
International Standard 3454

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Liquid flow measurement in open channels — Direct depth sounding and suspension equipment

Mesure de débit des liquides dans les canaux découverts — Matériel de sondage et de suspension pour le mesurage direct de la profondeur

Second edition — 1983-08-01

UDC 532.574.1

Ref. No. ISO 3454-1983 (E)

Descriptors : liquid flow, open channel flow, flow measurement, measuring instruments, sounding equipment, suspended elements.

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3454 was developed by Technical Committee ISO/TC 113, *Measurement of liquid flow in open channels*, and was circulated to the member bodies in April 1982.

It has been approved by the member bodies of the following countries :

Australia	Germany, F. R.	South Africa, Rep. of
Belgium	India	Switzerland
China	Italy	United Kingdom
Czechoslovakia	Korea, Dem. P. Rep. of	USA
Egypt, Arab Rep. of	Netherlands	USSR
France	Romania	

No member body expressed disapproval of the document.

This second edition cancels and replaces the first edition (i.e. ISO 3454-1975).

Contents

	Page
0 Introduction	1
1 Scope and field of application	1
2 Units of measurement	1
3 References	1
4 Definitions, symbols and abbreviations	1
5 Sounding equipment	1
5.1 General	1
5.2 Sounding rod	1
5.3 Sounding cable and weight	1
6 Suspension equipment	1
6.1 General requirements	1
6.2 Rod suspension equipment	2
6.3 Cable suspension equipment	2
7 Cable measurement corrections	2
8 Specific requirements	2
8.1 Rods for sounding and suspension	2
8.2 Cable sounding and suspension equipment	2
8.3 Sounding weights	3
Annex	
Estimation of sounding weight mass to suit velocity and depth	4

This document is a preview generated by EVS

This page intentionally left blank

Liquid flow measurement in open channels — Direct depth sounding and suspension equipment

0 Introduction

The object of sounding is to obtain the correct vertical depth of water from the surface to the bed, irrespective of the depth and velocity of flow. A sounding rod or a sounding cable and weight may be used for this purpose. The choice depends on the velocity and depth of flow.

1 Scope and field of application

This International Standard specifies functional requirements of sounding and suspension equipment used in the direct measurement of depth and velocity of flow in open channels, including the collection of sediment samples.

It applies to equipment used for sounding of water depth by the direct method and to equipment for suspending measuring or sampling instruments (for example current meter or sediment sampler) at the point of measurement. It does not apply to indirect methods such as echo sounding.

2 Units of measurement

The units of measurement used are SI units.

3 References

ISO 748, *Liquid flow measurement in open channels — Velocity-area methods.*

ISO 772, *Liquid flow measurement in open channels — Vocabulary and symbols.*

ISO 4375, *Measurement of liquid flow in open channels — Cableway system for stream gauging.*

4 Definitions, symbols and abbreviations

The definitions, symbols and abbreviations given in ISO 772 shall apply.

5 Sounding equipment

5.1 General

Sounding rods or cables may be used for suspending, measuring and sampling equipment. Requirements, limitations and corrections common to suspension and sounding are considered below.

5.2 Sounding rod

A sounding rod is rigid in construction. It may be hand-held and hand-operated or provided with a support and mechanically operated. A hand-held rod generally would not be used in depths exceeding 3 m and velocities exceeding 2 m/s. A supported, mechanically operated rod is generally suitable for depths up to 6 m and velocities up to 2 m/s. A wading rod may be used in shallow streams suitable for wading.

5.3 Sounding cable and weight

A sounding cable and weight may be used in situations where depths and velocities preclude the use of a sounding rod. In use, however, a sounding cable is subject to drag and a streamlined weight of sufficient mass should be attached to maintain the cable in a position as near to the vertical as possible. The sounding weight required will increase with water depth and velocity.

There is no precise rule for the choice of a suitable mass of sounding weight but general guidance is given in the annex.

6 Suspension equipment

6.1 General requirements

Suspension equipment should

- be such that the suspended measuring or sampling device may be placed at a selected depth and position without causing undue disturbance to the device, irrespective of the depth and velocity;
- maintain the measuring or sampling device stable at the selected depth and position during the period of observation.