

TECHNICAL REPORT
ISO/DTR 12767:2023(E)

ISO/TC 30/SC 2

Secretariat: BSI

Second edition

Date: 2023-05-19xx

Measurement of fluid flow by means of pressure differential devices — Guidelines on the effect of departure from the specifications and operating conditions given in ISO 5167

Mesurage du débit des fluides au moyen d'appareils déprimogènes — Lignes directrices relatives aux effets des divergences par rapport aux spécifications et aux conditions de fonctionnement données dans l'ISO 5167

Style Definition: Heading 1: Indent: Left: 0 pt, First line: 0 pt, Tab stops: Not at 21.6 pt

Style Definition: Heading 2: Font: Bold, Tab stops: Not at 18 pt

Style Definition: Heading 3: Font: Bold

Style Definition: Heading 4: Font: Bold

Style Definition: Heading 5: Font: Bold

Style Definition: Heading 6: Font: Bold

Style Definition: ANNEX

Style Definition: AMEND Terms Heading: Font: Bold

Style Definition: AMEND Heading 1 Unnumbered: Font: Bold

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO/DTR 12767](https://standards.iteh.ai/catalog/standards/sist/905b43e4-a2f6-47ab-8917-25e4807cbc3e/iso-dtr-12767)

<https://standards.iteh.ai/catalog/standards/sist/905b43e4-a2f6-47ab-8917-25e4807cbc3e/iso-dtr-12767>

© ISO 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office

CP 401 • Ch. de Blandonnet 8

CH-1214 Vernier, Geneva

Phone: +41 22 749 01 11

Fax: +41 22 749 09 47

Email: copyright@iso.org

Website: www.iso.org

Published in Switzerland

Formatted: Pattern: Clear

Formatted: Pattern: Clear

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO/DTR 12767

<https://standards.iteh.ai/catalog/standards/sist/905b43e4-a2f6-47ab-8917-25e4807cbc3e/iso-dtr-12767>

Contents	Page
Foreword.....	iii
Introduction.....	iv
1 Scope.....	1
2 Normative references	1
3 Terms and definitions.....	2
4 Symbols and abbreviated terms	2
5 Effect of errors on flowrate calculations.....	3
5.1 General.....	3
5.2 Quantifiable effects.....	3
6 Effects of deviations in construction.....	4
6.1 Orifice-plate edge sharpness.....	4
6.2 Thickness of orifice edge.....	5
6.3 Condition of upstream and downstream faces of orifice plate.....	6
6.4 Position of pressure tappings for an orifice.....	6
6.5 Condition of pressure tappings.....	7
7 Effects of pipeline near the meter.....	7
7.1 Pipe diameter	7
7.2 Steps and taper sections.....	7
7.3 Diameter of carrier ring	8
7.4 Undersize joint rings.....	11
7.5 Protruding welds.....	11
7.6 Eccentricity.....	11
8 Effects of pipe layout.....	14
8.1 General.....	14
8.2 Discharge coefficient compensation	14
8.3 Pressure tappings.....	16
8.4 Devices for improving flow conditions.....	17
9 Operational deviations	17
9.1 General.....	17
9.2 Deformation of an orifice plate.....	17
9.3 Deposition on the upstream face of an orifice plate.....	19
9.4 Deposition in the meter tube.....	23
9.5 Orifice-plate edge sharpness.....	23
9.6 Deposition and increase of surface roughness in Venturi tubes.....	24
10 Pipe roughness.....	26
10.1 General.....	26
10.2 Upstream pipe	27
10.3 Downstream pipe	30
10.4 Reduction of roughness effects.....	30
10.5 Maintenance.....	30
Bibliography	32

Formatted: Indent: First line: 0 pt

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.

