



SLOVENSKI STANDARD

SIST EN 13709:2011

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Nadomešča:
SIST EN 13709:2003

Industrijski ventili - Jekleni zapirni ventili in zapirni protipovratni ventili

Industrial valves - Steel globe and globe stop and check valves

Industriearmaturen - Absperrventile und absperrbare Rückschlagventile aus Stahl

Robinetterie industrielle - Robinets à soupape et robinets à clapet libre blocable en acier
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ICS:

23.060.10	Zapirni ventili (kroglasti)	Globe valves
23.060.50	Blokirni ventili	Check valves

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EUROPEAN STANDARD

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Industrial valves - Steel globe and globe stop and check valves

Robinetterie industrielle - Robinets à soupape et robinets à clapet libre blocable en acier

Industriearmaturen - Absperrventile und absperbare Rückschlagventile aus Stahl

This European Standard was approved by CEN on 9 April 2010.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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Foreword

This document (EN 13709:2010) has been prepared by Technical Committee CEN/TC 69 "Industrial valves", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2010, and conflicting national standards shall be withdrawn at the latest by November 2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13709:2002.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 97/23/EC.

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

This document supersedes EN 13709:2002 where the following modifications were made:

the normative references were updated in Clause 2, in 4.1.1, in 4.1.2, in 4.1.3, in 4.1.7.1, in 4.2.1, in 4.2.4 and in 5.1;

in Table ZA.1, sub-clause 4.1 (instead of Clause 4) was correlated to PED Annex I, section 2.1.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

EN 13709:2010 (E)**1 Scope**

This European Standard specifies the requirements for steel globe and globe stop and check valves which are wrought, cast or fabricated in straight, angle or oblique pattern with end connections flanged, butt welding, socket welding or threaded.

This standard is applicable to steel globe and globe stop and check valves mainly used for industrial and general purpose applications. However, they can be used for other applications provided the requirements of the relevant performance standards are met.

The range of nominal sizes covered is:

DN 8; DN 10; DN 12; 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 8 and DN 12 are not used for PN designated flanged end connections.

DN 8, DN 10 and DN 12 are not used for Class designated flanged end connections.

Socket welding end valves and threaded end valves are limited to the range DN 8 to DN 65.

The range of pressure designations covered is:

a) for flanged and butt welding end valves:

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

b) for socket welding end valves and threaded end valves:

- 3) PN 40; PN 63; PN 100;
- 4) Class 600; Class 800.

NOTE Class 800 is a Class designation widely used for socket welding and threaded end valves.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 19, *Industrial valves — Marking of metallic valves*

EN 287-1:2004, *Qualification test of welders — Fusion welding — Part 1: Steels*

EN 558, *Industrial valves — Face-to-face and centre-to-face dimensions of metal valves for use in flanged pipe systems — PN and Class designated valves*

EN 736-1:1995, *Valves — Terminology — Part 1: Definition of types of valves*

EN 736-2:1997, *Valves — Terminology — Part 2: Definition of components of valves*

EN 736-3:2008, *Valves — Terminology — Part 3: Definition of terms*

EN 1092-1:2007, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 1: Steel flanges*

EN 1418, *Welding personnel — Approval testing of welding operators for fusion welding and resistance weld setters for fully mechanized and automatic welding of metallic materials*

EN 1759-1, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, Class designated — Part 1: Steel flanges, NPS ½ to 24*

EN 10045-1, *Metallic materials — Charpy impact test — Part 1: Test method*

EN 12266-1:2003, *Industrial valves — Testing of valves — Part 1: Pressure tests, test procedures and acceptance criteria — Mandatory requirements*

EN 12266-2:2002, *Industrial valves — Testing of valves — Part 2: Tests, test procedures and acceptance criteria — Supplementary requirements*

EN 12351, *Industrial valves — Protective caps for valves with flanged connections*

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*

EN 12516-3, *Industrial valves — Shell design strength — Part 3: Experimental method*

EN 12570, *Industrial valves — Method for sizing the operating element*

EN 12627, *Industrial valves — Butt welding ends for steel valves*

EN 12760, *Valves — Socket welding ends for steel valves*

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

EN ISO 228-1:2003, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)*

EN ISO 5210, *Industrial valves — Multi-turn valve actuator attachments (ISO 5210:1991)*

EN ISO 15607, *Specification and qualification of welding procedures for metallic materials — General rules (ISO 15607:2003)*

ISO 7-1:1994, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

ASME B1.20.1-1983, *Pipe Threads, General Purpose (Inch)*

3 Terms and definitions

For the purposes of this document, the definitions of types of valves and components and the terms and definitions given in EN 736-1:1995, EN 736-2:1997 and EN 736-3:2008 apply.

