MI 10 Putting into use	MI 10 Putting into use	Not addressed in EN ISO 4064-2	Addressed in EN ISO 4064-5, 6.2.6 and 8.3.2 and I.7
	Directive 137/2009/EC Requirements	Clause(s)/subclause(s) of this European Standard	Qualifying remarks/Notes
	MI 001 6a Exploitation of MPE	7.4.5b)	" non-exploitation of the maximum

			permissible errors", not addressed

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

INTERNATIONAL STANDARD

ISO 4064-2

Fourth edition
2014-06-01

Water meters for cold potable water and hot water —

Part 2: Test methods

Compteurs d'eau potable froide et chaude —

Partie 2: Méthodes d'essai

Reference number
ISO 4064-2:2014(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2, www.iso.org/directives.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received, www.iso.org/patents.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

The committees responsible for this document are Technical Committee ISO/TC 30, *Measurement of fluid flow in closed conduits*, Subcommittee SC 7, *Volume methods including water meters* and OIML Technical Subcommittee TC 8/SC 5 *Water meters*.

This fourth edition of ISO 4064-2 cancels and replaces the third edition (ISO 4064-2:2005), which has been technically revised. Provisions of the third edition are addressed in ISO 4064-5:2014.

ISO 4064 consists of the following parts, under the general title *Water meters for cold potable water and hot water*:

— *Part 1: Metrological and technical requirements*

— *Part 2: Test methods*

— *Part 3: Test report format*

— *Part 4: Non-metrological requirements not covered i*n ISO 4064-1

— *Part 5: Installation requirements*

This edition of ISO 4064-2 is identical with the corresponding edition of OIML R 49-2, which has been issued concurrently. OIML R 49-2 was approved for final publication by the International Committee of Legal Metrology at its 48th meeting in Ho Chi Minh City, Vietnam in October 2013 and will be submitted to the International Conference on Legal Metrology in 2016 for formal sanction.

INTERNATIONAL STANDARD **ISO 4064-2:2014(E)**

Water meters for cold potable water and hot water —

Part 2:
Test methods

1 Scope

This part of ISO 4064|OIML R 49 is applicable to the type evaluation and initial verification testing of water meters for cold potable water and hot water as defined in ISO 4064-1:2014|OIML R 49-1:2013. OIML Certificates of Conformity can be issued for water meters under the scope of the OIML Certificate System, provided that this part of ISO 4064|OIML R 49, ISO 4064-1:2014|OIML R 49-1:2013 and ISO 4064-3:2014|OIML R 49-3:2013 are used in accordance with the rules of the System.

This part of ISO 4064|OIML R 49 sets out details of the test programme, principles, equipment and procedures to be used for the type evaluation, and initial verification of a meter type.

The provisions of this part of ISO 4064|OIML R 49 also apply to ancillary devices, if required by national regulations.

The provisions include requirements for testing the complete water meter and for testing the measurement transducer (including the flow or volume sensor) and the calculator (including the indicating device) of a water meter as separate units.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4064-1:2014|OIML R 49-1:2013, *Water meters for cold potable water and hot water — Part 1: Metrological and technical requirements*

ISO 4064-3:2014|OIML R 49-3:2013, *Water meters for cold potable water and hot water — Part 3: Test report format*

ISO/IEC Guide 98-3:2008, *Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

IEC 60068-2-1, *Environmental testing — Part 2-1: Tests — Test A: Cold*

IEC 60068-2-2, *Environmental testing — Part 2-2: Tests — Test B: Dry heat*

IEC 60068-2-30, *Environmental testing — Part 2-30: Tests — Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

IEC 60068-2-31, *Environmental testing — Part 2-31: Tests — Test Ec: Rough handling shocks, primarily for equipment-type specimens*

IEC 60068-2-47, *Environmental testing — Part 2-47: Tests — Mounting of specimens for vibration, impact and similar dynamic tests*

IEC 60068-2-64, *Environmental testing — Part 2-64: Tests — Test Fh: Vibration, broadband random and guidance*

IEC 60068-3-4, *Environmental testing — Part 3-4: Supporting documentation and guidance — Damp heat tests*

IEC 60654-2, *Operating conditions for industrial process measurement and control equipment — Part 2: Power*

IEC 61000-2-1, *Electromagnetic compatibility (EMC) — Part 2: Environment — Section 1: Description of the environment — Electromagnetic environment for low-frequency conducted disturbances and signaling in public power supply systems*

IEC 61000-2-2, *Electromagnetic compatibility (EMC) — Part 2-2: Environment — Compatibility levels for low-frequency conducted disturbances and signaling in public low-voltage power supply systems*

IEC 61000-4-1, *Electromagnetic compatibility (EMC) — Part 4-1: Testing and measurement techniques — Overview of IEC 61000-4 series*

IEC 61000-4-2, *Electromagnetic compatibility (EMC) — Part 4-2: Testing and measurement techniques — Electrostatic discharge immunity test*

IEC 61000-4-3, *Electromagnetic compatibility (EMC) — Part 4-3: Testing and measurement techniques — Radiated, radio frequency, electromagnetic field immunity test*

IEC 61000-4-4, *Electromagnetic compatibility (EMC) — Part 4-4: Testing and measurement techniques — Electrical fast transient/burst immunity test*

IEC 61000-4-5, *Electromagnetic compatibility (EMC) — Part 4-5: Testing and measurement techniques — Surge immunity test*

IEC 61000-4-6, *Electromagnetic compatibility (EMC) — Part 4-6: Testing and measurement techniques — Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61000-4-11, *Electromagnetic compatibility (EMC) — Part 4-11: Testing and measurement techniques — Voltage dips, short interruptions and voltage variations immunity tests*

IEC 61000-6-1, *Electromagnetic compatibility (EMC) — Part 6-1: Generic standards — Immunity for residential, commercial and light-industrial environments*

IEC 61000-6-2, *Electromagnetic compatibility (EMC) — Part 6-2: Generic standards — Immunity for industrial environments*

OIML D 11:2004, *General requirements for electronic measuring instruments*

OIML G 13, *Planning of metrology and testing laboratories*