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Water meters for cold potable water and hot water - Part 2: Test methods (ISO 4064-2:2024)

Táto norma obsahuje anglickú verziu európskej normy.

This standard includes the English version of the European Standard.

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EN ISO 4064-2

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Supersedes EN ISO 4064-2:2017

English Version

**Water meters for cold potable water and hot water - Part
2: Test methods (ISO 4064-2:2024)**

Compteurs d'eau potable froide et d'eau chaude -
Partie 2: Méthodes d'essai (ISO 4064-2:2024)

Wasserzähler zum Messen von kaltem Trinkwasser
und heißem Wasser - Teil 2: Prüfverfahren (ISO 4064-
2:2024)

This European Standard was approved by CEN on 23 September 2024.

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN ISO 4064-2:2025 (E)

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European foreword

This document (EN ISO 4064-2:2025) has been prepared by Technical Committee ISO/TC 30 "Measurement of fluid flow in closed conduits" in collaboration with 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of an identical text or by endorsement, at the latest by August 2025, and conflicting national standards shall be withdrawn at the latest by August 2025.

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

This document supersedes EN ISO 4064-2:2017.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

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

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Endorsement notice

The text of ISO 4064-2:2024 has been approved by CEN as EN ISO 4064-2:2025 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/541 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.

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 and application of the edition of the normatively referenced standards as given in Table ZA.2 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.

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	Clause(s)/subclause(s) of this EN	Qualifying remarks/Notes
I.1.1 and 1.2 Allowable errors, Rated operating conditions	7.4 4	
I.1.3.1 Climatic environments, temperature limits	8.2 8.3 8.4	
I.1.3.2 Mechanical environments	8.6 8.7	
I.1.3.3 Electromagnetic environments	8.5 8.8 8.9 8.10 8.11 8.12 8.13 8.14 8.15 8.16	
I.1.3.4 Other influences	8.5.2 8.5.3 8.5.4	

I.1.4.1 Basic rules for testing	7.2.2 7.4.2 7.4.3 7.4.4 7.4.5 7.4.6 8.1	
I.1.4.2 Ambient humidity	4 8.4	
I.2 Reproducibility	7.10 8	
I.3 Repeatability	7.4.4	
I.4 Discrimination and sensitivity	6.4.3.6	
I.5 Durability	7.11	
I.6 Reliability	7.11	
I.7.1 Fraudulent use	6.2 6.4.4 7.12	
I.7.2 Suitable for use	6.4.3 7 8	
I.7.3 Unduly biasing	7.4 8.17	
I.7.5 Robustness and suitability of materials	7 8	
I.7.6 Allow for control after placing on the market	6.4.3 6.4.4 Annex A	
I.9.1 Inscriptions	6.4.2	
I.9.5 Scale interval for the measurand	6.4.3.6.2.1	
I.9.7 Unit of measurement	6.4.3.2	
I.9.8 Marking properties	6.4.2	
I.10.1 Display or hard copy	6.4.3	
I.10.2 Reading properties	6.4.3.1	
I.10.5 Properties of display for remote reading	6.4.3	
I.12 Conformity evaluation	9	
Specific Requirements of Annex III for WATER METERS (MI-001)	Clause(s)/subclause(s) of this European	Qualifying remarks/Notes

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	Standard	
MI.1 Values of flow rate range Note: addresses amendment of Directive 2015/13/EU	7.4	
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MI.3 Relative pressure of the water	7.3 7.7	
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MI.5 MPE ± 2 % for water temperature ≤ 30 °C for flow rate between Q2 (included) and Q4	7.4.5	
MI.5 MPE ± 3 % for water temperature > 30 °C for flow rate between Q2 (included) and Q4	7.4.5	
MI.6 MPE ± 5 % for any water temperature for flow rate between Q1 and Q2 (excluded)	7.4.5	
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MI 7.1.3 Critical change value	8.1.3 8.12 8.13	
MI 7.2.1 Variation of measurement after durability	7.11	
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MI.8.1 Meter able to be installed in defined position	7.4.2.2.7.5	
MI.8.2 Meter is not designed to measure reverse flow	7.8	
MI.9 Cubic metre	6.4.3.2	

