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Hydrometry — Open channel flow measurement using thin-plate weirs

Hydrométrie — Mesure de débit dans les canaux découverts au moyen de déversoirs à paroi mince

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Foreword

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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).

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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 1438:2008), which has been technically revised. It also incorporates the Technical Corrigendum ISO 1438:2008/Cor 1:2008.

The major changes from ISO 1438:2008 are as follows:

a) the modular flow discharge formula for weirs with weir plate height of 1 m ≤ p ≤ 2,5 m has been supplemented in 9.7.1;

b) the C_d formula for rectangular weir with b/B = 1,0, Formula (5), has been corrected to the same formula as the full-width weir, Formula (15);

c) subclause numbers of 9.6 have been re-numbered.

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Hydrometry — Open channel flow measurement using thin-plate weirs

1 Scope

This document defines the requirements for the use of rectangular and triangular (V-notch) thin-plate weirs for the measurement of flow of clear water in open channels under free flow conditions. It includes the requirements for the use of full-width rectangular thin-plate weirs in submerged (drowned) flow conditions.

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*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

4 Symbols and abbreviated terms

Symbol	Unit	Description
A	m^2	Area of approach channel
B	m	Width of approach channel
b	m	Measured width of the notch
b_{max}	m	Width of notch at maximum head (V-notch)
C		Discharge coefficient (gauged head)
C_d		Coefficient of discharge
f		Drowned flow reduction factor
C_v		Coefficient of velocity
e_b	m	Random uncertainty in the width measurement
g	m/s^2	Acceleration due to gravity
H	m	Total head above crest level
h	m	Upstream gauged head above crest level (upstream head is inferred if no subscript is used)
J		Numerical constant
l	m	Distance of the head measurement section upstream of the weir
n		Number of measurements in a set
p	m	Height of the crest relative to the floor
Q	m^3/s	Volumetric rate of flow

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