Formatted: Adjust space between Latin and Asian text, Adjust space between Asian text and numbers

~~International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.~~

~~The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.~~

~~In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.~~

~~Attention is drawn to 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 document 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).~~

~~ISO draws attention to the possibility that some of the elements implementation of this document may involve the subject of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.~~

Formatted: Adjust space between Latin and Asian text, Adjust space between Asian text and numbers

~~ISO/TR 12767 Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.~~

Commented [eXtyles1]: ISO/TR 12767: current stage is 50.00

~~For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.~~

~~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 12767:2007), which has been technically revised.~~

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear

~~The main changes are as follows:~~

~~— editorial changes throughout the document.~~

ISO/DTR 12767:2023(E)

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

iTeh STANDARD PREVIEW (standards.itih.ai)

ISO/DTR 12767

<https://standards.itih.ai/catalog/standards/sist/905b43e4-a2f6-47ab-8917-25e4807cbc3e/iso-dtr-12767>

Introduction

ISO 5167 (all parts) series specifies methods for flowrate measurement using pressure differential devices. Adherence to ISO 5167 (all parts) series results in flowrate measurements whose uncertainty lies within specified limits. If, however, a flow-metering installation departs, for whatever reason, from the conditions specified in ISO 5167 (all parts) series, the specified limits of uncertainty might not be achieved. Many metering installations exist where these conditions either have not been or cannot be met. In these circumstances, it is usually not possible to evaluate the precise effect of any such deviations. However, a considerable amount of data exists which can be used to give a general indication of the effect of non-conformity to ISO 5167 (all parts) series and it is presented in this Technical Report document as a guideline to users of flow-metering equipment.

Commented [eXtyles2]: The reference is to a withdrawn standard which has been replaced

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

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Commented [eXtyles3]: The reference is to a withdrawn standard which has been replaced

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

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Commented [eXtyles4]: The reference is to a withdrawn standard which has been replaced

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

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Commented [eXtyles5]: The reference is to a withdrawn standard which has been replaced

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

Formatted: Pattern: Clear

Formatted: Pattern: Clear

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO/DTR 12767

<https://standards.iteh.ai/catalog/standards/sist/905b43e4-a2f6-25e4807cbc3e/iso-dtr-12767>

Measurement of fluid flow by means of pressure differential devices — Guidelines on the effect of departure from the specifications and operating conditions given in ISO 5167

1 Scope

This ~~Technical Report~~document provides guidance on estimating the flowrate when using pressure differential devices constructed or operated outside the scope of ISO 5167 series.

Additional tolerances or corrections cannot necessarily compensate for the effects of deviating from ISO 5167 (all parts) series. The information is given, in the first place, to indicate the degree of care necessary in the manufacture, installation and maintenance of pressure differential devices by describing some of the effects of non-conformity to the requirements; and in the second place, to permit those users who cannot comply fully with the requirements to assess, however roughly, the magnitude and direction of the resulting error in flowrate.

Each variation dealt with is treated as though it were the only one present. Where more than one is known to exist, there might be unpredictable interactions and care has to be taken when combining the assessment of these errors. If there is a significant number of errors, means of eliminating some of them have to be considered. The variations included in this ~~Technical Report~~document are by no means complete and relate largely to examples with orifice plates. An example with Venturi tubes has been placed at the end of its section. This document does not apply to cone meters or wedge meters. There are, no doubt, many similar examples of installations not conforming to ISO 5167 (all parts) series for which no comparable data have been published. Such additional information from users, manufacturers and any others may can be taken into account in future revisions of this ~~Technical Report~~document.

2 Normative references

The following ~~referenced~~ documents are ~~indispensable for~~referred to in the ~~application 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.

~~<std>ISO 5167-1:2022~~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~~</std>~~

~~<std>ISO 5167-2:2022, Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full — Part 2: Orifice plates</std>~~

~~<std>ISO 5167-3:2022, Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full — Part 3: Nozzles and Venturi nozzles</std>~~

~~<std>ISO 5167-4:2022, Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full — Part 4: Venturi tubes</std>~~

Commented [eXtyle6]: The reference is to a withdrawn standard which has been replaced

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

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Commented [eXtyle7]: The reference is to a withdrawn standard which has been replaced

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

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Commented [eXtyle8]: The reference is to a withdrawn standard which has been replaced

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

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Commented [eXtyle9]: The reference is to a withdrawn standard which has been replaced