NOTE The terms maximum allowable pressure, PS , and test pressure, PT , defined in EU Directive 97/23/EC (PED) are equivalent to the terms allowable pressure, p_s , and test pressure, p_t , defined in EN 736-3:2008.

EN 13709:2010 (E)

4 Requirements**4.1 Design****4.1.1 Materials**

4.1.1.1 The body and bonnet materials shall be selected from the grades listed in EN 12516-1.

4.1.1.2 All the internal parts in contact with the fluid shall be made of a material whose corrosion resistance to the fluid being carried is at least equal to the body and bonnet material.

4.1.1.3 Trim materials shall have a chemical composition and mechanical properties, which ensure the mechanical integrity of the valve.

The trim comprises the following:

- a) stem;
- b) obturator seat;
- c) body seat;
- d) backseat (for valves DN 50 and above, when fitted).

4.1.1.4 Stems shall be manufactured from forged, drawn or rolled material. They shall have a minimum corrosion resistance equivalent to a 13 % chromium content ferritic steel.

4.1.2 Pressure/temperature ratings

4.1.2.1 The pressure/temperature ratings shall be as specified in EN 12516-1 for the particular body/bonnet material group.

4.1.2.2 The pressure temperature ratings applicable to Class 800 socket welding and threaded end valves shall be the Class 600 rating for the applicable material group multiplied by the ratio of 800 : 600.

4.1.2.3 Restrictions of temperature and pressure below those specified in 4.1.2.1 and 4.1.2.2 for example, those imposed by soft seals, special trims and bellows seal shall be indicated on the valve (see 8.1.2).

4.1.2.4 For temperatures below the lowest temperature shown in the pressure/temperature rating tables in EN 12516-1 the maximum allowable pressure shall be no greater than the pressure corresponding to the lowest temperature in the rating tables. The use of valves at lower temperatures than shown in the rating tables is permitted providing the bending rupture energy of the body and bonnet material measured on three 10 mm x 10 mm specimens, in accordance with EN 10045-1, shall be no less than an average of 27 J at a temperature no higher than the lowest scheduled operating temperature.

4.1.3 Dimensions**4.1.3.1 Face-to-face, centre-to-face, end-to-end and centre-to-end dimensions**

Face-to-face and centre-to-face dimensions for PN and Class designated flanged end valves shall be in accordance with EN 558.

The end-to-end and centre-to-end dimensions of butt welding end valves shall be in accordance with EN 12982.

The end-to-end and centre-to-end dimensions of socket welding and threaded end valves are at the choice of the manufacturer.

4.1.3.2 Body end

4.1.3.2.1 Flanged ends shall comply with the requirements of EN 1092-1 for PN designated flanges or EN 1759-1 for Class designated flanges.

Flanged ends shall be cast or forged integral with the body except that flanges may be attached by welding in accordance with 4.1.7. A full penetration butt weld shall be used for the attachment of flanges by welding on sizes larger than DN 50.

4.1.3.2.2 Butt welding end profiles shall be in accordance with EN 12627.

4.1.3.2.3 Socket welding end dimensions shall be in accordance with EN 12760. The minimum thickness of the pressure retaining material shall be in accordance with EN 12516-1 or EN 12516-2.

4.1.3.2.4 Threaded ends shall be of the internal form in accordance with Type Rc and Rp to ISO 7-1:1994 or Type G to EN ISO 228-1:2003 or Type NPT to ASME B1.20.1-1983.

4.1.3.3 Body end port inside diameter

The body end port shall be circular. For unlined valves, the body end port inside diameter shall be not less than the nominal inside diameter specified in Table 1.

Table 1 — Nominal inside diameter of the body end port

iTeh STANDARD PREVIEW Dimensions in millimetres

DN	PN 10	PN 16	Class 150	PN 25	PN 40	Class 300	PN 63	PN 100	Class 600	Class 800
8	8	8	6	8	8	6	8	6	6	6
10	10	10	9	10	10	9	10	9	9	9
12	12	12	12	12	12	12	12	11	11	11
15	15	15	13	13	13	13	13	13	13	12
20	20	20	19	19	19	19	19	19	19	18
25	25	25	25	25	25	25	25	25	25	23
32	31	31	31	31	31	31	31	31	31	30
40	40	40	38	38	38	38	38	38	38	36
50	50	50	50	50	50	50	50	50	50	46
65	63	63	63	63	63	63	63	63	63	60
80	78	78	76	76	76	76	76	76	76	-
100	100	100	101	100	100	101	100	100	101	-
125	125	125	127	125	125	127	125	125	127	-
150	150	150	152	150	150	152	150	150	152	-
200	200	200	203	200	200	203	200	199	199	-
250	250	250	254	250	250	254	250	247	247	-
300	300	300	304	300	300	304	300	298	298	-
350	343	343	336	336	336	336	336	327	327	-
400	394	394	387	387	387	387	384	375	375	-