SLOVENSKI STANDARD
oSIST prEN ISO 4064-1:2011

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Vodomeri, namenjeni za merjenje hladne pitne vode in vroče vode - 1. del: Metodološke in tehnične zahteve (ISO/DIS 4064-1:2011)

Water meters intended for the metering of cold potable water and hot water - Part 1: Metrological and technical requirements (ISO/DIS 4064-1:2011)

Wasserzähler zum Messen von kaltem Trinkwasser und heißem Wasser - Teil 1: Metrologische und technische Anforderungen (ISO/DIS 4064-1:2011)

Compteurs d'eau potable froide et d'eau chaude - Partie 1: Exigences métrologiques et techniques (ISO/DIS 4064-1:2011)

Ta slovenski standard je istoveten z: **prEN ISO 4064-1**

ICS:

91.140.60	Sistemi za oskrbo z vodo	Water supply systems

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EUROPEAN STANDARD

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English Version

Water meters intended for the metering of cold potable water and hot water - Part 1: Metrological and technical requirements (ISO/DIS 4064-1:2011)

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This draft European Standard is submitted to CEN members for parallel enquiry. It has been drawn up by the Technical Committee CEN/TC 92.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (prEN ISO 4064-1:2011) 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 document is currently submitted to the parallel Enquiry.

This document will supersede EN 14154-1:2005+A2:2011, EN 14154-2:2005+A2:2011, EN 14154-3:2005+A2:2011.

Endorsement notice

The text of ISO/DIS 4064-1:2011 has been approved by CEN as a prEN ISO 4064-1:2011 without any modification.

DRAFT INTERNATIONAL STANDARD ISO/DIS 4064-1

ISO/TC **30**/SC **7** Secretariat: **BSI**

Voting begins on **2011-05-12** Voting terminates on **2011-10-12**

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Water meters intended for the metering of cold potable water and hot water —

Part 1: Metrological and technical requirements

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

Partie 1: Exigences métrologiques et techniques

[Revision of third edition (ISO 4064-1:2005)]

ICS 91.140.60

ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO-lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five-month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

Pour accélérer la distribution, le présent document est distribué tel qu'il est parvenu du secrétariat du comité. Le travail de rédaction et de composition de texte sera effectué au Secrétariat central de l'ISO au stade de publication.

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 4064-1 was prepared jointly 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*.

This fourth edition cancels and partially replaces the third edition (ISO 4064-1:2005), which has been technically revised. Some provisions of the third edition are addressed in the new Part 4.

This edition of ISO 4064-1 is identical with the corresponding edition of OIML R 49-1, which has been issued concurrently.

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

— *Part 1: Specification of metrological and technical requirements*

— *Part 2: Specification of test methods*

— *Part 3: Specification of test report format*

— *Part 4: Specification of non-metrological requirements not covered in Part 1*

— *Part 5: Specification of installation requirements*

Water meters intended for the metering of cold potable water and hot water —

Part 1: Metrological and technical requirements

1 Scope

1.1 This Part of ISO 4064/OIML R 49 applies to water meters used to meter the volume of cold potable water and hot water flowing through a fully charged, closed conduit. These water meters shall incorporate devices which indicate the integrated volume.

1.2 This Part of ISO 4064/OIML R 49 sets out the conditions with which the water meters shall comply to meet the requirements of the Services of Legal Metrology in countries where these instruments are subject to State controls.

1.3 This Part of ISO 4064/OIML R 49 also applies to water meters based on electrical or electronic principles, and to water meters based on mechanical principles incorporating electronic devices, used to measure the volume flow of hot water and cold potable water. It also applies to electronic ancillary devices. Ancillary devices are optional. However, national or regional regulations may make some ancillary devices mandatory in relation to the utilization of the water meter.

1.4 In addition to the requirements set out in this Part, the methods of examination and testing are included in Part 2, a test report format is given in Part 3, and there are additional technical requirements in Part 4 and installation requirements in Part 5.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 4064-2:201x, Water meters intended for the metering of cold potable water and hot water — Part 2: Test methods [≡OIML R 49-2:201x]

3 Terminology

The terminology used in this Part of ISO 4064/OIML R 49 conforms to the *International Vocabulary of Metrology – Basic and General Concepts and Associated Terms (VIM)* [1], the *International Vocabulary of Terms in Legal Metrology (VIML)* [2] and OIML International Document D 11. For clarification, some terms defined in [1-3] have been repeated here, replacing the term “measuring instrument” by the term “meter”.

For the purposes of this Part of ISO 4064/OIML R 49 the following definitions shall apply.

3.1 Water meter and its constituents

3.1.1
water meter
instrument intended to measure continuously, memorize and display the volume of water passing through the measurement transducer at metering conditions

NOTE 1 A water meter includes at least a measurement transducer, a calculator (including adjustment or correction devices, if present) and an indicating device. These three devices may be in different housings.

NOTE 2 A water meter may be a combination meter (see 3.1.16).

NOTE 3 In this Part of ISO 4064/OIML R 49 a water meter is also referred to as a “meter”.

3.1.2
measurement transducer
part of the meter that transforms the flowrate or volume of water to be measured into signals which are passed to the calculator and includes the sensor

NOTE The measurement transducer may function autonomously or use an external power source and may be based on a mechanical, electrical or electronic principle.

3.1.3
sensor
element of a measuring system that is directly affected by a phenomenon, body or substance carrying a quantity to be measured

[VIM:2007, 3.8]

NOTE For a water meter, the sensor may be a disc, piston, wheel, turbine element, electromagnetic coil or other element. It senses the flowrate or volume of water passing through the meter and is referred to as flow sensor or volume sensor.

