
**Ships and marine technology — Metal
valves for use in flanged pipe — Face-
to-face and centre-to-face dimensions**

*Navires et technologie maritime — Vannes en métal pour tuyaux à
brides — Dimensions face-à-face et face-à-axe*

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Published in Switzerland

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Foreword

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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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 8, *Ships and marine technology*, Subcommittee SC 3, *Piping and machinery*.

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Introduction

This International Standard establishes face-to-face and centre-to-face dimensions for metal marine valves to permit a degree of dimensional interchangeability in ships and marine piping.

It is intended for use in selecting valves in piping for ships and marine services.

This International Standard specifies face-to-face and centre-to-face dimensions of valves for ships and marine services including supplementary series of special valves under Standards for ships, other than those specified in ISO 5752:1982 for variety of types and series of general industrial valves.

The tables of face-to-face dimensions in this International Standard and those specified in ISO 5752:1982 represent a considerable rationalization of international practices for metallic valves to be used worldwide in the shipbuilding and marine services. The pressure/temperature ratings for the different types of valves are those to be specified in the valve product standards for the types of valve and materials used.

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Ships and marine technology — Metal valves for use in flanged pipe — Face-to-face and centre-to-face dimensions

1 Scope

This International Standard specifies the basic series of face-to-face or centre-to-face dimensions for two-way metal valves used in flanged pipe systems for ship and marine services. Each series of face-to-face or centre-to-face dimensions can be used as required with flanges of mating dimensions conforming to ISO 7005-1, ISO 7005-2, and ISO 7005-3 or other national standards.

The range of pressure ratings, in “K” values, is 5 - 10 - 16 - 20 - 30 - 40 and those specified in ISO 5752.

The range of nominal sizes, in “DN” or “A” values, is 15 - 20 - 25 - 32 - 40 - 50 - 65 - 80 - 100 - 125 - 150 - 200 - 250 - 300 - 350 - 400 - 450 - 500 - 550 - 600 - 650 - 700 - 750 - 800 - 900 - 1 000 - 1 200.

NOTE For information, pressure ratings at room temperature (cold ratings up to 120 °C) of K-series flanges are approximately as follows.

Pressure class	5K	10K	16K	20K	30K	40K
Pressure rating (RT)	0,7 MPa	1,4 MPa	2,2 MPa	3,4 MPa	5,1 MPa	6,8 MPa

Pressure rating can differ by valve materials, sizes, and types. Reference shall be made to relevant product standards. For details of pressure temperature ratings of K-series flanges, refer to JIS Standards in the bibliography of this International Standard. JIS F7300 specifies a comprehensive guide for selection of valves listed in [Tables 1 to 5](#).

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2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5752, *Metal valves for use in flanged pipe systems — Face-to-face and centre-to-face dimensions*

ISO 7005-1, *Pipe flanges — Part 1: Steel flanges for industrial and general service piping systems*

ISO 7005-2, *Metallic flanges — Part 2: Cast iron flanges*

ISO 7005-3, *Metallic flanges — Part 3: Copper alloy and composite flanges*

ISO 8277, *Ships and marine technology — Pipework and machinery — Information transfer*

3 Terms and definitions

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

3.1

nominal size (DN: A)

alphanumeric designation of size for components of a pipework system, which is used for reference purposes

Note 1 to entry: It comprises the letters DN or A followed by a dimensionless whole number which is indirectly related to the physical size, in millimetres, of the bore or outside diameter of the end connections.

Note 2 to entry: Designation is to be indicated by the letters DN, followed by a number, or a number followed by the letter A.

Note 3 to entry: The number following the letters DN or A does not represent a measurable value and should not be used for calculation purposes except where specified in the relevant standard.

3.2 nominal pressure

internal pressure that a pipe is designed to safely withstand

Note 1 to entry: Nominal pressures in this International Standard follow one of the following systems, the K rating system to ISO 8277 and the PN rating system or the class rating system to ISO 5752

3.3 face-to-face dimension (for straight pattern valves)

distance, in millimetres, between the two planes perpendicular to the valve axis located at the extremities of the body end ports or as can be specified in the relevant valve products standards

Note 1 to entry: The face-to-face dimension for butterfly valves is the distance between the extremities of the valve in the installed conditions. See [Figure 3 a](#)) as an example to know how face-to-face dimension is measured.

3.4 centre-to-face dimension (for angle pattern valves)

distance, in millimetres, 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: See [Figure 3 b](#)) as an example to know how centre-to-face dimension is measured.

Note 2 to entry: It should be taken into account that an angle pattern valve can have different centre-to-face dimensions for its inlet port and outlet port.