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

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Adjust space between Latin and Asian text, Adjust space between Asian text and numbers

Formatted: Pattern: Clear

3 Terms and definitions

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

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

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <https://www.electropedia.org/>

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear

3.1

square edge

angular relationship between the orifice bore of the flow-measurement device and the upstream face, when the angle between them is $90^\circ \pm 0,3^\circ$

Commented [eXtyles10]: The term "square edge" has not been used anywhere in this document

3.2

sharpness

radius of the edge between the orifice bore of the flow-measurement device and the upstream face

Note 1 to entry: The upstream edge of the orifice bore is considered to be sharp when its radius is not greater than $0,000 4d$, where d is the diameter of the orifice bore.

4 Symbols and abbreviated terms

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

Formatted: Pattern: Clear

Table 1 — Symbols and units

Symbol	Quantity represented	Dimensions Dimension M: mass L: length T: time	SI unit unit
c	Percentage change in discharge coefficient [$\cong 100(\Delta C / C)$]	dimensionless	
C	Discharge coefficient	dimensionless	
C_c	Contraction coefficient	dimensionless	
d	Diameter of orifice or throat of primary device under working conditions	L	m
D	Upstream internal pipe diameter at operating conditions	L	m
D_1	Carrier ring diameter	L	m
D_2	Orifice-plate support diameter	L	m
e	Orifice thickness	L	m
E	Orifice-plate thickness	L	m
k	Uniform equivalent roughness	L	m
L_1	Distance of upstream pressure tapping from upstream face of plate divided by pipe bore, D	dimensionless	
L_2	Distance of downstream pressure tapping from downstream face of plate divided by pipe bore, D	dimensionless	

q_m	Mass flow rate	MT^{-1}	kg/s
r	Orifice-plate edge radius	L	m
Re_d	Throat Reynolds number	dimensionless	
Re_D	Pipe Reynolds number	dimensionless	
u	Local axial velocity	LT^{-1}	m/s
u_{CL}	Centreline axial velocity	LT^{-1}	m/s
U	Mean axial velocity	LT^{-1}	m/s
U'	Relative expanded uncertainty	dimensionless	
Y	Modulus of elasticity of orifice-plate material	$ML^{-1}T^{-2}$	Pa
β	Diameter ratio, (= d/D)	dimensionless	
Δp	Differential pressure	$ML^{-1}T^{-2}$	Pa
Δp_y	Differential pressure required to reach orifice-plate yield stress	$ML^{-1}T^{-2}$	Pa
ε	Expansibility (expansion) factor	dimensionless	
λ	Friction factor	dimensionless	
ρ	Fluid density	ML^{-3}	kg/m ³
ρ_1	Fluid density at the upstream pressure tapping	ML^{-3}	kg/m ³
σ_y	Yield stress of orifice-plate material	$ML^{-1}T^{-2}$	Pa

5 Effect of errors on flowrate calculations

5.1 General

In this **Technical Report document**, the effects of deviations from the conditions specified in ISO 5167-1 (all parts) series are described in terms of changes in the discharge coefficient, ΔC , of the meter. The discharge coefficient, C , of a pressure differential device is given by Formula (1):

$$C = \frac{4q_m \sqrt{(1-\beta^4)}}{\varepsilon \pi d^2 \sqrt{(2\Delta p \rho_1)}} \quad C = \frac{4q_m \sqrt{(1-\beta^4)}}{\varepsilon \pi d^2 \sqrt{(2\Delta p \rho_1)}} \quad (1)$$

The sharp edge of an orifice plate ensures separation of the flow and consequently contraction of the fluid stream to the vena contracta. Defining the contraction coefficient, C_c , as the ratio of the flow area to the geometric area the orifice produces $C_c \approx 0,6$, which mainly accounts for the discharge coefficient, $C \approx 0,6$.

The effect of change in the discharge coefficient is illustrated by the following example.

Consider an orifice plate with an unduly rounded edge. The result of this is to reduce the separation and increase C_c , leading in turn to reduced velocities at the vena contracta. The observed differential pressure therefore decreases. From Formula (1), it can be seen that the discharge coefficient therefore increases. Alternatively, as C_c increases, so does C . If no correction is made for this change in C , the meter reading is less than the actual value.

