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Hydrometry — Liquid flow measurement using end depth method in channels with a free overfall

Hydrométrie — Mesure du débit liquide dans les chenaux à déversoir sans pelle

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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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 first edition of ISO 18481 cancels and replaces ISO 3847:1977 and ISO 4371:1984, which have been merged and technically revised.

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Hydrometry — Liquid flow measurement using end depth method in channels with a free overfall

1 Scope

This document specifies a method for the estimation of the sub-critical flow of clear water in a smooth, essentially horizontal channel (or a gently sloping channel), abruptly discontinued at bottom by a hydraulic structure, with a vertical drop and discharging freely. Such an overfall forms a control section and offers a means for the estimation of flow using the end depth measurement method. A wide variety of channel cross-sections with overfall have been studied, but only those which have received general acceptance after adequate research and testing, and therefore do not require in situ calibration, are considered. This document covers channels with the following types of cross-sections:

a) rectangular with confined and unconfined nappe;

b) trapezoidal;

c) triangular;

d) circular;

e) parabolic.

The flow at the brink is curvilinear; therefore, the measured depth at the drop is not equal to the critical depth as computed by the principle based on assumption of parallel flow. However, the end depth and the critical depth (as in the case of the assumption of parallel flow) have unique relation, which is used to estimate the flow through these structures.

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 https://www.iso.org/obp

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