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Metal valves for use in flanged pipe systems — Face-to-face and centre-to-face dimensions

Appareils de robinetterie métalliques utilisés dans les tuyauteries à brides — Dimensions face-à-face et face-à-axe

ICS: 23.060.01

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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

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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

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 153, *Valves*.

This third edition cancels and replaces the second edition (ISO 5752:1982), which has been technically revised.

The main changes compared to the previous edition are as follows:

— extension to PN 63; PN 100; PN 160; PN 250; PN 320; PN 400; deletion of PN 1; PN 1,6; PN 4;

— extension to Class 900; Class 1 500; Class 2 500;

— addition of DN 1 050; deletion of DN 550;

— deletion of Table 1 (Isobaric) and Table 10 (copper alloy);

— update of the basic series in Table 1;

— update of the face-to-face and centre-to-face dimensions in Tables 2 to 9.

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.

Introduction

The aim of this document is the establishment of face-to-face and centre-to-face dimensions for metal valves to permit a degree of dimensional interchangeability. They are intended to be used in the valve product standards.

Although the tables of face-to-face dimensions in this document represent a considerable rationalization of international practices, it has not been possible to reduce these to a single series of dimensions for the various types of valves. Alternatives have been included. For convenience these have been called short, medium and long, but these terms are not used in a descriptive sense.

The pressure/temperature ratings for the different types of valves are those to be specified for the type of valves and materials used.

The principle of establishing dimensions in this document is that, first, there exists an ISO industrial valve standard covering that product, in its size and pressure rating, and second, certain valve types are of significant international demand that their use justifies inclusion in this international standard.

Metal valves for use in flanged pipe systems — Face-to-face and centre-to-face dimensions

1 Scope

This document specifies the basic series of face-to-face (FTF) and centre-to-face (CTF) dimensions for two-way metal valves of the gate, globe, diaphragm, ball, plug, butterfly design types used as isolating and check valves in flanged pipe systems. Each basic series of face-to-face and centre-to-face dimensions may be used as required with flanges of mating dimensions conforming to equivalent EN or ASME flange series.

This document covers valves with the following PN, Class, DN and NPS values:

— PN 2,5; PN 6; PN 10; PN 16; PN 25; PN 40; PN 63; PN 100; PN 160; PN 250; PN 320; PN 400;

— Class 125; Class 150; Class 250; Class 300; Class 600; Class 900; Class 1 500; Class 2 500;

— DN 10; DN 15; DN 20; DN 25; DN 32; DN 40; DN 50; DN 65; DN 80; DN 100; DN 125; DN 150; DN 200; DN 250; DN 300; DN 350; DN 400; DN 450; DN 500; DN 600; DN 650; DN 700; DN 750; DN 800; DN 900; DN 1 000; DN 1 050; DN 1 200; DN 1 400; DN 1 600; DN 1 800; DN 2 000;

— corresponding to nominal sizes NPS: 3/8; 1/2; 3/4; 1; 1 1/4; 1 1/2; 2; 2 1/2; 3; 4; 5; 6; 8; 10; 12; 14; 16; 18; 20; 24; 26; 28; 30; 32; 36; 40; 42; 48; 56; 64; 72; 80.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

— IEC Electropedia: available at http://www.electropedia.org/

3.1
nominal size
DN or NPS
alphanumeric designation of size for components of a pipework system, which is used for reference purposes, comprising the letters DN or NPS followed by a dimensionless number which is indirectly related to the physical size, (in millimetres for DN and in inches for NPS), of the bore or outside diameter of the end connections

Note 1 to entry: The number following DN or NPS does not represent a measurable value and is not used for calculation purposes except where specified in a product standard.

Note 2 to entry: See ASME B16.34.

[SOURCE: ISO 6708:1995, definition 2.1, modified]

3.2
nominal pressure
PN or Class
numerical designation relating to pressure that is a convenient rounded number for reference purposes, and which comprises the letters “PN” or “Class” followed by the appropriate reference number

Note 1 to entry: It is intended that all equipment of the same nominal size (DN or NPS) designated by the same PN number or Class number shall have compatible mating dimensions.

Note 2 to entry: The maximum allowable pressure depends on materials, design and working temperature, and is to be selected from the tables of pressure/temperature ratings given in the appropriate standards.

[SOURCE: ISO 7268:1983, Clause 2, modified]

3.3
face-to-face dimensions
(FTF)
[straight pattern valves]
distance between the two planes perpendicular to the valve axis located at the extremities of the body end ports

Note 1 to entry: In millimetres.

Note 2 to entry: See Figures 1 to 4.

3.4
centre-to-face dimensions
(CTF)
[angle pattern valves]
distance, between the plane located at the extremity of either body end port and perpendicular to its axis and the other body end port axis

Note 1 to entry: In millimetres.

Note 2 to entry: See Figures 1 to 4.

4 Dimensions and tolerances

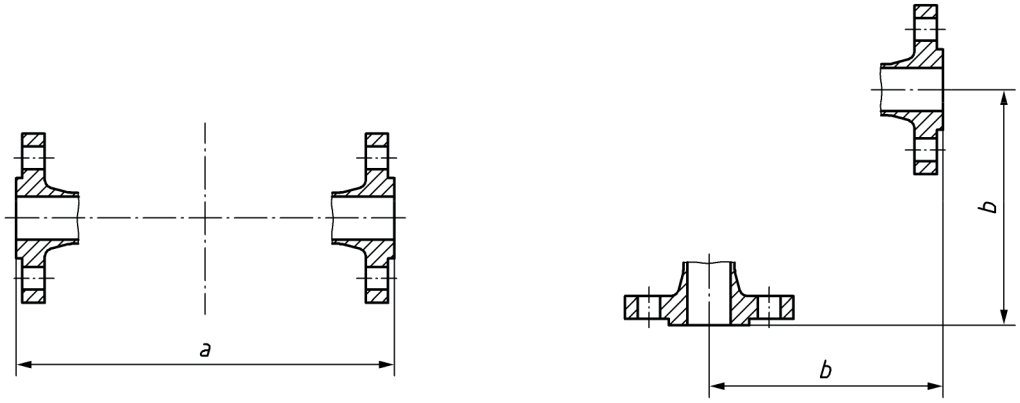
The basic series of FTF and CTF dimensions, expressed in millimetres, shall be as given in Table 1.

