

STN	Hydrometrické určovania Meranie prietoku v otvorených korytách s použitím vodomerných konštrukcií Pokyny na výber vodomerných konštrukcií	STN ISO 8368 75 1308
------------	--	--

Hydrometric determinations
Flow measurements in open channels using structures
Guidelines for selection of structure

Déterminations hydrométriques
Mesure de débit dans les canaux découverts au moyen de structures
Lignes directrices pour le choix des structures

Táto slovenská technická norma obsahuje anglickú verziu medzinárodnej normy ISO 8368: 2019 a má postavenie oficiálnej verzie.

This Slovak standard includes the English version of the International standard ISO 8368: 2019 and has the status of the official version.

Nahradenie predchádzajúcich slovenských technických noriem

Táto slovenská technická norma nahrádza STN ISO 8368 z januára 2010 v celom rozsahu.

134842

Anotácia

Tento dokument poskytuje pokyny na výber príslušného typu vodomernej konštrukcie na meranie prietoku kvapalín v otvorených korytách. Jednoduchými netechnickými výrazmi popisuje, ako jednotlivé konštrukcie fungujú a stanovuje faktory a parametre, ktoré je potrebné vziať do úvahy na vykonanie informovaného rozhodnutia, aký typ konštrukcie použiť.

Hodnoty relevantných parametrov popisujúcich obmedzenia a neistoty spojené s používaním týchto štruktúr sa uvádzajú v tomto dokumente. Podrobnejšie detaily konkrétnych typov konštrukcií sa uvádzajú v jednotlivých normách, ktorých zoznam sa nachádza v tabuľke 1 a ktoré zahŕňajú každý typ konštrukcie.

Národný predhovor

Normatívne referenčné dokumenty

Nasledujúce dokumenty, celé alebo ich časti, sú v tomto dokumente normatívnymi odkazmi a sú nevyhnutné pri jeho používaní. Pri datovaných odkazoch sa použije len citované vydanie. Pri nedatovaných odkazoch sa použije najnovšie vydanie citovaného dokumentu (vrátane všetkých zmien).

POZNÁMKA 1. – Ak bola medzinárodná publikácia zmenená spoločnými modifikáciami, čo je indikované označením (mod), použije sa príslušná EN/HD.

POZNÁMKA 2. – Aktuálne informácie o platných a zrušených STN možno získať na webovom sídle www.unms.sk.

ISO 772 prijatá ako STN EN ISO 772 Hydrometria. Slovník a značky (ISO 772) (75 0100)

Vypracovanie slovenskej technickej normy

Spracovateľ: Úrad pre normalizáciu, metrológiu a skúšobníctvo SR, Bratislava

Technická komisia: TK 64 Hydrológia a meteorológia

Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols	1
5 Types of structure	2
5.1 General.....	2
5.2 Thin-plate weirs.....	3
5.3 Broad-crested weirs.....	3
5.4 Triangular-profile weirs.....	3
5.4.1 General.....	3
5.4.2 Streamlined triangular-profile weirs.....	4
5.4.3 Flat-V weirs.....	4
5.5 Trapezoidal-profile weirs.....	4
5.6 Flumes.....	4
5.7 End-depth method.....	4
5.8 Vertical underflow gates and radial gates.....	5
5.9 Compound gauging structures.....	5
5.10 Fish passes.....	5
6 Factors affecting choice	5
6.1 General.....	5
6.2 Intended purpose of the structure.....	6
6.3 Range of flow to be measured.....	14
6.4 Accuracy to which the flow is to be measured.....	15
6.5 Consideration of afflux and potential for submergence.....	15
6.6 Size and nature of channel.....	15
6.7 Channel slope and sediment load.....	16
6.8 Operation, maintenance and repair.....	16
6.9 Passage of fish.....	17
6.10 Whole life cost.....	17
7 Recommendations	18
7.1 Thin-plate weirs.....	18
7.1.1 General.....	18
7.1.2 Rectangular weirs.....	18
7.1.3 V-notch weirs.....	18
7.2 Broad-crested weirs.....	18
7.2.1 General.....	18
7.2.2 Round-nose weirs.....	18
7.2.3 Rectangular horizontal weirs.....	18
7.2.4 V-shaped weirs.....	18
7.2.5 Trapezoidal-profile weirs.....	19
7.3 Triangular-profile weirs.....	19
7.3.1 General.....	19
7.3.2 Streamlined triangular-profile weirs.....	19
7.3.3 Flat-V weirs.....	19
7.4 Flumes.....	19
7.4.1 General.....	19
7.4.2 Rectangular flumes.....	19
7.4.3 Trapezoidal flumes.....	20
7.4.4 U-throated flumes.....	20
7.4.5 Parshall and SANIIRI flumes.....	20

