

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Industrial-process control valves –
Part 3-1: Dimensions – Face-to-face dimensions for flanged, two-way, globe-
type, straight pattern and centre-to-face dimensions for flanged, two-way,
globe-type, angle pattern control valves**

<https://standards.iteh.ai/catalog/standards/sist/0b6b5155-6bae-47d8-a9f8-2019>

<https://standards.iteh.ai/catalog/standards/sist/0b6b5155-6bae-47d8-a9f8-2019>

**Vannes de régulation des processus industriels –
Partie 3-1: Dimensions – Dimensions face à face des vannes de régulation à
brides, à deux voies, à soupape, à tête droite et dimensions face à axe des
vannes de régulation à brides, à deux voies, à soupape, à corps d'équerre**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2019 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22,000 terminological entries in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

67,000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC -

webstore.iec.ch/advsearchform

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 000 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary

67 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Industrial-process control valves –
Part 3-1: Dimensions – Face-to-face dimensions for flanged, two-way, globe-
type, straight pattern and centre-to-face dimensions for flanged, two-way,
globe-type, angle pattern control valves**

<https://standards.iteh.ai/catalog/standards/sist/0b6b5155-6bae-47d8-a9f8-685362089d01/iec-60534-3-1-2019>

**Vannes de régulation des processus industriels –
Partie 3-1: Dimensions – Dimensions face à face des vannes de régulation à
brides, à deux voies, à soupape, à tête droite et dimensions face à axe des
vannes de régulation à brides, à deux voies, à soupape, à corps d'équerre**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 23.060.40; 25.040.40

ISBN 978-2-8322-8653-1

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references	5
3 Terms and definitions	5
4 Nominal sizes and pressure ratings	6
4.1 Nominal sizes	6
4.2 Pressure ratings	6
5 Face-to-face and centre-to-face dimensions	7
6 Tolerances	7
7 Flange facings	7
Bibliography.....	13
Figure 1 – Face-to-face and centre-to-face dimensions.....	6
Figure 2 – End-to-end and centre-to-end dimensions.....	6
Figure 3 – Details of RTJ flanges.....	7
Table 1 – Face-to-face dimensions for flanged, two-way, globe-style, straight pattern control valves: PN-designated valves.....	8
Table 2 – Face-to-face dimensions for flanged, two-way, globe-style, straight pattern control valves: class-designated valves	9
Table 3 – Centre-to-face dimensions for flanged, two-way, globe-style, angle pattern control valves: PN-designated valves.....	10
Table 4 – Centre-to-face dimensions for flanged, two-way, globe-style, angle pattern control valves: class-designated valves	11
Table 5 – Dimension “X” to be added to face-to-face dimensions of straight pattern valves to obtain end-to-end dimensions of valves with ring joint ends	12

INTERNATIONAL ELECTROTECHNICAL COMMISSION

INDUSTRIAL-PROCESS CONTROL VALVES –

Part 3-1: Dimensions – Face-to-face dimensions for flanged, two-way, globe-type, straight pattern and centre-to-face dimensions for flanged, two-way, globe-type, angle pattern control valves

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60534-3-1 has been prepared by subcommittee 65B: Measurement and control devices, of IEC technical committee 65: Industrial-process measurement, control and automation.

This second edition cancels and replaces the first edition published in 2000. This edition constitutes a technical revision.

The main changes with respect to the previous edition are listed below:

- this document has been extended to cover face-to-face dimensions and centre-to-face dimensions for control valves PN 160 and PN 250 (Class 900 and 1 500);
- definitions of end-to-end dimensions and centre-to-end dimensions have been added for valves with flange facings where the gasket contact surfaces are not located at the extreme ends of the valve;

- Table 5 of adjustment value “X” for end-to-end dimensions of straight pattern valves with ring joint ends has been added;
- ANSI/ISA references have been added in Tables 1 to 4;
- ANSI/ISA references have been added in the bibliography.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
65B/1142/FDIS	65B/1146/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[IEC 60534-3-1:2019](#)

