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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

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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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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.

Reference to International Standard		*Australian Standard*	
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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