PD ISO/TR 15377:2018

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Measurement of fluid flow by means of pressure-differential devices — Guidelines for the specification of orifice plates, nozzles and Venturi tubes beyond the scope of ISO 5167

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National foreword

This British Standard is the UK implementation of ISO/TR 15377:2018. It supersedes PD ISO/TR 15377:2007, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee CPI/30/2, Differential pressure methods.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Measurement of fluid flow by means of pressure-differential devices — Guidelines for the specification of orifice plates, nozzles and Venturi tubes beyond the scope of ISO 5167

Mesurage du débit des fluides au moyen d'appareils déprimogènes — Lignes directrices pour la spécification des diaphragmes, des tuyères et des tubes Venturi non couverts par l'ISO 5167

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword ... **iv**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **1**

4 Symbols ... **1**

5 Square-edged orifice plates and nozzles: With drain holes, in pipes below 50 mm diameter, and as inlet and outlet devices ... **3**
- 5.1 Drain holes through the upstream face of the square-edged orifice plate or nozzle ... 3
  - 5.1.1 General ... 3
  - 5.1.2 Square-edged orifice plates ... 3
  - 5.1.3 ISA 1932 nozzles ... 5
  - 5.1.4 Long radius nozzles ... 5
- 5.2 Square-edged orifice plates installed in pipes of diameter 25 mm ≤ D < 50 mm ... 5
  - 5.2.1 General ... 5
  - 5.2.2 Limits of use ... 5
  - 5.2.3 Discharge coefficients and corresponding uncertainties ... 6
- 5.3 No upstream or downstream pipeline ... 6
  - 5.3.1 General ... 6
  - 5.3.2 Flow from a large space (no upstream pipeline) into a pipeline or another large space ... 6
  - 5.3.3 Flow into a large space (no downstream pipeline) ... 8

6 Orifice plates (except square-edged) ... **9**
- 6.1 Conical entrance orifice plates ... 9
  - 6.1.1 General ... 9
  - 6.1.2 Limits of use ... 9
  - 6.1.3 Description ... 10
  - 6.1.4 Pressure tappings ... 13
  - 6.1.5 Coefficients and corresponding uncertainties ... 14
- 6.2 Quarter-circle orifice plates ... 14
  - 6.2.1 General ... 14
  - 6.2.2 Limits of use ... 14
  - 6.2.3 Description ... 15
  - 6.2.4 Pressure tappings ... 18
  - 6.2.5 Coefficients and corresponding uncertainties ... 18
- 6.3 Eccentric orifice plates ... 19
  - 6.3.1 General ... 19
  - 6.3.2 Limits of use ... 20
  - 6.3.3 Description ... 20
  - 6.3.4 Coefficients and corresponding uncertainties ... 23

7 Venturi tubes with machined convergent of angle 10,5° ... **25**
- 7.1 General ... 25
- 7.2 Description ... 25
- 7.3 Limits of use ... 25
- 7.4 Discharge coefficient ... 26
- 7.5 Expansibility [expansion] factor ... 26
- 7.6 Pressure loss ... 26
- 7.7 Installation requirements ... 26

Annex A (informative) **An example of the calculations in 5.1.2** ... **28**

Bibliography ... **31**

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 30, *Measurement of fluid flow in closed conduits*, Subcommittee SC 2, *Pressure differential devices*.

This third edition cancels and replaces the second edition (ISO/TR 15377:2007), which has been technically revised.

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Measurement of fluid flow by means of pressure-differential devices -- Guidelines for the specification of orifice plates, nozzles and Venturi tubes beyond the scope of ISO 5167

1 Scope

This document describes the geometry and method of use for conical-entrance orifice plates, quarter-circle orifice plates, eccentric orifice plates and Venturi tubes with 10,5° convergent angles. Recommendations are also given for square-edged orifice plates and nozzles under conditions outside the scope of ISO 5167.

NOTE The data on which this document is based are limited in some cases.

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 and ISO 5167-1 apply.

4 Symbols

For the purposes of this document, the symbols given in Table 1 apply.

Table 1 — Symbols

Symbols	Represented quantity	Dimensions M: mass L: length T: time	SI unit
a	Pressure-tapping hole diameter	L	m
C	Discharge coefficient	dimensionless	
d	Diameter of orifice (or throat) of primary device under working conditions[a]	L	m
d_k	Measured drain hole diameter	L	m

[a] In applications with drain holes, d is calculated from the measured values d_m and d_k [see Formulae (1) and (11)].

NOTE 1 Other symbols used in this documentt are defined at their place of use.

NOTE 2 Subscript 1 refers to the cross-section at the plane of the upstream pressure tapping. Subscript 2 refers to the cross-section at the plane of the downstream pressure tapping.

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