4 Typical types of valves

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Typical types of valves shall be as given in [Figures 1](#) to [6](#).

[Figures 1](#) to [6](#) are intended to be a diagrammatic only and should not be used as symbols. They do not assume the principle or the construction details. Screw-down non-return (SDNR) valves shown in [Figure 5](#) and inside screw, non-rising stem gate valves shown in [Figure 6](#) are types of valves especially for marine use.

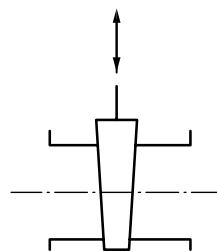


Figure 1 — Wedge gate valves

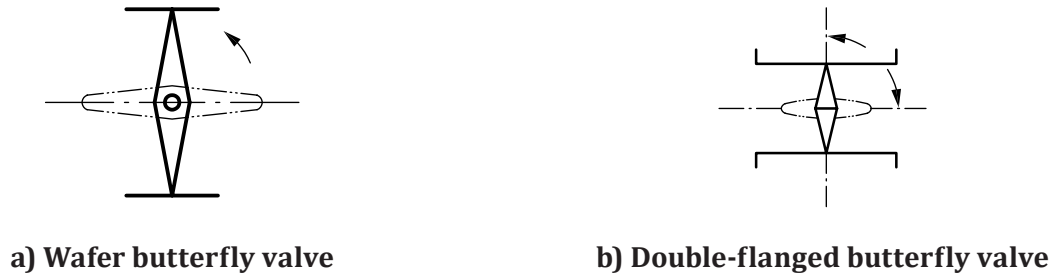
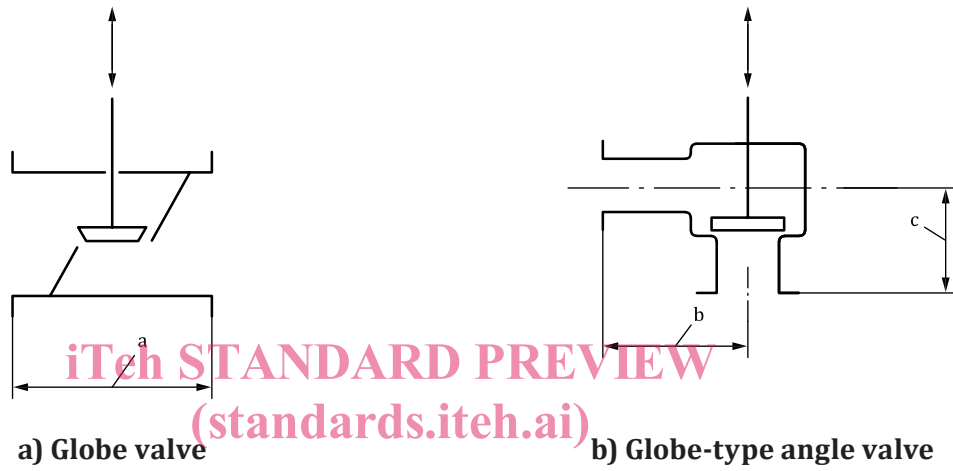


Figure 2 — Butterfly valves



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Key

- a Face-to-face dimension.
- b Center-to-face dimension (outlet).
- c Center-to-face dimension (inlet).