<https://standards.iteh.ai/catalog/standards/sist/0b6b5155-6bae-47d8-a9f8-0c85263088d0/iec-60534-3-1-2019>

INDUSTRIAL-PROCESS CONTROL VALVES –

Part 3-1: Dimensions – Face-to-face dimensions for flanged, two-way, globe-type, straight pattern and centre-to-face dimensions for flanged, two-way, globe-type, angle pattern control valves

1 Scope

This part of IEC 60534 specifies face-to-face (FTF) and centre-to-face (CTF) dimensions for given nominal sizes and pressure ratings of flanged, two-way, globe-type, straight pattern and angle pattern control valves. The nominal sizes included are DN 15 to DN 400 for straight pattern control valves and DN 15 to DN 400 for angle pattern control valves.

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.

IEC 60534-1, *Industrial-process control valves – Part 1: Control valve terminology and general considerations*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60534-1 and the following apply.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

straight pattern valve

valve where the outlet end connection is on the opposite side of the valve and in line with the inlet end connection

3.2

angle pattern valve

valve where the inlet and the outlet end connections are arranged at a right angle with the centerlines matching each other

3.3

face-to-face dimension (FTF)

<for straight pattern valves> distance between the faces of the connecting end flanges upon which the gaskets are compressed, that is, the contact surfaces (see Figure 1)

3.4

centre-to-face dimension (CTF)

<for angle pattern valves> distance between the plane located at the face of either end connection and perpendicular to its axis and the axis of the other end connection (see Figure 1)

3.5 end-to-end dimension (ETE)

<for straight pattern valves> distance between the extreme ends of the valve for those flanged valves where the gasket contact surfaces are not located at the extreme ends of the valve (see Figures 2 and 3)

3.6 centre-to-end dimension (CTE)

<for angle pattern valves> distance between the plane located at the extreme end of either end connection and perpendicular to its axis and the axis of the other end connection for those flanged valves where the gasket contact surfaces are not located at the extreme ends of the valve (see Figures 2 and 3)

4 Nominal sizes and pressure ratings

4.1 Nominal sizes

Nominal sizes shall be as shown in Table 1 to Table 4.

4.2 Pressure ratings

Pressure ratings shall be grouped by Class and nominal pressure (PN) as shown in Table 1 to Table 4.

