INTERNATIONAL STANDARD

ISO 3354

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Measurement of clean water flow in closed conduits — Velocity-area method using current-meters in full conduits and under regular flow conditions

Mesurage de débit d'eau propre dans les conduites fermées — Méthode d'exploration du champ des vitesses dans les conduites en charge et dans le cas d'un écoulement régulier, au moyen de moulinets

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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.

This International Standard was prepared by Technical Committee ISO/TC 30, *Measurement of fluid flow in closed conduits*, Subcommittee SC 5, *Velocity and mass methods*.

This third edition results from the reinstatement of ISO 3354:1988 which was withdrawn in 2003 and with which it is technically identical.

Measurement of clean water flow in closed conduits — Velocity-area method using current-meters in full conduits and under regular flow conditions

1 Scope

This International Standard specifies a method for the determination of the volume flow-rate in a closed conduit by means of the velocity-area method using propeller-type current-meters under the following conditions:

a) the velocity distribution is regular (see 6.1.2);

b) the fluid is water which is clean or considered to be clean [1];

c) the conduit is full;

d) the flow is steady [2].

It deals in particular with the technology and calibration of propeller-type current-meters, the measurement of local velocities and the calculation of the flow-rate by velocity integration.

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

ISO 4006, *Measurement of fluid flow in closed conduits — Vocabulary and symbols*

ISO 5168, *Measurement of fluid flow — Procedures for the evaluation of uncertainties*

ISO 7194, *Measurement of fluid flow in closed conduits — Velocity-area methods of flow measurement in swirling or asymmetric flow conditions in circular ducts by means of current-meters or Pitot static tubes*

1) This method may be applied to other single-phase fluids but special precautions should be taken in this case.

2) The steady flows observed in conduits are in practice flows in which quantities such as velocity, pressure, density and temperature vary in time about mean values independent of time; these are actually “mean steady flows”.