It can therefore be concluded that:

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Commented [eXtyle11]: The reference is to a withdrawn standard which has been replaced

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

Formatted: Pattern: Clear

Formatted: Adjust space between Latin and Asian text, Adjust space between Asian text and numbers, Tab stops: Not at 19.85 pt + 39.7 pt + 59.55 pt + 79.4 pt + 99.25 pt + 119.05 pt + 138.9 pt + 158.75 pt + 178.6 pt + 198.45 pt

Field Code Changed

Formatted: Pattern: Clear

ISO/DTR 12767:2023(E)

- a) an effect which causes an increase in discharge coefficient results in a flowrate reading lower than the actual value if the coefficient is not corrected;
- and conversely,
- b) an effect which causes a decrease in discharge coefficient results in a flowrate reading higher than the actual value if the coefficient is not corrected.

5.2 Quantifiable effects

When the user is aware of such effects and they can be quantified, the appropriate discharge coefficient can be used and the correct flowrate calculated. However, the precise quantification of these effects is difficult and so any flowrate calculated in such a manner is considered to have an increased uncertainty. Except where otherwise stated, an additional uncertainty factor, equivalent to 100 % of the discharge coefficient correction, is added arithmetically to the relative expanded uncertainty of the discharge coefficient when estimating the overall uncertainty in the flowrate measurement.

6 Effects of deviations in construction

6.1 Orifice-plate edge sharpness

Orifice plates that do not have the specified sharpness of the inlet edge (edge radius $r \leq 0,000\ 4d$ in accordance with 5.1.7.2 of ISO 5167-2:2022, 5.1.7.2), have progressively increasing discharge coefficients as the edge radius increases. Tests have shown that the effect on the discharge coefficient, C , is to increase it by 0,5 % for r/d of 0,001, and by about 5 % for r/d of 0,01. This is an approximately linear relationship (see Figure 1 and Reference [46]). These values apply particularly to Re_d values above 300 000 and for β values below 0,7, but they can be used as a general guide for other values.

Measurement techniques for edge radius are available, but in general it is better to improve the edge sharpness to the required value rather than to attempt to measure it and make appropriate corrections.

The effect of nicks in orifice plates has also been measured in Reference [46].

12767_ed3fig1.EPS

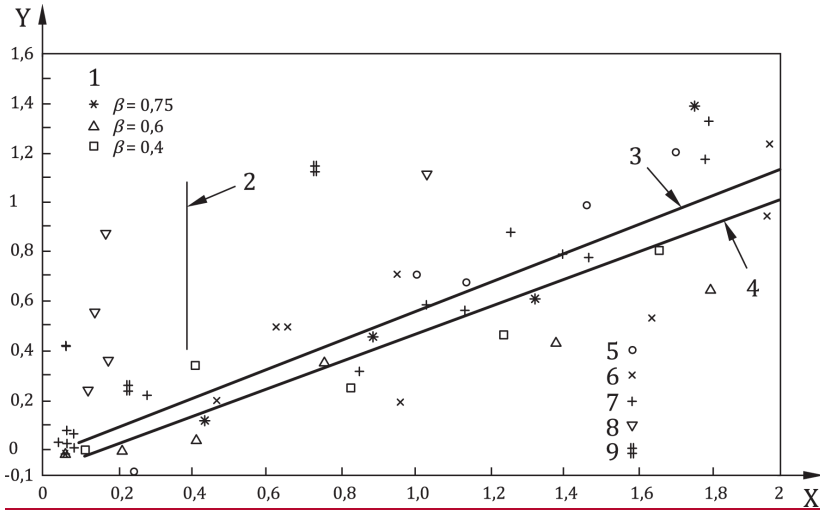
Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear