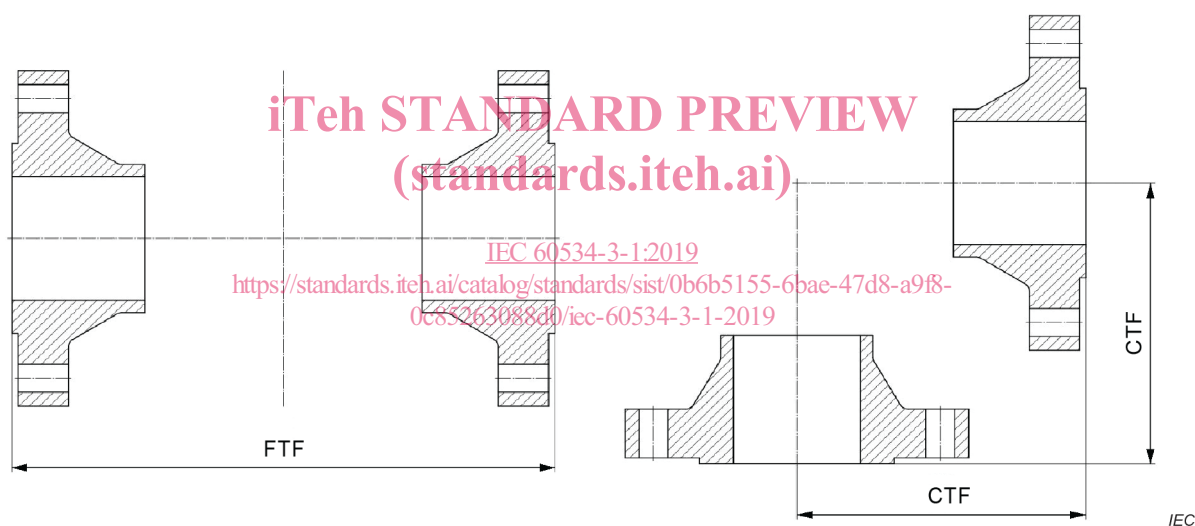


Figure 1 – Face-to-face and centre-to-face dimensions

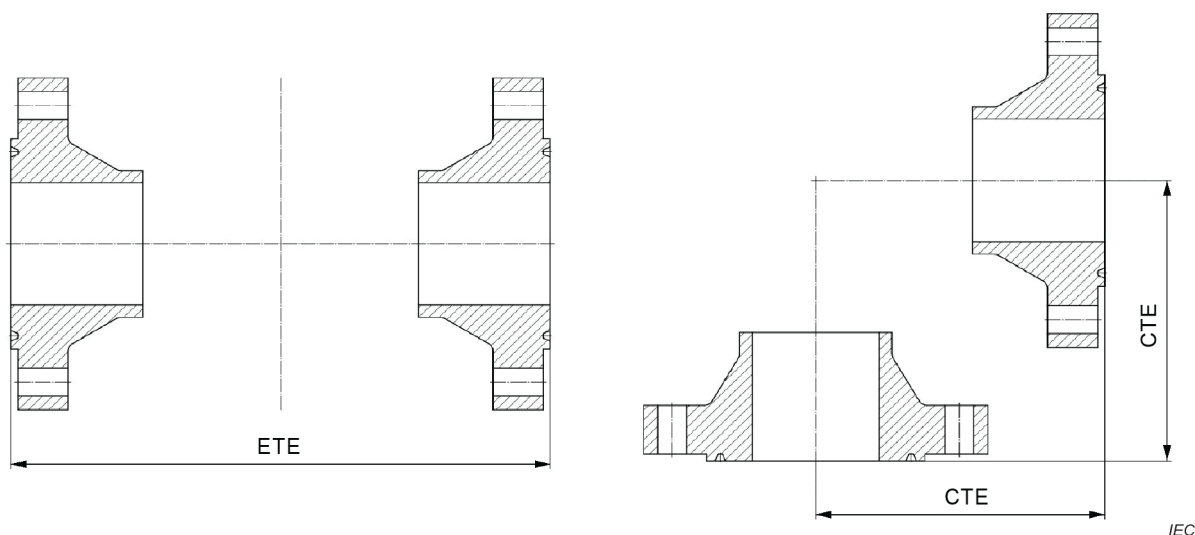


Figure 2 – End-to-end and centre-to-end dimensions

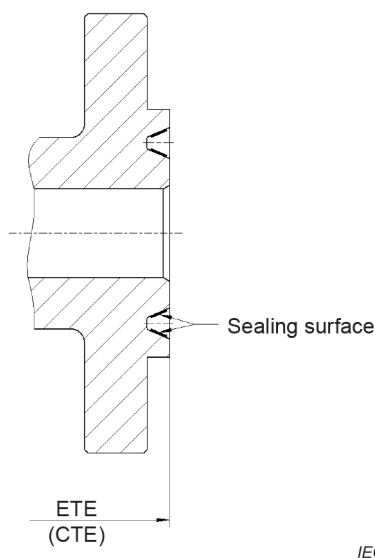


Figure 3 – Details of RTJ flanges

5 Face-to-face and centre-to-face dimensions

FTF and CTF dimensions shall be taken from Table 1 to Table 4. These tables shall be used only in conjunction with the range of nominal sizes and groups of pressure ratings given in the tables.

Control valve FTF and CTF dimensions taken from a given pressure rating group shall be the same; however, control valves may differ in other respects.

NOTE Pressure ratings have been grouped as shown in the tables in order to restrict the number of FTF and CTF dimensions.

6 Tolerances

Tolerances on FTF and CTF dimensions shall be as shown in Table 1 to Table 4.