Table ZA.2 — Normative references from Clause 2 of this document and their corresponding European publications

Column 1 Reference in Clause 2	Column 2 International Standard Edition	Column 3 Title	Column 4 Corresponding European Standard Edition
ISO 4064-1 OIML R 49-1	ISO 4064-1:2024 OIML R 49-1:2024	Water meters for cold potable water and hot water — Part 1: Metrological and technical requirements	EN ISO 4064-1:2025
ISO 4064-3	ISO 4064-3:2024	Water meters for cold potable water and hot water — Part 3: Test report format	EN ISO 4064-3:2025
ISO/IEC Guide 98-3:2008	ISO/IEC Guide 98-3:2008	Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)	None For applicable standard edition see Column 2
IEC 60068-2-1	IEC 60068-2-1:2007	Environmental testing — Part 2-1: Tests — Test A: Cold	EN 60068-2-1:2007
IEC 60068-2-2	IEC 60068-2-2:2007	Environmental testing — Part 2-2: Tests — Test B: Dry heat	EN 60068-2-2:2007
IEC 60068-2-30	IEC 60068-2-30:2005	Environmental testing — Part 2-30: Tests — Test Db: Damp heat, cyclic (12 h + 12 h cycle)	EN 60068-2-30:2005
IEC 60068-2-31	IEC 60068-2-31:2008	Environmental testing — Part 2-31: Tests — Test Ec: Rough handling shocks, primarily for equipment-type specimens	EN 60068-2-31:2008
IEC 60068-2-47	IEC 60068-2-47:2005	Environmental testing — Part 2-47: Tests — Mounting of specimens for vibration, impact and similar dynamic tests	EN 60068-2-47:2005
IEC 60068-2-64	IEC 60068-2-64:2008+AMD1:2019	Environmental testing — Part 2-64: Tests — Test Fh: Vibration, broadband random and guidance	EN 60068-2-64:2008+AMD1:2019
IEC 60068-3-4	IEC 60068-3-4:2001	Environmental testing — Part 3-4: Supporting documentation and	IEC 60068-3-4:2002

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Column 1 Reference in Clause 2	Column 2 International Standard Edition	Column 3 Title	Column 4 Corresponding European Standard Edition
		guidance — Damp heat tests	
IEC 60654-2	IEC 60654-2:1979	Operating conditions for industrial process measurement and control equipment — Part 2: Power	EN 60654-2:1997
IEC 61000-2-1	IEC TR 61000-2-1:1990	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	None For applicable standard edition see Column 2
IEC 61000-2-2	IEC 61000-2-2/AMD2:2018	Electromagnetic compatibility (EMC) — Part 2-2: Environment — Compatibility levels for low-frequency conducted disturbances and signaling in public low-voltage power supply systems	EN 61000-2-2/A2:2019 And EN 61000-2-2:2002/A1:2017
IEC 61000-4-1	IEC TR 61000-4-1:2016	Electromagnetic compatibility (EMC) — Part 4-1: Testing and measurement techniques — Overview of IEC 61000-4 series	None For applicable standard edition see Column 2
IEC 61000-4-2	IEC 61000-4-2:2008	Electromagnetic compatibility (EMC) — Part 4-2: Testing and measurement techniques — Electrostatic discharge immunity test	None For applicable standard edition see Column 2
IEC 61000-4-3	IEC 61000-4-3:2020	Electromagnetic compatibility (EMC) — Part 4-3: Testing and measurement techniques — Radiated, radio frequency, electromagnetic field immunity test	EN 61000-4-3:2006 and EN IEC 61000-4-3:2020 and EN 61000-4-3:2006/A2:2010 and

