AS 2360.7.1—2001
ISO/TR 7066-1:1997

Australian Standard™

Measurement of fluid flow in closed conduits

Part 7.1: Assessment of uncertainty in the calibration and use of flow measurement devices—Linear calibration relationships

Standards Australia

This Australian Standard was prepared by Committee CE-024, Measurement of Water Flow in Open Channels and Closed Conduits. It was approved on behalf of the Council of Standards Australia on 25 September 2000 and published on 12 March 2001.

The following interests are represented on Committee CE-024:

Australian Water and Wastewater Association

Department of Natural Resources, Qld

Institute of Instrumentation and Control Australia

Department of Land and Water Conservation, New South Wales

Department of Public Works and Services, New South Wales

South Australian Water Corporation

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This Standard was issued in draft form for comment as DR 99534.

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Originated as AS 2360.7.1—1993.
Second edition 2001.

Published by Standards Australia International Ltd
GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 3664 5

PREFACE

This Standard was prepared by the Standards Australia Committee CE-024, Measurement of Water Flow in Open Channels and Closed Conduits.

This Standard is identical to and is reproduced from ISO/TR 7066:1997, *Assessment of uncertainty in calibration and use of flow measurment devices*—Part 7.1: *Linear calibration relationships*.

This Standard is Part 7.1 of AS 2360, *Measurement of fluid flow in closed conduits*, which is published in parts as follows:

AS		
2360		Vocabulary and symbols
2360.1	Part 1:	Pressure differential methods—Measurement using orifice plates, nozzles or Venturi tubes—Conduits with diameters from 50 mm to 1200 mm
2360.1.2	Part 1.2:	Pressure differential methods—Measurement using orifice plates or nozzles—Conduits with diameters less than 50 mm
2360.1.3	Part 1.3:	Pressure differential methods—Measurement using orifice plates, nozzles or Venturi tubes—Guide to the use of methods specified in Parts 1.1 and 1.2
2360.1.4	Part 1.4:	Pressure differential methods—Measurement using orifice plates, nozzles or Venturi tubes—Guide to the effect of departure from the conditions specified in Part 1.1
2360.1.5	Part 1.5:	Pressure differential methods—Measurement using orifice plates, nozzles or Venturi tubes—Pulsating flow, in particular sinusoidal or square wave intermittent periodic-type fluctuations
2360.6.1	Part 6.1:	Volumetric methods—By mass
2360.6.2	Part 6.2:	Volumetric methods—By volume
2360.7.1	Part 7.1:	Assessment of uncertainty in the calibration and use of flow measurement devices—Linear calibration relationships (this Standard)
2360.7.2	Part 7.2:	Assessment of uncertainty in the calibration and use of flow measurement devices—Non-linear calibration relationships

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International Standard		*Australian or Australian/New Zealand Standard*	
ISO/IEC		AS/NZS	
772	Liquid flow measurement in open channels-Vocabulary and symbols	3778	Measurement of water flow in open channels
1110	Liquid flow measurement in open channels	3778.1	Part 1: Vocabulary and symbols
1110-2	Part 2: Determination of the stage-discharge relation	3778.2.3	Part 2.3: General—Determination of the stage-discharge relation
4006	Measurement of fluid flow in closed conduits-Vocabulary and symbols	2360	Measurement of fluid flow in closed conduits
5168	Measurement of fluid flow-Estimation of uncertainty of a flow-rate measurement	2360.0	Part 0: Vocabulary and symbols
		3778	Measurement of water flow in open channels
		3778.2.4	Part 2.4: General Estimation of uncertainty of a flow-rate measurement

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AUSTRALIAN STANDARD

Measurement of fluid flow in closed conduits

Part 7.1:
Assessment of uncertainty in the calibration and use of flow measurement devices—Linear calibration relationships

1 Scope

1.1 This part of ISO/TR 7066 describes the procedures to be used in deriving the calibration curve for any method of measuring flowrate in closed conduits or open channels, and of assessing the uncertainty associated with such calibrations. Procedures are also given for estimation of the uncertainty arising in measurements obtained with the use of the resultant graph, and for calculation of the uncertainty in the mean of a number of measurements of the same flowrate.

1.2 Only linear relationships are considered in this part of ISO/TR 7066; the uncertainty in non-linear relationships forms the subject of ISO/TR 7066-2. This part of ISO/TR 7066 is applicable, therefore, only if

a) the relationship between the two variables is itself linear,

   or

   one or both variables can be transformed in such a manner as to create a linear relationship between them, as, for instance by the use of logarithms,

   or

   the total range can be subdivided in such a way that within each subdivision the relationship between the two variables can be regarded as being linear; and

b) systematic deviations from the fitted line are negligible compared with the uncertainty associated with the individual observations forming the graph.

NOTE — Examples of the application of the principles contained in this part of ISO/TR 7066 are given in annexes B and C.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/TR 7066. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/TR 7066 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.