7 Flange facings

This document only provides FTF and CTF dimensions for control valves with plain-face or raised-face flanges. The FTF and CTF dimensions include the raised face, if provided, as specified in the appropriate flange standard.

For end-to-end dimensions of straight pattern valves with ring joint ends (Figure 2b), dimension „X“ as given in Table 5 shall be added to the face-to-face dimension given in Table 1 and Table 2. For centre-to-end dimension of angle pattern valves with ring joint ends half of dimension „X“ shall be applied to the centre-to-face dimension given in Table 3 and Table 4.

Dimension „X“ as given in Table 5 is taken from the metric values given in ASME B16.10-2009.

Control valves with flanges having other special facings such as male and female flange facing or tongue-and-groove are not covered by this part of IEC 60534.

Table 1 – Face-to-face dimensions for flanged, two-way, globe-style, straight pattern control valves: PN-designated valves

Nominal size (DN)	FTF dimension												Tolerances for FTF				
	PN 10 or 16			PN 25 or 40			PN 63 or 100			PN 160				PN 250			
15	130	184*	190*	210	203*	210	230	260	292	210	292	230	292	292			
20	150	184*	194*	230	206*	230	230	260	292	230	292	260	292	292			
25	160	184	197	230	210	230	230	260	292	230	292	260	292	292			
32	180	-	180	260	-	260	260	260	-	260	300	300	300	-			
40	200	222	222	260	251	260	260	260	333	260	333	300	333	333			
50	230	254	267	300	286	300	300	300	375	300	375	350	375	375			
65	290	276*	292*	340	311*	340	340	340	410	340	410	400	410	410			±2
80	310	298	317	380	337	380	380	380	441	380	441	450	460	460			
100	350	352	368	430	394	430	430	430	511	430	511	520	530	530			
125	400	-	-	500	-	500	500	500	-	500	600	600	-	-			
150	480	451	473	550	508	550	550	550	714	550	714	700	768	768			
200	600	543	568	650	610	650	650	650	914	650	914	800	972	972			
250	730	673	708	775	752	775	775	775	991	775	991	900	1067	1067			
300	850	737	775	900	819	900	900	900	1 130	900	1 130	1 050	1 219	1 219			
350	980	889	927	1 025	972	1 025	1 025	1 025	1 257	1 025	1 257	-	1 257	1 257			±3
400	1 100	1 016	1 057	1 150	1 108	1 150	1 150	1 150	1 422	1 150	1 422	-	1 422	1 422			
EN 558 Basic series	1	37	38	2	39	2	2	2	105	2	105	92	106	106			
ANSI/ISA reference	-	75.08.01	75.08.01	-	75.08.01	-	-	-	75.08.06 Long	-	75.08.06 Long	-	75.08.06 Long	75.08.06 Long			

* Dimension of this nominal size not listed in EN 558.

NOTE 1 All dimensions are in millimeters.

NOTE 2 Tolerances in ANSI/ISA 75.08.01 and 75.08.06 are ±1,6 mm up to DN 250 and ±3,2 mm DN 300 and larger.

Table 2 – Face-to-face dimensions for flanged, two-way, globe-style, straight pattern control valves: class-designated valves

