
Hydrometry — Position fixing equipment for hydrometric boats

*Hydrométrie — Système de positionnement pour embarcation
hydrométriques*

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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.

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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on 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.

The committee responsible for this document is Technical Committee ISO/TC 113, *Hydrometry*, Subcommittee SC 5, *Instruments, equipment and data management*.

This second edition of ISO 6420 cancels and replaces ISO 6420:1984, which has been technically revised. The following major changes have been made:

- information on the use of global navigation satellite systems has been added;
- the former Annexes A and B have been removed;
- the treatment of uncertainty has been expanded and aligned with ISO/TS 25377.

Introduction

The necessity of positioning hydrometric boats arises in several types of measurements on open channels or lakes, reservoirs and estuaries. First, it is necessary to position a boat on a measuring section in order to conduct the appropriate observations of velocity and depth for a discharge measurement. Position fixing also is required for collecting suspended sediment and bedload samples at appropriate verticals on a river cross section. Similarly, positioning of a boat is needed for morphological surveys and sediment sampling of lakes, reservoirs and estuaries.

This document provides information for positioning hydrometric boats with various methods ranging from standard surveying equipment to navigation systems employing signals from the constellation of satellites.

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Hydrometry — Position fixing equipment for hydrometric boats

1 Scope

This document specifies methods of determining the position of hydrometric boats based on satellite navigation systems and/or with respect to known points on the banks of rivers, estuaries or lakes. It applies to electronic positioning equipment and conventional surveying techniques.

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

3 Terms and definitions

For the purpose 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:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Requirements for position fixing

The necessity of using position fixing equipment arises in two types of measurements on open channels or lakes, reservoirs and estuaries.

First, it is necessary to position a boat on a measuring section in order to conduct the appropriate observations of velocity and depth for a discharge measurement (as specified in ISO 748). The use of acoustic Doppler current profilers for making discharge measurements (see ISO/TR 24578) has largely diminished the need for position fixing equipment for hydrometric boats when making discharge measurements. However, there are still some types of measurements when verticals on a cross section have to be positioned for velocity and depth determinations. Position fixing also is required for collecting suspended sediment and bedload samples at appropriate verticals.

The second type of measurements requiring position fixing are morphological surveys of lakes, reservoirs and estuaries. Position fixing is required to determine the positions at which depth observations and bottom samples are obtained.

5 Position fixing equipment for streamgauging and sediment sampling

5.1 General

There are different types of position-fixing equipment. This clause describes the following: measuring tapes, tag lines, global navigation satellite systems (GNSS), a combination of targets and electronic distance measuring equipment, electronic surveying equipment, and theodolites and stadia rods.