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Measurement of water flow in open channels

Part 3.6: Velocity-area methods — Measurement of flow under tidal conditions (ISO 2425:2010, IDT)

AS 3778.3.6:2022

This Australian Standard ® was prepared by CE-024, Measurement Of Water Flow In Open Channels and Closed Conduits. It was approved on behalf of the Council of Standards Australia on 30 May 2022.

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Australian Bureau of Meteorology
Australian Hydrographers Association
Australian Industry Group
Department of Planning, Industry and Environment, NSW
Engineers Australia
Institute of Instrumentation, Control & Automation Australia
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Preface

This Standard was prepared by the Standards Australia Committee CE-024, Measurement of water flow in open channels and closed conduits, to supersede AS 3778.3.6:2001, *Measurement of water flow in open channels, Part 3.6: Velocity-area methods — Measurement of flow in tidal channels.*

The objective of this document is to provide a summary of recommended methods for the determination of liquid flow in tidal channels, special consideration being given to those techniques that are either unique to or particularly appropriate for application under tidal conditions, including treatment of uncertainties.

Reference is also made, where appropriate, to methods for the determination of flow in non-tidal channels, but attention is drawn to their limitations with respect to practicality and/or uncertainty.

This document does not describe alternative methods, such as the use of weirs, flumes, dilution gauging, salt velocity and floats, although they might be suitable under certain conditions, especially where the effect of tides only impedes and does not stop or reverse the passage of stream flow. These methods are described in detail in other International Standards.

This document specifies techniques for single measurements of tidal flow and continuous measurement of tidal flow.

This document is identical with, and has been reproduced from, ISO 24.35:2010, *Hydrometry — Measurement of liquid flow in open channels under tidal conditions*.

As this document has been reproduced from an International document, the following apply:

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(b) A full point substitutes for a comma when referring to a decimal marker.

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The terms "normative" and "informative" are used in Standards to define the application of the appendices or annexes to which they apply. A "normative" appendix or annex is an integral part of a Standard, whereas an "informative" appendix or annex is only for information and guidance.

Contents

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 2425 was prepared by Technical Committee ISO/TC 113, *Hydrometry*, Subcommittee SC 1, *Velocity area methods*.

This third edition cancels and replaces the second edition (ISO 2425:1999), which has been technically revised. It also incorporates the Amendment ISO 2425:1999/Amd.1:2016. Annex D on measurement of tidal flow using an acoustic Doppler velocity meter has been added.

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1 Scope

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This International Standard specifies two types of technique:

a) techniques for single measurements of tidal flow;

b) techniques for continuous measurement of tidal flow.

Annex A specifies the cubature method of measurement. Annex B specifies methods for the determination of flow under tidal conditions, and Annex C gives an example of the computation for a single vertical. Similar computations are possible for other verticals. Annex D describes the determination of tidal flow using an acoustic Doppler velocity meter.

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 748:2007, *Hydrometry — Measurement of liquid flow in open channels using current-meters or floats*

ISO 772, *Hydrometry — Vocabulary and symbols*

ISO 1100-1, *Measurement of liquid flow in open channels — Part 1: Establishment and operation of a gauging station*

ISO 6416, *Hydrometry — Measurement of discharge by the ultrasonic (acoustic) method*

3 Terms and definitions

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

4 Abbreviated terms

ADCP	acoustic Doppler current profiler
ADP	acoustic Doppler profiler