Nominal size (DN)	FTF dimension												Tolerances for FTF									
	Class 125 or 150			Class 250 or 300			Class 600			Class 900				Class 1 500								
	184*	130	190*	130	203*	210	292	273	210	292	273	210		292	273	210	292	273	210	292	273	210
15	184*	130	190*	130	203*	210	292	273	210	292	273	210	292	273	210	292	273	210	292	273	210	230
20	184*	150	194*	150	206*	230	292	273	230	292	273	230	292	273	230	292	273	230	292	273	230	260
25	184	160	197	160	210	230	292	273	230	292	273	230	292	273	230	292	273	230	292	273	230	260
32	-	180	180	180	260	260	-	-	260	260	311	260	333	311	260	333	311	260	333	311	260	300
40	222	200	235	200	251	260	333	311	260	333	311	260	333	311	260	333	311	260	333	311	260	300
50	254	230	267	230	286	300	375	340	300	375	340	300	375	340	300	375	340	300	375	340	300	350
65	276*	290	292*	290	311*	340	410	-	340	410	-	340	410	-	340	410	-	340	410	-	340	400
80	298	310	317	310	337	380	441	387	380	441	387	380	441	387	380	441	387	380	441	387	380	450
100	352	350	368	350	394	430	511	464	430	511	464	430	511	464	430	511	464	430	511	464	430	520
125	-	400	-	400	-	500	-	-	500	-	-	500	-	-	500	-	-	500	-	-	500	600
150	451	480	473	480	508	550	714	600	550	714	600	550	714	600	550	714	600	550	714	600	550	700
200	543	600	568	600	610	650	914	781	650	914	781	650	914	781	650	914	781	650	914	781	650	800
250	673	730	708	730	752	775	991	864	775	991	864	775	991	864	775	991	864	775	991	864	775	900
300	737	850	775	850	819	900	1 130	1 016	900	1 130	1 016	900	1 130	1 016	900	1 130	1 016	900	1 130	1 016	900	1 050
350	889	980	927	980	972	1 025	1 257	-	1 025	1 257	-	1 025	1 257	-	1 025	1 257	-	1 025	1 257	-	1 025	-
400	1 016	1 100	1 057	1 100	1 108	1 150	1 422	-	1 150	1 422	-	1 150	1 422	-	1 150	1 422	-	1 150	1 422	-	1 150	-
EN 558 Basic series	37	1	38	1	39	2	105	-	2	105	-	2	105	-	2	105	-	2	105	-	2	92
ANSI/ISA reference	75.08.01	-	75.08.01	-	75.08.01	-	75.08.06 Long	75.08.06 Short	-	75.08.06 Long	75.08.06 Short	-	75.08.06 Long	75.08.06 Short	-	75.08.06 Long	75.08.06 Short	-	75.08.06 Long	75.08.06 Short	-	-

* Dimension of this DN not listed in EN 558.

NOTE 1 All dimensions are in millimeters.

NOTE 2 Tolerances in ANSI/ISA 75.08.01 and 75.08.06 are $\pm 1,6$ mm up to DN 250 and $\pm 3,2$ mm DN 300 and larger.

Table 3 – Centre-to-face dimensions for flanged, two-way, globe-style, angle pattern control valves: PN-designated valves

Nominal size (DN)	CTF dimension								Tolerances for CTF	
	PN 10 or 16	PN 25 or 40	PN 63 or 100	PN 160	PN 250					
15	90	90	105	105	115	105	115	115	-	
20	95	95	115	115	130	115	130	130	-	
25	100	100	115	115	130	130	130	130	-	
32	105	99(1)	130	130	150	130	150	150	-	
40	115	115	130	130	150	130	150	150	-	
50	125	125	150	150	175	150	175	175	-	
65	145	145	170	170	200	170	200	200	-	
80	155	155	190	190	225	190	225	225	-	
100	175	175	215	215	260	215	260	260	-	
125	200	200	250	250	300	250	300	300	-	
150	225	225	275	275	350	275	350	350	-	
200	275	275	325	325	400	325	400	400	-	
250	325	325	390	390	-	390	-	-	-	±2
300	375	375	450	450	-	450	-	-	-	
350	425	425	515	515	-	515	-	-	-	±3
400	475	475	575	575	-	575	-	-	-	
EN 558 Basic series	8	40	8	41	9	42	9	93	-	
ANSI/ISA reference	-	75.08.08	-	75.08.08	-	75.08.08	-	-	-	

* ANSI/ISA 75.08.08 only covers nominal sizes up to DN 200.

NOTE 1 All dimensions are in millimeters.

NOTE 2 Tolerance in ANSI/ISA 75.08.08 is ±1,6 mm up to DN 200.

NOTE 3 1) per ANSI/ISA 75.08.08, EN 558 shows 98 mm .
2) per ANSI/ISA 75.08.08, EN 558 shows 225 mm.