
Hydrometry — Calibration of current- meters in straight open tanks

*Hydrométrie — Étalonnage des moulinets en bassins découverts
rectilignes*



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2007

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword.....	iv
1 Scope	1
2 Normative reference	1
3 Terms and definitions.....	1
4 Principle of calibration	1
5 Design criteria for calibration stations	1
5.1 Dimensions of rating (calibration) tank	1
5.2 Rating carriage (trolley).....	3
5.3 Measuring equipment.....	4
5.4 Other requirements.....	5
6 Computerized data acquisition and processing system	6
6.1 Data acquisition	6
6.2 Data processing	6
7 Calibration procedure.....	7
7.1 Calibration of rotating-element current-meters	7
7.2 Calibration of electromagnetic meters	13

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 3455 was prepared by Technical Committee ISO/TC 113, *Hydrometry*, Subcommittee SC 5, *Instruments, equipment and data management*.

This second edition cancels and replaces the first edition (ISO 3455:1976), which has been technically revised.

Hydrometry — Calibration of current-meters in straight open tanks

1 Scope

This International Standard specifies the procedure of calibration of current-meters of rotating-element type as well as stationary-sensor type (electromagnetic type) in straight open tanks. It also specifies the types of tank, rating carriage and equipment to be used and the method of presenting the results.

The procedure does not take into account any possible difference existing between the behaviour of a current-meter moving in motionless water and that of a fixed current-meter in turbulent flow.

2 Normative reference

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 2537, *Hydrometry — Rotating-element current-meters*

3 Terms and definitions

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

4 Principle of calibration

Calibration of a current-meter means experimental determination of the relationship between liquid velocity and either the rate of revolution of the rotating element or the velocity directly indicated by the current-meter. For this purpose, the current-meter is mounted on a towing carriage and drawn through still water contained in a straight tank of a uniform cross section at a number of steady speeds of the towing carriage. Simultaneous measurements of the speed of the towing carriage and the rate of revolution of the rotating element or the velocity indicated by the current-meter are made. In the case of rotating-element current-meters, the two parameters are related by one or more equations, the limits of validity of which are stated. In the case of stationary-sensor type current-meters, the velocity indicated by its display unit is compared with the corresponding carriage speed to know the error in measurement.

5 Design criteria for calibration stations

5.1 Dimensions of rating (calibration) tank

5.1.1 General

The dimensions of the tank and the number and relative position of current-meters in the tank cross section shall be chosen so that the test results are not affected.