Column 1 Reference in Clause 2	Column 2 International Standard Edition	Column 3 Title	Column 4 Corresponding European Standard Edition
			EN 61000-4-3:2006/IS1:2009 And EN 61000-4-3:2006/A1:2008 (all Active!)
IEC 61000-4-4	IEC 61000-4-4:2012 LRV	Electromagnetic compatibility (EMC) — Part 4-4: Testing and measurement techniques — Electrical fast transient/burst immunity test	EN 61000-4-4:2012
IEC 61000-4-5	IEC 61000-4-5:2014+AMD1:2017 CSV	Electromagnetic compatibility (EMC) — Part 4-5: Testing and measurement techniques — Surge immunity test	EN 61000-4-5:2014/A1:2017
IEC 61000-4-6	IEC 61000-4-6:2013	Electromagnetic compatibility (EMC) — Part 4-6: Testing and measurement techniques — Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6:2014/AC:2015
IEC 61000-4-11	IEC 61000-4-11:2020 RLV	Electromagnetic compatibility (EMC) — Part 4-11: Testing and measurement techniques — Voltage dips, short interruptions and voltage variations immunity tests	EN 61000-4-11:2004/A1:2017 And EN IEC 61000-4-11:2020/AC:2020-06
IEC 61000-6-1	IEC 61000-6-1:2016 RLV	Electromagnetic compatibility (EMC) — Part 6-1: Generic standards — Immunity for residential, commercial and light-industrial environments	EN IEC 61000-6-1:2019
IEC 61000-6-2	IEC 61000-6-2:2016 RLV	Electromagnetic compatibility (EMC) — Part 6-2: Generic standards — Immunity for industrial environments	None For applicable standard edition see Column 2
OIML D 11:2004		General requirements for electronic measuring instruments	

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Column 1 Reference in Clause 2	Column 2 International Standard Edition	Column 3 Title	Column 4 Corresponding European Standard Edition
OIML G 13		Planning of metrology and testing laboratories	

The documents listed in the Column 1 of Table ZA.2, in whole or in part, are normatively referenced in this document, i.e. are indispensable for its application. The achievement of the presumption of conformity is subject to the application of the edition of Standards as listed in Column 4 or, if no European Standard Edition exists, the International Standard Edition given in Column 2 of Table ZA.2.

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

Water meters for cold potable water and hot water —

Part 2: Test methods

Compteurs d'eau potable froide et d'eau chaude —

Partie 2: Méthodes d'essai

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ISO 4064-2:2024(en)**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 document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by 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*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 92, *Water meters*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fifth edition of ISO 4064-2 cancels and replaces the fourth edition (ISO 4064-2:2014), which has been technically revised.

The main changes are as follows:

- a few editorial and technical changes were done throughout the document.

This edition of ISO 4064-2 is identical to 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 59th meeting in October 2024. It will be submitted to the International Conference on Legal Metrology in 2025 for formal sanction.

A list of all parts in the ISO 4064 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Water meters for cold potable water and hot water —

Part 2: Test methods

1 Scope

This document is applicable to the type evaluation and initial verification testing of water meters for cold potable water and hot water as defined in ISO 4064-1:2024|OIML R 49-1:2024. OIML Certificates of conformity can be issued for water meters under the scope of the OIML Certificate System, provided that this document, ISO 4064-1:2024|OIML R 49-1:2024 and ISO 4064-3:2024|OIML R 49-3:2024 are used in accordance with the rules of the system.

This document 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 document 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 are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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*

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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 61000-4-8, *Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test*

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

IEC 61000-4-20, *Electromagnetic compatibility (EMC) - Part 4-20: Testing and measurement techniques - Emission and immunity testing in transverse electromagnetic (TEM) waveguides*

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 11:2013, *General requirements for measuring instruments -Environmental conditions*

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

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

ISO 4064-3, *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)*

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