Figure 3 — Globe valves

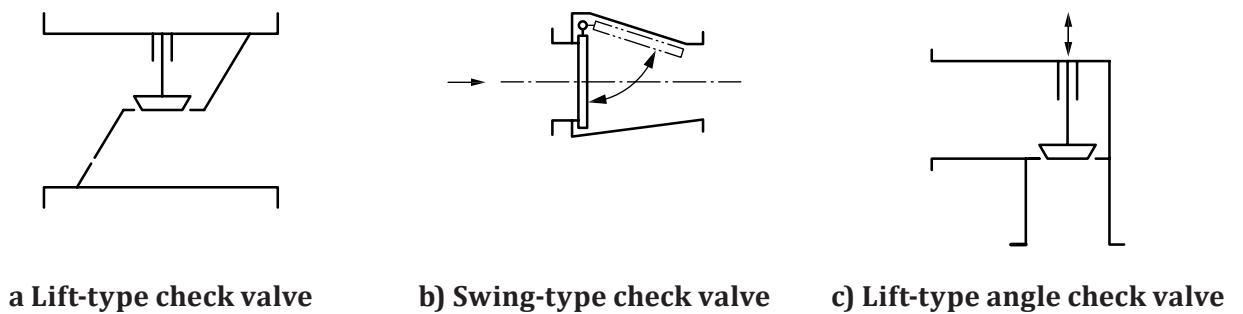


Figure 4 — Non-return valves

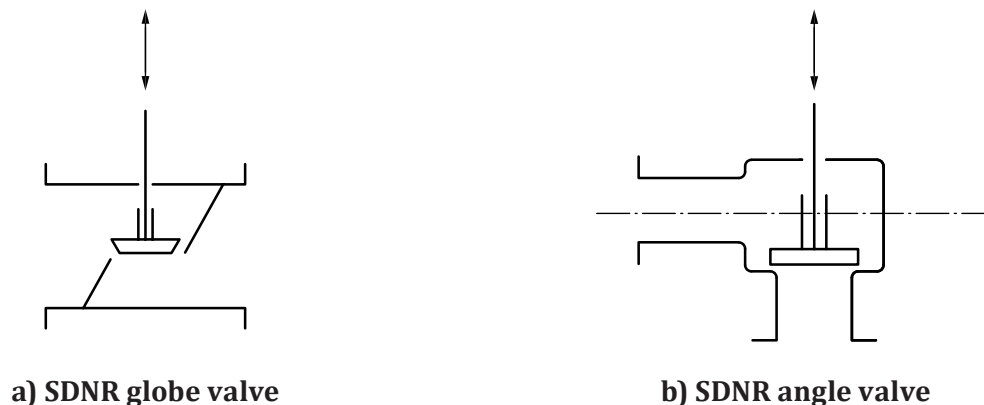


Figure 5 — Screw-down non-return (SDNR) valves

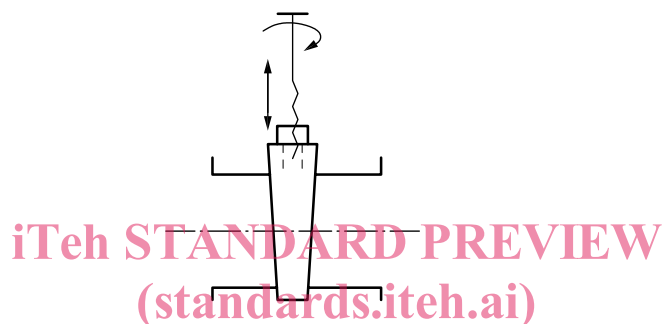


Figure 6 — Inside screw, non-rising stem gate valves

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5 Dimensions and tolerances

The face-to-face or centre-to-face dimensions, as appropriate for the types of valves included in this International Standard, shall be in accordance with [Tables 1 to 5](#), and the tolerances shall be in accordance with [Tables 6 and 7](#), or dimensions and tolerances in accordance with ISO 5752.

Table 1 — Face-to-face dimensions for gate valves

Dimensions in millimetres

Nominal size DN: A		Material						
		Bronze		Cast iron			Cast steel	
		Nominal pressure						
		5K Rising stem	10K Rising stem	5K Non-rising stem	10K Non-rising stem	16K Non-rising stem	10K Non-rising stem	Hull valve, non-rising stem
DN15	15A	90	100	—	—	—	—	—
DN20	20A	100	110	—	—	—	—	—
DN25	25A	110	120	—	—	—	—	—
DN32	32A	130	140	—	—	—	—	—
DN40	40A	140	150	—	—	—	—	—
DN50	50A	—	—	180	200	—	200	200
DN65	65A	—	—	190	220	—	220	220
DN80	80A	—	—	200	230	—	230	230
DN100	100A	—	—	230	250	—	250	250
DN125	125A	—	—	250	270	—	270	270
DN150	150A	—	—	270	290	—	290	290
DN200	200A	—	—	290	320	—	310	310
DN250	250A	—	—	330	380	—	340	340
DN300	300A	—	—	370	440	490	380	380
DN350	350A	—	—	410	500	540	420	420
DN400	400A	—	—	470	590	610	480	480
DN450	450A	—	—	500	640	—	—	450
DN500	500A	—	—	550	710	—	—	500
550A		—	—	600	780	—	—	550
DN600	600A	—	—	660	850	—	—	600
650A		—	—	—	—	—	—	650
DN700	700A	—	—	—	—	—	—	700
750A		—	—	—	—	—	—	750
DN800	800A	—	—	—	—	—	—	800

NOTE 1 Nominal size shall be designated by the letters DN, followed by a number, or a number followed by the letter A.

NOTE 2 Refer to the note in [Clause 1](#) of this International Standard for K-series ratings: 5K, 10K, and 16K.