7.4.6	End-depth method	20
7.5	Compound gauging structures	20
7.6	Vertical underflow gates and radial gates	20
7.7	Larinier fish passes	20
8	Parameters governing choice of structures	20
	Bibliography	23

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 (see 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 (see 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.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 113, *Hydrometry*, Subcommittee SC 2, *Flow measurement structures*.

This third edition cancels and replaces the second edition (ISO 8368:1999), which has been technically revised.

The main changes from the previous edition are:

- the list of types of structure included in the text has been reviewed and the details of any structure that is no longer recommended for use have been removed;
- the technical details of all structures included in the text have been reviewed and updated where necessary;
- greater detail has been given to the considerations needed when evaluating the whole life cost of a structure;
- greater detail has also been given to the considerations needed when evaluating the impact of a structure on the environment, and the natural processes occurring in the channel.

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.

Introduction

Flow measuring structures are used worldwide to measure liquid flow in artificial channels in water treatment facilities, research laboratories and natural watercourses. The number of weirs and structures found in the artificial environment far exceeds the number of those found in the field. Whatever the application, however, the information they provide is put to a variety of uses, including:

- hydraulic research and liquid flow control;
- local specific water availability surveys;
- day-to-day management of water resources;
- waste water disposal;
- long-term strategic water resources planning.

The flow information is also used by government-sponsored environmental protection agencies that manage the natural water resources in a country or region and enforce environmental legislation. This is intended to maintain and preserve water quantity and quality in the natural environment.

Flow measuring structures can be installed by any interested party or user. This could be an environmental protection agency or private operator, such as a commercial organization or an individual. The user is therefore faced with the choice of which form of measuring structure to install. This document gives advice on which type of structure is the most appropriate to satisfy the needs of the application, within all other relevant constraints and limitations.

The technical detail given on each type of structure is, by intention, couched in simple terms. This is so that the non-specialist user can gain an understanding of what is involved in the selection and installation of flow measuring structures, without the need for an in-depth knowledge of fluid hydraulics. Hence, the document does not cover:

- the detailed hydraulics of operation of each type of structure;
- the detailed civil engineering requirements to be met during its construction.

The user is therefore directed to the specific standards that relate to each type of structure for this level of detail. These are listed in the Bibliography and given in [Tables 1](#) and [3](#) and [Figure 1](#). In this way, the user can be ensured of the most up-to-date details on the hydraulics of operation of each type of structure.

Hydrometric determinations — Flow measurements in open channels using structures — Guidelines for selection of structure

1 Scope

This document gives guidelines for selecting a particular type of flow measuring structure for measuring liquid flow in an open channel. It describes how the individual structures function in simple non-technical terms, and sets out the factors and parameters to take into account in order to make an informed decision on which type of structure to use.

Values of the relevant parameters describing the limitations and uncertainty involved in the use of these structures are given in this document. More definitive details of a particular type of structure are given in the individual standards listed in [Table 1](#), which cover each type of structure.

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.

ISO 772, *Hydrometry — Vocabulary and symbols*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN