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Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full

Part 6: Wedge meters



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- Irrigation Australia
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Preface

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

The objective of this document is to specify the geometry and method of use (installation and operating conditions) of wedge meters when they are inserted in a conduit running full to determine the flow rate of the fluid flowing in the conduit.

This document gives requirements for calibration which, if applied, are for use over the calibrated Reynolds number range. This document is applicable only to wedge meters in which the flow remains subsonic throughout the measuring section and where the fluid can be considered as single-phase. Uncalibrated wedge meters can only be used within specified limits of pipe size, roughness, β (or wedge ratio) and Reynolds number. It is not applicable to the measurement of pulsating flow. It does not cover the use of uncalibrated wedge meters in pipes whose internal diameter is less than 50 mm or more than 600 mm, or where the pipe Reynolds numbers are below 1×10^4 .

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Australian Standard®

Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full

Part 6: Wedge meters

1 Scope

This document specifies the geometry and method of use (installation and operating conditions) of wedge meters when they are inserted in a conduit running full to determine the flow rate of the fluid flowing in the conduit.

NOTE 1 As the uncertainty of an uncalibrated wedge meter can be too large for a particular application, it could be deemed essential to calibrate the flow meter according to [Clause 7](#).

This document gives requirements for calibration which, if applied, are for use over the calibrated Reynolds number range. [Clause 7](#) could also be useful guidance for calibration of meters of similar design but which fall outside the scope of this document.

It also provides background information for calculating the flow rate and is applicable in conjunction with the requirements given in ISO 5167-1.

This document is applicable only to wedge meters in which the flow remains subsonic throughout the measuring section and where the fluid can be considered as single-phase. Uncalibrated wedge meters can only be used within specified limits of pipe size, roughness, β (or wedge ratio) and Reynolds number. It is not applicable to the measurement of pulsating flow. It does not cover the use of uncalibrated wedge meters in pipes whose internal diameter is less than 50 mm or more than 600 mm, or where the pipe Reynolds numbers are below 1×10^4 .

NOTE 2 A wedge meter has a primary element which consists of a wedge-shaped restriction of a specific geometry. Alternative designs of wedge meters are available; however, at the time of writing there is insufficient data to fully characterize these devices, and therefore these meters are calibrated in accordance with [Clause 7](#).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4006, *Measurement of fluid flow in closed conduits — Vocabulary and symbols*

ISO 5167-1, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full — Part 1: General principles and requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4006, ISO 5167-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

3.1

wedge gap

h

maximum gap between the apex of the wedge element and the pipe wall, in the plane perpendicular to the pipe axis

Note 1 to entry: See [Figure 1](#).