3.1.4
calculator
part of the meter that transforms the output signals from the measurement transducer(s) and, possibly, from associated measuring instruments and, if appropriate, stores the results in memory until they are used

NOTE The calculator may be capable of communicating both ways with ancillary devices.

3.1.5
indicating device
part of the meter that provides an indication corresponding to the volume of water passing through the meter

NOTE For the definition of the term “indication”, see VIM:2007, 4.1.

3.1.6
adjustment device
part of the meter that allows an adjustment of the meter such that the error curve of the meter is generally shifted parallel to itself to fit in the envelope of the maximum permissible errors

NOTE For the definition of the term “adjustment”, see VIM:2007, 3.11.

3.1.7
correction device
device connected to or incorporated in the meter for automatic correction of the volume of water at metering conditions, by taking into account the flowrate and/or the characteristics of the water to be measured and the pre-established calibration curves

NOTE 1 The characteristics of the water (such as: temperature and pressure) may either be measured using associated measuring instruments, or be stored in a memory in the instrument.

NOTE 2 For the definition of the term “correction”, see VIM:2007, 2.53.

3.1.8
ancillary device
device intended to perform a specific function, directly involved in elaborating, transmitting or displaying measured values

NOTE 1 For the definition of “measured value”, see VIM:2007, 2.10.

NOTE 2 The main ancillary devices are:

a) zero setting device;

b) price indicating device;

c) repeating indicating device;

d) printing device;

e) memory device;

f) tariff control device;

g) pre-setting device;

h) self service device;

i) flow sensor movement detector (for detecting movement of the flow sensor before this is clearly visible on the indicating device); and

j) remote reading device (which may be incorporated permanently or added temporarily).

NOTE 3 Depending on national legislation, ancillary devices may, or may not be, subject to legal metrological control.

3.1.9
tariff control device
device that allocates measured values into different registers depending on tariff or other criteria, each register having the possibility to be read individually

3.1.10
pre-setting device
device that permits the selection of the quantity of water to be measured and which automatically stops the flow of water after the selected quantity has been measured

3.1.11
associated measuring instrument
instrument connected to the calculator or the correction device for measuring a quantity, characteristic of water, with a view to making a correction and/or a conversion

3.1.12
meter for two constant partners
meter that is permanently installed and only used for deliveries from one supplier to one customer

3.1.13
in-line meter
type of meter that is fitted into a closed conduit by means of the meter end connections provided

NOTE The end connections may be flanged or threaded.

3.1.14
complete meter
meter whose measurement transducer, calculator and indicating device are not separable

3.1.15
combined meter
meter whose measurement transducer, calculator and indicating device are separable.

3.1.16
combination meter
meter comprising one large meter, one small meter and a changeover device that, depending on the magnitude of the flowrate passing through the meter, automatically directs the flow through either the small or the large meter, or both

NOTE Meter reading is obtained from two independent totalizers or one totalizer, which adds up the values from both water meters.

3.1.17
equipment under test
EUT
complete meter, sub-assembly or ancillary device that is subjected to a test

3.1.18
concentric meter
type of meter that is fitted into a closed conduit by means of a manifold

NOTE The inlet and outlet passages of the meter and the manifold, at the interface between them, are coaxial.

3.1.19
(concentric meter) manifold
pipe fitting, specific to the connection of a concentric meter

3.1.20
cartridge meter
type of meter that is fitted into a closed conduit by means of an intermediate fitting called a connection interface

NOTE The inlet and outlet passages of the meter and the connection interface are either concentric or axial as detailed in Part 4 of this standard.

3.1.21
cartridge meter connection interface
pipe fitting specific to the connection of an axial or concentric cartridge meter

3.1.22
meter with exchangeable metrological unit
meter with $Q_3 \geq 16\ m^3/h$, comprising a connection interface and an exchangeable measuring unit from the same type approval, i.e. from the same manufacturer as a matter of principle

3.1.23
exchangeable metrological unit
self-contained unit comprising a measurement transducer and either an indicating device or a calculator and indicating device

3.1.24
connection interface for meters with exchangeable metrological units
pipe fitting specific to the connection of exchangeable metrological units

3.2 Metrological characteristics

3.2.1
actual volume
V_a
total volume of water passing through the meter, disregarding the time taken

NOTE 1 This is the measurand.

NOTE 2 The actual volume is calculated from a reference volume as determined by a suitable measurement standard, taking into account differences in metering conditions, as appropriate.

3.2.2
indicated volume
V_i
volume of water indicated by the meter, corresponding to the actual volume

3.2.3
primary indication
indication which is subject to legal metrological control

NOTE An indication may be a displayed, printed or memorized value.

3.2.4
error
measured quantity value minus a reference quantity value

[VIM:2007, 2.16]

NOTE 1 For the application of this Part of ISO 4064/OIML R 49 the indicated volume is considered as the measured quantity value and the actual volume as the reference quantity value. The difference between indicated volume and actual volume is referred to as: error (of indication).

NOTE 2 In this Part of ISO 4064/OIML R 49 the error (of indication) is generally expressed as a percentage, and is equal to

$$\frac{V_i - V_a}{V_a} \times 100\,\%$$

3.2.5
maximum permissible error (of indication)
MPE
extreme value of error (of indication) permitted by this Part of ISO 4064/OIML R 49

3.2.6
intrinsic error
error of a meter determined under reference conditions

[OIML D 11:2004, 3.7]

3.2.7
initial intrinsic error
intrinsic error of a meter as determined prior to performance tests and durability evaluations

[OIML D 11:2004, 3.8]

3.2.8
fault
difference between the error (of indication) and the intrinsic error of a meter