



# SLOVENSKI STANDARD SIST EN ISO 4373:2009

01-januar-2009

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## Hidrometrija - Naprave za merjenje višine gladine vode (ISO 4373:2008)

Hydrometry - Water level measuring devices (ISO 4373:2008)

Hydrometrie - Geräte zur Wasserstandsmessung (ISO 4373:2008)

Hydrométrie - Appareils de mesure du niveau de l'eau (ISO 4373:2008)

Ta slovenski standard je istoveten z: EN ISO 4373:2008

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### **ICS:**

17.120.20      Pretok v odprtih kanalih      Flow in open channels

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN ISO 4373**

October 2008

ICS 17.120.20

English Version

**Hydrometry - Water level measuring devices (ISO 4373:2008)**

Hydrométrie - Appareils de mesure du niveau de l'eau (ISO 4373:2008)

Hydrometrie - Geräte zur Wasserstandsmessung (ISO 4373:2008)

This European Standard was approved by CEN on 4 October 2008.

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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 Management Centre has the same status as the official versions.

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## Foreword

This document (EN ISO 4373:2008) has been prepared by Technical Committee ISO/TC 113 "Hydrometric determinations" in collaboration with Technical Committee CEN/TC 318 "Hydrometry" the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by April 2009, and conflicting national standards shall be withdrawn at the latest by April 2009.

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.

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# INTERNATIONAL STANDARD

**ISO  
4373**

Third edition  
2008-10-15

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## Hydrometry — Water level measuring devices

*Hydrométrie — Appareils de mesure du niveau de l'eau*

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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 4373 was prepared by Technical Committee ISO/TC 113, *Hydrometry*, Subcommittee SC 5, *Instruments, equipment and data management*.

This third edition cancels and replaces the second edition (ISO 4373:1995), which has been technically revised.

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# Hydrometry — Water level measuring devices

## 1 Scope

This International Standard specifies the functional requirements of instrumentation for measuring the level of water surface (stage), primarily for the purpose of determining flow rates. This International Standard is supplemented by an annex providing guidance on the types of water level measurement devices currently available and the measurement uncertainty associated with them (see Annex A).

## 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 772, *Hydrometry — Vocabulary and symbols*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60079-10, *Electrical apparatus for explosive gas atmospheres — Part 10: Classification of hazardous areas*

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## 3 Terms and definitions

For the purpose of this document, the terms and definitions given in ISO 772 apply.

## 4 Instrument specification

### 4.1 Performance classifications

The parameters of performance of a water level measuring device shall be described by the classification categories of uncertainty, temperature range and relative humidity so that the overall performance of the equipment may be summarized in three digits.

### 4.2 General

Water level measuring devices shall be classified in accordance with the performance classes given in Table 1 that account for the resolution to be achieved and the limits of uncertainty required over specified ranges.

It should be made clear whether these levels of attainment can only be achieved by the use of special works, for example installation within stilling wells. It is also important to remember that in the measurement of stage, uncertainty expressed as a percentage of range gives rise to worst case uncertainty in the determination of stage at low values of stage. This is highly significant for the measurement of low flows and should be taken into account in the design of equipment for this purpose.

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The manufacturer has to state the physical principle of the measuring device in order to allow the user to judge the device's suitability for the proposed environment.

**Table 1 — Performance classes of water level measuring devices**

Class	Resolution	Range	Nominal uncertainty
Performance class 1	1 mm	1,0 m	$\leq \pm 0,1$ % of range
	2 mm	5,0 m	
	10 mm	20 m	
Performance class 2	2 mm	1,0 m	$\leq \pm 0,3$ % of range
	5 mm	5,0 m	
	20 mm	20 m	
Performance class 3	10 mm	1,0 m	$\leq \pm 1$ % of range
	50 mm	5,0 m	
	200 mm	20 m	

### 4.3 Maximum rate of change

As water levels may rise and fall rapidly in some applications, in order to provide guidance on suitability, the manufacturer shall state on the equipment specification sheet and in the instruction manual:

- the maximum rate of change which the instrument can follow without damage;
- the maximum rate of change which the instrument can tolerate without suffering a change in calibration;
- the response time of the instrument.

### 4.4 Environment

#### 4.4.1 General

Water level measuring devices shall operate within the ranges of temperature in 4.4.2 and the ranges of relative humidity in 4.4.3.

#### 4.4.2 Temperature

Water level measuring devices shall operate within the following temperature classes:

Temperature class 1:  $-30$  °C to  $+55$  °C;

Temperature class 2:  $-10$  °C to  $+50$  °C;

Temperature class 3:  $0$  °C to  $+50$  °C.

#### 4.4.3 Relative humidity

Water level measuring devices shall operate within the following relative humidity classes:

Relative humidity class 1: 5 % to 95 % including condensation;

Relative humidity class 2: 10 % to 90 % including condensation;

Relative humidity class 3: 20 % to 80 % excluding condensation.