Table 1 is a summary of the dimensions in Tables 2 to 9 giving the origin of each series and should be referred to when consideration is given to valve types not covered by this document. Each particular column does not necessarily include all the valves of the relevant basic series.

Table 9 covers butterfly check or wafer check valves which are retained in the piping by bolting that spans the two adjacent flanges, however these valves may alternately be furnished with full end flanges as shown in the table notes. Check valves shown as ‘long pattern’ shall be furnished with full end flanges only.

The face-to-face and centre-to-face dimensions, as appropriate for the types of valves covered by this document, shall be in accordance with Tables 2 to 9, and the tolerances shall be in accordance with Tables 10 and 11.

Tolerances on FTF and CTF dimensions as shown in Figure 1 are given in Table 10. Both tolerances shall be fulfilled.



Key

a face-to-face (FTF)

b centre-to-face (CTF)

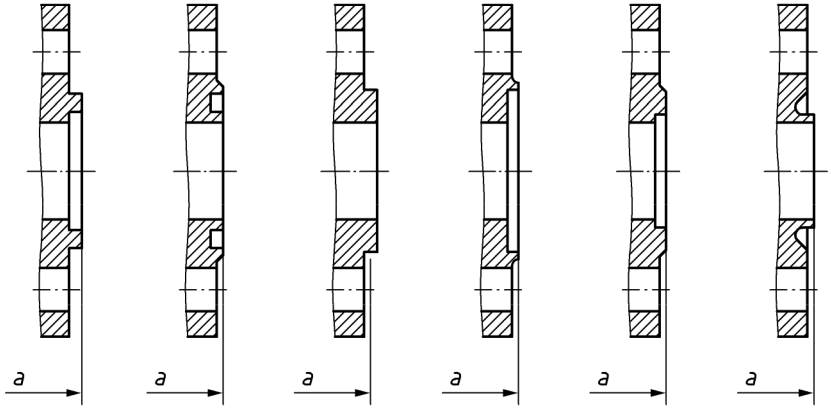
Figure 1 — Face to face and centre to face dimensions

Type A **Type B**

Key

a face-to-face (FTF)

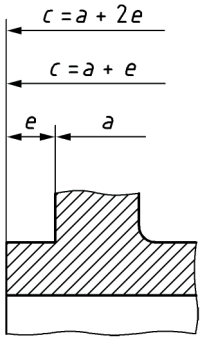
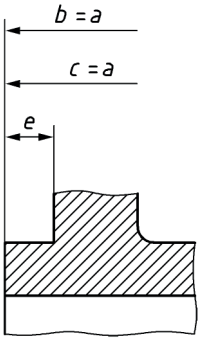
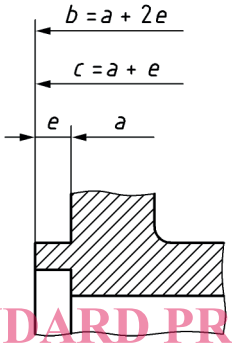
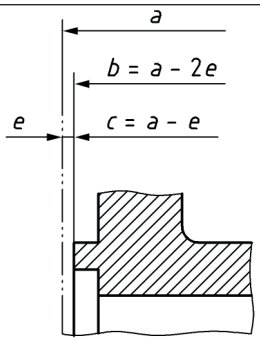
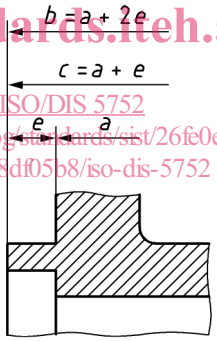
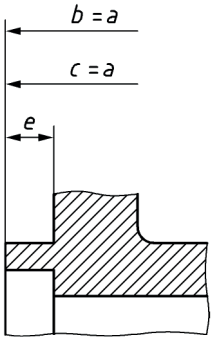
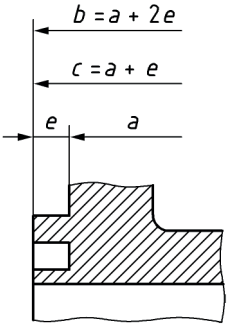
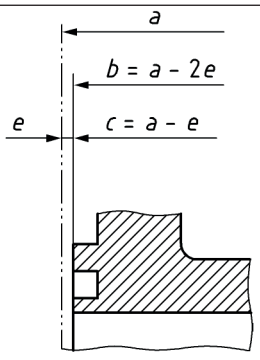
Figure 2 — Flanged valves PN and Class designated (flat and raised faces)



Key

a face-to-face (FTF)

Figure 3 — Flanged valves PN designated (spigot and recess)

	Class 150 and Class 300	Class 600 and above
Large or small male face		
Large or small female face		
Large or small tongue		
Large or small groove		

Key

a for dimensions see Table 2 to Table 9

b face-to-face (FTF)

c centre-to-face (CTF)

e height

NOTE For elevation height *e*, see appropriate flange standard.

Figure 4 — Flanged valves Class designated