

AS 3778.3.5—1990
ISO TR7178: 1983

Australian Standard®

**Measurement of water flow in
open channels**

**Part 3: Velocity-area methods
Method 3.5: Investigation of total
error**

This Australian Standard was prepared by Committee CE/24, Measurement of Water Flow in Open Channels and Closed Conduits. It was approved on behalf of the Council of Standards Australia on 9 April 1990 and published on 10 December 1990.

The following interests are represented on Committee CE/24:

Association of Consulting Engineers of Australia
Australian Water and Wastewater Association
Board of Works, Melbourne
Department of Water Resources, NSW
Engineering and Water Supply Department of South Australia
Forestry Commission, NSW
Institute of Instrumentation and Control
Monash University
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Snowy Mountains Engineering Corporation
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PREFACE

This Standard was prepared by the Standards Australia Committee on Measurement of Water Flow in Open Channels and Closed Conduits. It is identical with and has been reproduced from ISO TR 7178—1983, *Liquid flow measurement in open channels—Velocity-area methods—Investigation of total error*.

This Standard is one of a series which deals with methods of measurement of water flow in open channels. The series when complete will consist of the following parts:

- Part 1: Vocabulary and symbols
- Part 2.1: General—Guidelines for the selection of methods of measurement
- Part 2.2: General—Establishment and operation of a gauging station
- Part 2.3: General—Determination of the stage-discharge relation
- Part 2.4: General—Estimation of uncertainty of a flow-rate measurement
- Part 2.5: General—Guidelines for the selection of flow gauging structures
- Part 3: Velocity-area methods—
 - Method 3.1: Measurement by current-meters and floats
 - Method 3.2: Measurement by moving-boat method
 - Method 3.3: Measurement by slope-area method
 - Method 3.4: Collection and processing of data for determination of errors in measurement
 - Method 3.5: Investigation of total error (this Standard)
 - Method 3.6: Measurement of flow in tidal channels
 - Method 3.7: Measurement by ultrasonic (acoustic) method
 - Method 3.8: Electromagnetic method using a full-channel-width coil
- Part 4: Measurement structure methods—
 - Method 4.1: Thin-plate weirs
 - Method 4.2: Rectangular broad-crested weirs
 - Method 4.3: Round-nose horizontal broad-crested weirs
 - Method 4.4: V-shaped broad-crested weirs
 - Method 4.5: Triangular profile weirs
 - Method 4.6: Flat-V weirs
 - Method 4.7: Rectangular, trapezoidal and U-shaped flumes
 - Method 4.8: Trapezoidal profile weirs for free discharge
 - Method 4.9: Parshall and Saniiri flumes
 - Method 4.10: End-depth method for estimation of flow in rectangular channels with a free overfall
 - Method 4.11: End-depth method for estimation of flow in non-rectangular channels with a free overfall (approximate method)
- Part 5: Dilution methods—
 - Method 5.1: Constant-rate injection method for the measurement of steady flow
 - Method 5.2: Integration method for the measurement of steady flow
- Part 6.1: Measuring devices, instruments and equipment—Rotating element current-meters
- Part 6.2: Measuring devices, instruments and equipment—Direct depth sounding and suspension equipment
- Part 6.3: Measuring devices, instruments and equipment—Calibration of rotating element current-meters in straight open tanks
- Part 6.4: Measuring devices, instruments and equipment—Echo sounders for water depth measurements
- Part 6.5: Measuring devices, instruments and equipment—Water level measuring devices
- Part 6.6: Measuring devices, instruments and equipment—Cableway system for stream gauging
- Part 6.7: Measuring devices, instruments and equipment—Ultrasonic (acoustic) velocity meters
- Part 6.8: Measuring devices, instruments and equipment—Position fixing equipment for hydrometric boats

For the purposes of this Australian Standard, the ISO text should be modified as follows:

- (a) Wherever the words 'International Standard' appear, referring to this Standard, they should be read as 'Australian Standard'.
- (b) Wherever the word 'fluid' appears, it should be read as 'water'.
- (c) Substitute a point (.) for a comma (,) as a decimal marker.
- (d) The references to other publications should be replaced by references to Australian Standards.

<i>Reference to International Standard</i>		<i>Australian Standard</i>	
ISO		AS	
		3778	Measurement of water flow in open channels
748	Liquid flow measurement in open channels—Velocity-area methods	3778.3.1	Part 3: Velocity-area methods—Method 3.1: Measurement by current-meters and floats

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| 1088 | Liquid flow measurement in open channels—Velocity-area methods—Collection and processing of errors in measurement | 3778.3.4 | Part 3: Velocity-area methods—Method 3.4: Collection and processing of data for determination of errors in measurement |
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