- Key**
- X radius ratio ($\times 10^3$)
 - Y change in discharge coefficient (%)
 - 1 national engineering laboratory (NEL, UK) tests $D = 300$ mm
 - 2 ISO limit $r = 0,000\ 4d$
 - 3 others
 - 4 NEL
 - 5 $D = 50$ mm (reference [56] Reference [59])
 - 6 $D = 100$ mm (reference [56] Reference [59])
 - 7 $D = 150$ mm (reference [34] Reference [37])
 - 8 $D = 75$ mm (reference [57] Reference [60])
 - 9 $D = 100$ mm (reference [58] Reference [61])

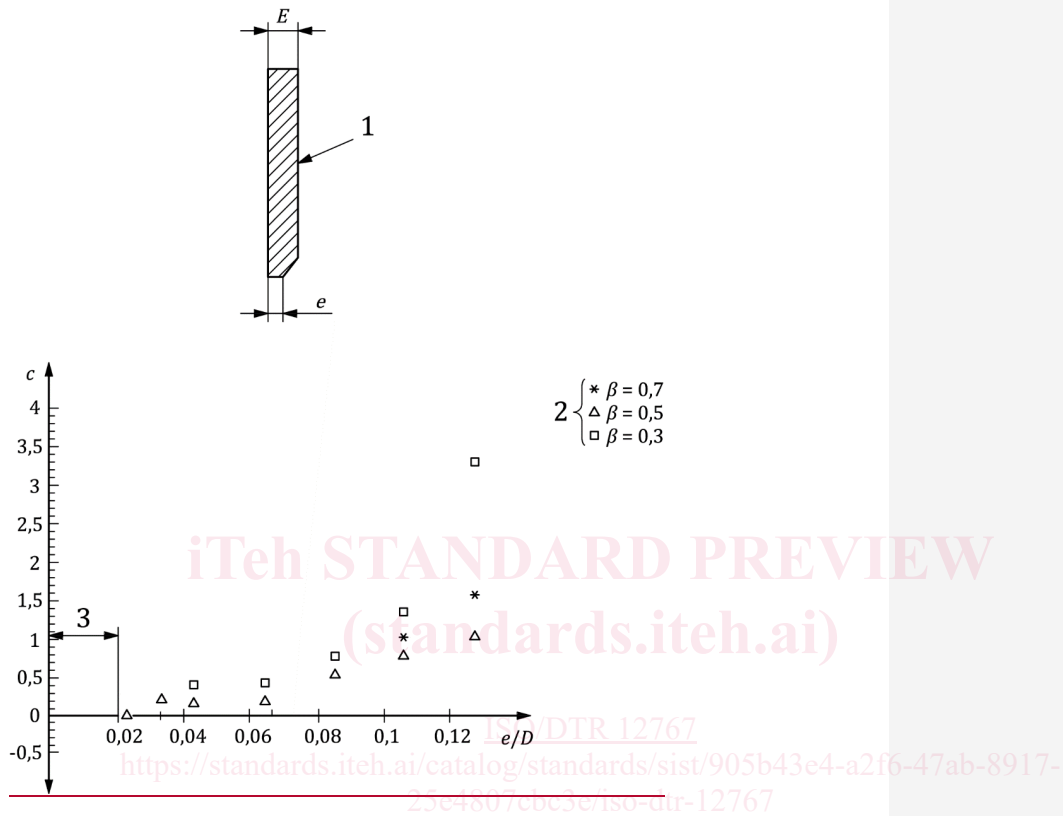
Figure 1 — Effect of edge radius on discharge coefficient

6.2 Thickness of orifice edge

For orifice plates, the increase in discharge coefficient due to excessive thickness of the orifice edge (see 5.1.5 of ISO 5167-2:2022, 5.1.5) can be appreciable. With a straight-bore orifice plate in a 150 mm pipe, the changes in discharge coefficient shown in Figure 2 were obtained (see Reference [2]). Additional data are shown in Reference [59] [62].

