SLOVENSKI STANDARD
SIST ISO 6002:2000

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Jekleni zasuni s prirobniļ nim zgornjim delom

Bolted bonnet steel gate valves

Robinets-vannes en acier à chapeau boulonné

Ta slovenski standard je istoveten z: **ISO 6002:1992**

ICS:

23.060.30 Zapirni ventili (zasuni) Gate valves

SIST ISO 6002:2000 **en**

INTERNATIONAL STANDARD

ISO 6002

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Bolted bonnet steel gate valves

Robinets-vannes en acier à chapeau boulonné

Reference number
ISO 6002:1992(E)

Contents

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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.

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.

International Standard ISO 6002 was prepared by Technical Committee ISO/TC 153, *Valves*, Sub-Committee SC 1, *Design, manufacture, marking and testing*.

Introduction

The purpose of this International Standard is the establishment of the basic requirements and recommendations for flanged or butt-weld end steel gate valves of bolted bonnet construction.

To maintain compatibility with ISO 7005-1 whereby the American flanges previously designated by a class rating have been converted to nominal pressure (PN) ratings, this International Standard follows the same system. The equivalent ratings are as follows:

Class 150: PN 20

Class 300: PN 50

Class 600: PN 100

Bolted bonnet steel gate valves

1 Scope

This International Standard 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, PN 20, 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,

and applies to valves of the nominal pressures PN

10; 16; 20; 25; 40; 50; 100.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7-1:1982, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Designation, dimensions and tolerances.*

ISO 5208:—[1], *Industrial valves — Pressure testing of valves.*

ISO 5210:1991, *Industrial valves — Multi-turn valve actuator attachments.*

ISO 5752:1982, *Metal valves for use in flanged pipe systems — Face-to-face and centre-to-face dimensions.*

ISO 6708:1980, *Pipe components — Definition of nominal size.*

ISO 7005-1:1992, *Metallic flanges — Part 1: Steel flanges.*

ISO 7268:1983, *Pipe components — Definition of nominal pressure.*

ANSI/ASME B1.20.1:1983, *Pipe threads, general purpose (inch).*

3 Definitions

For the purposes of this International Standard, the definition of nominal size given in ISO 6708 and of nominal pressure given in ISO 7268 apply.

1) To be published. (Revision of ISO 5208:1982)

4 Pressure/temperature ratings

4.1 The pressure/temperature ratings applicable to flanged valves specified in this International Standard shall be in accordance with those specified in ISO 7005-1 for steel flanges of the applicable nominal pressure and material specification. Restrictions of temperature and pressure, for example those imposed by soft seals and special trim materials, shall be indicated on the valve identification plate [see 8.5 c)].

4.2 The temperature shown for a corresponding pressure rating is the temperature of the pressure-containing shell of the valve. In general, this temperature is the same as that of the contained fluid. The use of a pressure rating corresponding to a temperature other than that of the contained fluid is the responsibility of the user.

4.3 For temperatures below the lowest temperature shown in the pressure/temperature rating tables in ISO 7005-1, the service pressure shall be no greater than the rating shown for that lowest temperature. The use of valves at lower temperatures is the responsibility of the user. Consideration should be given to the loss of ductility and impact strength of many materials at low temperature.

5 Design

5.1 Body wall thickness

5.1.1 The minimum body wall thickness, t_m, at the time of manufacture shall be as given in table 1, except as indicated in 5.1.2 to 5.1.4.

Additional metal thickness needed for assembly stresses, closing stresses, stress concentrations and shapes other than circular shall be determined by individual manufacturers, since these factors vary widely.

5.1.2 The weld preparation in butt-welding end valves (see 5.2.2.2) shall not reduce the body wall thickness to less than the values specified in 5.1.1 within a region closer to the outside surface of the body neck than t_m measured along the run direction. The transition to the weld preparation shall be gradual and the section shall be essentially circular through the entire length of the transition. Sharp discontinuities or abrupt changes in section in areas that infringe into the transition shall be avoided, except that test collars or bands, either welded or integral, are allowed. In no case shall the thickness be less than $0{,}77t_m$ at a distance of $1{,}33t_m$ from the weld end.

5.1.3 The valve body neck shall maintain the minimum body wall thickness t_m as specified in 5.1.1 within the distance $1{,}1\sqrt{dt_m}$ measured from the outside of the body run along the neck direction, where d is the nominal inside diameter as defined in 5.2.1.4.

Beyond the distance $1{,}1\sqrt{dt_m}$ from the outside of the body run, straight circular sections of body necks with inside diameter d' shall be provided with a minimum local wall thickness of t', where t' is determined, by interpolation if necessary, as the value of t_m which would correspond to a value of d equal to $2d'/3$, using the applicable nominal pressure rating.

It will be noted that for any case where $d' > 1{,}5d$, the newly determined minimum wall thickness for the body neck will be greater than the basic value t_m. In such cases, this greater wall thickness shall be provided for all parts of the body neck having a diameter greater than $1{,}5d$.

