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AS 3778.2.4—1990
ISO 5168: 1978

Australian Standard®

# Measurement of water flow in open channels

## Part 2.4: General—Estimation of uncertainty of a flow-rate measurement

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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.

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

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# Part 2.4: General—Estimation of uncertainty of a flow-rate measurement

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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 5168—1978, *Measurement of fluid flow—Estimation of uncertainty of a flow-rate measurement.*

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 (this Standard) |
| 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-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.

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