12767_ed3fig2.EPS

- Formatted: Pattern: Clear
- Formatted: Pattern: Clear
- Formatted: Pattern: Clear
- Formatted: Pattern: Clear
- Formatted: Pattern: Clear
- Formatted: Pattern: Clear



Key

- 1 section of an orifice plate
- 2 symbol
- 3 limit of standard
- c change in discharge coefficient (%)
- e/D orifice thickness to upstream internal pipe diameter ratio

Figure 2 — Change in discharge coefficient as a function of orifice thickness

6.3 Condition of upstream and downstream faces of orifice plate

The upstream face of an orifice plate is flat and smooth. Excessive roughness leads to an increase in the discharge coefficient. Tests have indicated that a surface roughness of $0,000\ 3d$ causes an increase in discharge coefficient of the order of 0,1 % (see Reference [34-34]). Since the requirement for edge sharpness is $r \leq 0,000\ 4d$, an increase in plate roughness makes it difficult to define the edge sharpness or to confirm that the sharp edge requirement has been met.

Local damage to the upstream face or edge of an orifice plate does not adversely affect the discharge coefficient, provided that the damage is kept as far away from the pressure tapping as possible (see

Reference [1]). The discharge coefficient is much less sensitive to the surface condition of the downstream face of the plate (Reference [1]).

Large-scale lack of flatness, e.g. “dishing”, leads to flow-measurement errors. A “dishing” of 1 % in the direction of flow causes the reading to be below the actual value, i.e. an increase in C of about 0,2 % for $\beta = 0,2$ and of about 0,1 % for $\beta = 0,7$. Distortion against the direction of flow also causes errors which could be either positive or negative depending on the amount of distortion.

6.4 Position of pressure tappings for an orifice

6.4.1 General

Values of the orifice-plate discharge coefficient for the three standard tapping positions (corner, flange, D and $D/2$) can be calculated using Equation (4) of ISO 5167-2:2022, Formula (4) (see Reference [5558]). Where the tapping positions fall outside the tolerances permitted in ISO 5167-2 for the three positions, the discharge coefficient is estimated as described in 6.4.2. An additional uncertainty factor is associated with the use of non-standard tapping positions.

6.4.2 Calculation of discharge coefficient

Calculate the actual values of L_1 and L_2 . The discharge coefficient can be estimated only if $L_1 \leq 1$ and $L_2 \leq 0,47$.

Using the actual values of L_1 and L_2 estimate the discharge coefficient using Equation (4) of ISO 5167-2:2022, Formula (4).

6.4.3 Estimation of additional uncertainty

If tappings lie between the flange and the corner tappings, the additional uncertainty, $\delta U'$, expressed as a percentage, can be estimated from Formula (2):

$$\delta U' = 25 \left| \frac{C_F}{C_{CT}} - 1 \right| \quad \delta U' = 25 \left| \frac{C_F}{C_{CT}} - 1 \right| \quad (2)$$

where

C_F is the discharge coefficient for flange tappings;

C_{CT} is the discharge coefficient for corner tappings.

If tappings lie between the D and $D/2$ tappings and the flange tappings, the additional uncertainty, $\delta U'$, expressed as a percentage, can be estimated from Formula (3):

$$\delta U' = 25 \left| \frac{C_{D \text{ and } D/2}}{C_F} - 1 \right| \quad \delta U' = 25 \left| \frac{C_{D \text{ and } D/2}}{C_F} - 1 \right| \quad (3)$$

where C_D and $D/2$ is the discharge coefficient for D and $D/2$ tappings.

6.4.4 Example

Consider an orifice meter with $\beta = 0,6$, $Re_D = 10^6$, $D = 250$ mm and tappings at $0,15D$ upstream and downstream of the plate.

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Pattern: Clear

Formatted: Adjust space between Latin and Asian text, Adjust space between Asian text and numbers, Tab stops: Not at 19.85 pt + 39.7 pt + 59.55 pt + 79.4 pt + 99.25 pt + 119.05 pt + 138.9 pt + 158.75 pt + 178.6 pt + 198.45 pt

Field Code Changed

Formatted: Adjust space between Latin and Asian text, Adjust space between Asian text and numbers, Tab stops: Not at 19.85 pt + 39.7 pt + 59.55 pt + 79.4 pt + 99.25 pt + 119.05 pt + 138.9 pt + 158.75 pt + 178.6 pt + 198.45 pt

Field Code Changed