5.1.4 Local areas having less than the minimum wall thickness will be acceptable provided that all of the following limitations are satisfied:

a) the area of less than minimum thickness can be enclosed by a circle whose diameter is no greater than $0{,}35\sqrt{dt_m}$, where d is the nominal inside diameter as given in table 2 and t_m is the minimum body wall thickness as shown in table 1;

b) the measured thickness is no less than $0{,}75t_m$;

c) enclosure circles are separated from each other by an edge-to-edge distance of no less than $1{,}75\sqrt{dt_m}$.

5.1.5 The terms used in this clause are illustrated in figure 1.

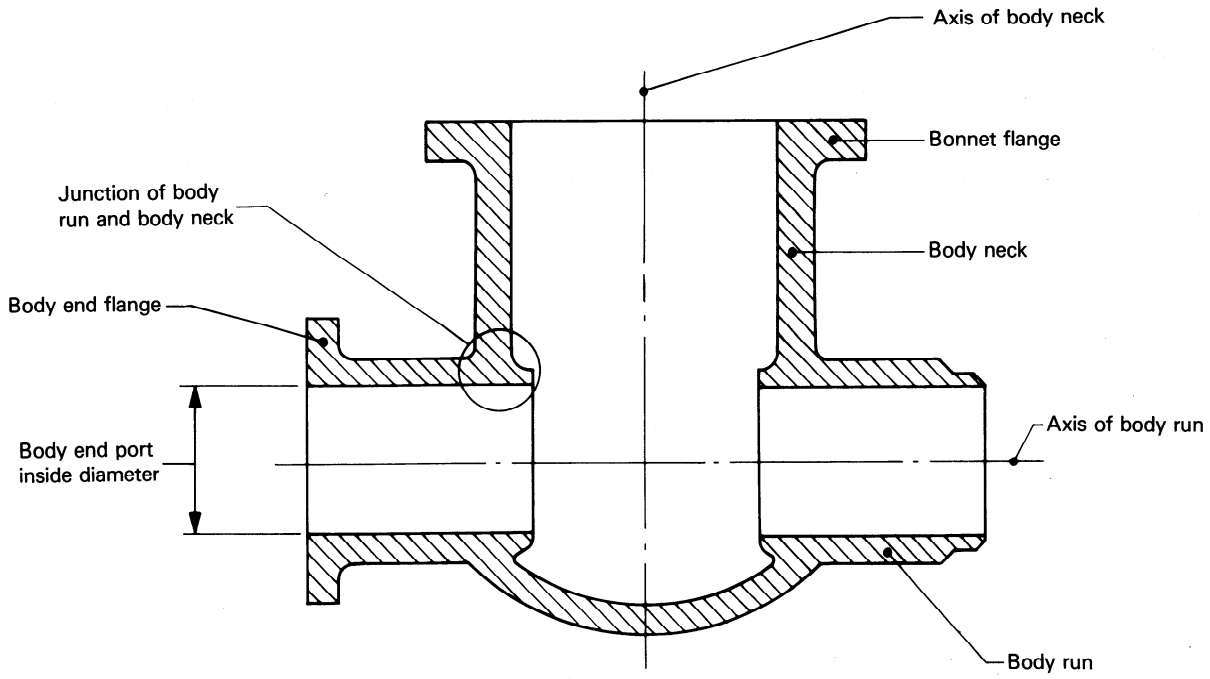

Figure 1 — Identification of terms

Table 1 — Body wall thickness

Nominal size DN[1]	Nominal pressure PN						
	10	16	20	25	40	50	100
	Minimum body wall thickness t_m mm						
10	3	3	3	3	3	3	3,3
15	3	3	3	3	3,1	3,1	3,4
20	3	3	3,1	3,3	3,5	3,8	4,1
25	4	4	4,1	4,2	4,6	4,8	4,8
32	4,5	4,5	4,8	4,8	4,8	4,8	4,8
40	4,5	4,5	4,8	4,8	4,8	4,8	5,6
50	5	5,5	5,6	5,7	6,1	6,4	6,4
65	5	5,5	5,6	5,8	6,6	6,4	7,1
80	5	5,5	5,6	5,8	6,6	7,1	7,9
100	6	6	6,4	6,6	7,3	7,8	9,6
125	6,3	6,5	7,1	7,2	8,1	9,6	11,2
150	6,5	7	7,1	7,5	8,8	9,6	12,7
200	7	8	8,1	8,6	10,2	11,2	15,8
250	7,5	8,5	8,6	9,3	11,4	12,7	19
300	8,5	9,5	9,6	10,4	12,7	14,2	23,1
350	9	10	10,4	11,3	14	15,8	24,6
400	9,6	11	11,2	12,7	15,4	17,5	27,7
450	10	11,5	11,9	13	16,6	19	31
500	10,5	12,5	12,8	14,5	18,3	20,6	34
600	11,5	14	14,4	16,3	21,3	23,9	40,4
700	12,5	15,5	16	18,2	24,3	27,2	
800	14	17	17,6	20,1	27,3	30,5	
900	15,5	18,5	19,2	22	30,4	33,8	
1 000	17	20	20,8	23,9	33,5	37,2	

1) For the corresponding body end port nominal inside diameter, see table 2.