

AS 3778.2.3—1990  
ISO 1100/2: 1982

Australian Standard<sup>®</sup>

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**Measurement of water flow in open  
channels**

**Part 2.3: General—Determination  
of the stage-discharge relation**

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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.

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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  
Public Works Department, NSW  
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Water Authority of Western Australia  
Water Board, Sydney  
Water Resources Commission, Queensland

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**Part 2.3: General—Determination of the stage-discharge relation**

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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 1100/2-1982, *Liquid flow measurement in open channels—Part 2: Determination of the stage-discharge relation*.

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 (this Standard)
- 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
  - 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 using flow gauging structures—
  - 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-flumes
  - Method 4.8: Trapezoidal profile weirs
  - 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
1000 SI units and recommendations for the use of their multiples and of certain other units.	1000 The international system of units (SI) and its application
31 Quantities, units and symbols	2900 Quantities units and symbols
	3778 Measurement of water flow in open channels

772	Liquid flow measurement in open channels—Vocabulary and symbols	3778.1	Part 1: Vocabulary and symbols
1100/1	Liquid flow measurement in open channels—Part 1: Establishment and operation of a gauging station	3778.2.2	Part 2.2: General—Establishment and operation of a gauging station
5168	Measurement of fluid flow—Estimation of uncertainty of a flow-rate measurement	3778.2.4	Part 2.4: General estimation of uncertainty of a flow-rate measurement
778	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
4369	Measurement of liquid flow in open channels—Moving-boat method	3778.3.2	Part 3: Velocity-area methods—Method 3.2: Measurement by moving-boat method
1070	Liquid flow measurement in open channels—Slope-area method	3778.3.3	Part 3: Velocity-area methods—Methods 3.3: Measurement by slope-area method
1088	Liquid flow measurement in open channels—Velocity-area methods—collection of data for determination 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
TR 7178	Measurement of liquid in open channels—Investigation of the total error in measurement of flow by velocity—area methods	3778.3.5	Part 3: Velocity-area methods—Method 3.5: Investigation of total error

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