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ISO 2537:2007

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Measurement of water flow in open channels

Part 6.1: Measuring devices, instruments and equipment — Rotating-element current meters (ISO 2537:2007, IDT)

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National Measurement Institute
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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 3778.6.1—1992, *Measurement of water flow in open channels, Part 6.1: Measuring devices, instruments and equipment — Rotating-element current meters.*

The objective of this document is to specify the operational requirements, construction, calibration, and maintenance of rotating-element devices for the measurement of flow velocities in open channels.

This document is identical with, and has been reproduced from, ISO 2537:2007, *Hydrometry — Rotating-element current-meters*.

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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 2537 was prepared by Technical Committee ISO/TC 113, *Hydrometry*, Subcommittee SC 5, *Instruments, equipment and data management*.

This fourth edition cancels and replaces the third edition (ISO 2537:1988), which has been technically revised.

Australian Standard®

Measurement of water flow in open channels

Part 6.1: Measuring devices, instruments and equipment — Rotating-element current meters (ISO 2537:2007, IDT)

1 Scope

This International Standard specifies the operational requirements, construction, calibration, and maintenance of rotating-element devices for the measurement of flow velocities in open channels.

ISO 748 gives information on the use of these devices.

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, *Hydrometric determinations — Vocabulary and symbols*

ISO 3454, *Hydrometry — Direct depth sounding and suspension equipment*

ISO 3455, *Hydrometry — Calibration of current-meters in straight open tanks*

3 Terms and definitions

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

3.1
propeller pitch
distance the propeller current-meter effectively moves through the water during one revolution

4 Principle of operation

4.1 Proportionality

The rotating element of a current-meter is driven by the fluid at an angular velocity that is proportional to the local velocity of the fluid at the point of immersion when that velocity exceeds a critical value.

4.2 Flow velocity

In order to determine the velocity of the fluid, a current-meter is placed at a point in a stream and the number of revolutions of the rotor during a specified time interval is counted or the time required by the rotor to turn a given number of revolutions is observed. The velocity is obtained from the current-meter calibration table or calibration equation(s), established experimentally during its calibration (clause 9). The number of current-meter revolutions (rotations) may be determined by sensing the signals emitted (such as electrical pulses) through the rotation of the rotor by using a suitable counting device. The velocity can be determined from a direct reading of the speed of rotation of the rotating element by means of equipment designed for this purpose.