
Industrial valves — Bolted bonnet steel gate valves

*Robinetterie industrielle - Robinets-vannes en acier à chapeau
boulonné*



This document is a preview generated by EKO



COPYRIGHT PROTECTED DOCUMENT

© ISO 2021

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
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Pressure/temperature ratings	3
5 Design	3
5.1 Body wall thickness	3
5.2 Body dimensions	5
5.2.1 Flanges	5
5.2.2 Weld ends	6
5.3 Gate	7
5.4 Stem	8
5.5 Auxiliary connections	8
5.6 Closure test	11
5.7 Operation	11
6 Materials	12
6.1 Materials other than trim materials	12
6.2 Trim	12
7 Testing and inspection	13
8 Marking	13
8.1 Legibility	13
8.2 Body markings	14
8.3 Ring joints marking	14
8.4 Identification plate marking	14
Bibliography	15

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 second edition cancels and replaces the first edition (ISO 6002:1992), which has been technically revised.

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

- in the whole text, deletion of PN 20 and PN 50, addition of PN 63 and inclusion of nominal pipe sizes NPS and Class designations;
- update of the normative references in [Clause 2](#);
- addition of definitions for DN, NPS, PN and Class;
- revision of [Figure 1](#) identifying valves terms and [Figure 6](#) for butt-welding for auxiliary connections;
- addition of requirements for gate in [5.3](#) and stem in [5.4](#);
- addition of requirements for closure test in [5.6](#);
- deletion of former [Table 1](#) on body wall thickness, deletion of former [Table 3](#) on end-to-end dimensions for butt-weld end valves and deletion of former [5.4](#) on envelope dimensions;
- revision of [Table 1](#) on body end port inside diameter, and [Table 8](#) on component materials;
- update of [Clause 7](#) on testing and inspection and [Clause 8](#) on marking.

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.

Industrial valves — Bolted bonnet steel gate valves

1 Scope

This document specifies the requirements for bolted bonnet steel gate valves having the following features:

- bolted bonnet;
- outside screw and yoke;
- inside screw (alternative for PN 10, PN 16, Class 150, PN 25 and PN 40 only);
- single or double obturator;
- wedge or parallel seating;
- with or without non-metallic obturator or seat seals;
- flanged or butt-welding ends.

It covers valves of the nominal sizes DN:

- 10; 15; 20; 25; 32; 40; 50; 65; 80; 100; 125; 150; 200; 250; 300; 350; 400; 450; 500; 600; 700; 800; 900; 1 000;

corresponding to nominal pipe sizes NPS:

- $\frac{3}{8}$; $\frac{1}{2}$; $\frac{3}{4}$; 1; 1 $\frac{1}{4}$; 1 $\frac{1}{2}$; 2; 2 $\frac{1}{2}$; 3; 4; 5; 6; 8; 10; 12; 14; 16; 18; 20; 24; 28; 32; 36; 40;

and applies to valves of the following pressure designations:

- PN 10; 16; 25; 40; 63; 100;
- Class 150; 300; 600.

This document applies to bolted bonnet steel gate valves used for all industrial applications.

Additional requirements given in the relevant application standards can apply to bolted bonnet steel gate valves used for more specific applications (e.g. for the water industry, the chemical and petrochemical process industry, the oil and gas industry).

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 4991, *Steel castings for pressure purposes*

ISO 5208, *Industrial valves — Pressure testing of metallic valves*

ISO 5210, *Industrial valves — Multi-turn valve actuator attachments*

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

ISO 9327 (all parts), *Steel forgings and rolled or forged bars for pressure purposes — Technical delivery conditions*

ISO 9328-1, *Steel flat products for pressure purposes — Technical delivery conditions — Part 1: General requirements*

ISO 9328-2, *Steel flat products for pressure purposes — Technical delivery conditions — Part 2: Non-alloy and alloy steels with specified elevated temperature properties*

ISO 9328-3, *Steel flat products for pressure purposes — Technical delivery conditions — Part 3: Weldable fine grain steels, normalized*

ISO 9328-4, *Steel flat products for pressure purposes — Technical delivery conditions — Part 4: Nickel-alloy steels with specified low temperature properties*

ISO 9328-5, *Steel flat products for pressure purposes — Technical delivery conditions — Part 5: Weldable fine grain steels, thermomechanically rolled*

ISO 14737, *Carbon and low alloy cast steels for general applications*

EN 1092-1, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 1: Steel flanges*

EN 12982, *Industrial valves — End-to-end and centre-to-end dimensions for butt welding end valves*

EN 12516-1, *Industrial valves — Shell design strength — Part 1: Tabulation method for steel valve shells*

EN 12516-2, *Industrial valves — Shell design strength — Part 2: Calculation method for steel valve shells*

ASME B16.10, *Face-to-Face and End-to-End Dimensions of Valves*

ASME B16.34, *Valves Flanged, Threaded, and Welding End*

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

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 indirectly related to the physical size, in millimetres, of the bore or outside diameter of the end connections

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

Note 2 to entry: See ISO 6708 and ASME B16.34.