

Measurement of liquid flow in open channels — Stage-fall-discharge relationships

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National foreword

This British Standard reproduces verbatim ISO 9123:2001 and implements it as the UK national standard.

The UK participation in its preparation was entrusted by Technical Committee CPI/113, Hydrometry, to Subcommittee CPI/113/1, Velocity-area methods, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

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Measurement of liquid flow in open channels — Stage-fall-discharge relationships

*Mesure de débit des liquides dans les canaux découverts — Relations
hauteur-chute-débit*



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Contents

	Page
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Units of measurement	1
5 General considerations	1
6 Unit-fall method	3
7 Constant-fall method	5
8 Variable-fall method	9
9 Rating curves and tables	14
10 Method of computation	14
11 Periodic checking of stage-fall-discharge ratings	14
12 Extrapolations	14
13 Uncertainties	14

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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 9123 was prepared by Technical Committee ISO/TC 113, *Hydrometric determinations*, Subcommittee SC 1, *Velocity area methods*.

This first edition of ISO 9123 cancels and replaces Technical Report ISO/TR 9123:1986, which has been technically revised.

Measurement of liquid flow in open channels — Stage-fall-discharge relationships

1 Scope

This International Standard specifies methods for determining stage-fall-discharge relationships for a stream reach where variable backwater occurs either intermittently or continuously. Two gauging stations, a base reference gauge and an auxiliary gauge are required for gauge height measurements. A number of discharge measurements are required in order to calibrate the rating to the accuracy required by this International Standard.

The preparation of rating curves is not described in detail in this International Standard.

NOTE For a more detailed description of preparing rating curves, see the methods described in ISO 1100-2

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 772, *Hydrometric determinations — Vocabulary and symbols*.

ISO 1000, *SI units and recommendations for the use of their multiples and of certain other units*.

ISO 1100-2, *Measurement of liquid flow in open channels — Part 2: Determination of the stage-discharge relation*.

3 Terms and definitions

For the purposes of this International Standard, the terms and definitions and symbols given in ISO 772 apply. Note, however that the application of the definition of backwater given in ISO 772 to the determination of discharge under intermittent or continuous backwater conditions should take into account that a higher gauge height would prevail for a given discharge than would be the case if the variable backwater was not present.

4 Units of measurement

The International System of Units (SI System) is used in this International Standard in accordance with ISO 1000.

5 General considerations

5.1 Importance of backwater

Most programmes for collecting records of discharge of streams are based on the fact that a relatively simple relationship exists between gauge height and discharge so that, by simply recording gauge height and developing the stage-discharge relationship, a continuous record of discharge can be computed. Several factors, however, can cause scatter of discharge measurements about the stage-discharge relationship at some stations. Backwater is one