SLOVENSKI STANDARD
SIST EN 12334:2001

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Industrijski ventili - Protipovratni ventili iz jeklenih litin

Industrial valves - Cast iron check valves

Industriearmaturen - Rückflussverhinderer aus Gusseisen

Robinetterie industrielle - Clapets de non-retour en fonte

Ta slovenski standard je istoveten z: **EN 12334:2001**

ICS:

23.060.50 Blokirni ventili Check valves

SIST EN 12334:2001 **en**

EUROPEAN STANDARD
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EN 12334

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ICS 23.060.50

English version

Industrial valves - Cast iron check valves

Robinetterie industrielle - Clapets de non-retour en fonte

Industriearmaturen - Rückflussverhinderer aus Gusseisen

This European Standard was approved by CEN on 28 December 2000.

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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 Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This European Standard 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of an identical text or by endorsement, at the latest by July 2001, and conflicting national standards shall be withdrawn at the latest by July 2001.

This European Standard 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(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this standard.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

The annex A of this European Standard is informative. Annex B is normative.

1 Scope

This European Standard specifies the requirements for cast iron check valves.

This standard applies to cast iron check valves mainly used for industrial and general purpose applications. However, they may be used for other applications provided the requirements of the relevant performance standards are met.

The range of nominal sizes covered is:

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 700; DN 800; DN 900; DN 1000.

The range of pressure designations covered is:

PN 2,5; PN 6; PN 10; PN 16; PN 25;

NOTE Back flow prevention anti-pollution check valves are outside the scope of this standard.

2 Normative references

This European Standard incorporates by dated or undated reference provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revision to any of these publications apply to this European standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 558-1, *Industrial valves – Face-to-face and centre-to-face dimensions of metal valves for use in flanged pipe systems - Part 1: PN-designated valves.*

EN 736-1, *Valves - Terminology - Part 1: Definitions of types of valves.*

EN 736-2, *Valves - Terminology - Part 2: Definitions of components of valves.*

EN 736-3, *Valves - Terminology - Part 3: Definitions of terms.*

EN 1092-2, *Flanges and their joints – Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 2: Cast iron flanges.*

EN 1561, *Founding - Grey cast irons.*

EN 1563, *Founding - Spheroidal graphite cast irons.*

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

prEN 19:2000, *Industrial Valves - Marking of metallic valves.*

prEN 12266-1:1999, *Industrial valves - Testing of valves - Part 1: Tests, test procedures and acceptance criteria to be fulfilled by every valve.*

prEN 12266-2:1999, *Industrial valves - Testing of valves - Part 2: Supplementary tests, test procedures and acceptance criteria.*

prEN 12516-3:1999, *Valves - Shell design strength – Part 3: Experimental Method.*

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

ISO 4200, *Plain end steel tubes, welded and seamless – General tables of dimensions and masses per unit length.*

3 Terms and definitions

For the purposes of this standard the terms and definitions of types of valves and components and the terms and definitions given in EN 736-1, EN 736-2 and EN 736-3 apply.

4 Requirements

4.1 Design requirements

4.1.1 Materials

4.1.1.1 The body and cover (if any) materials shall be selected from Table 1. The limits of use given in the material standard shall be taken into account.

Table 1 - Body and Cover Materials

Graphite Structure	EN	R_m N/mm²	Designation	
			Short name	Number
Grey cast iron	1561	200[a]	EN-GJL-200	EN-JL1030
	1561	250	EN-GJL-250	EN-JL1040
Spheroidal graphite cast iron	1563	350	EN-GJS-350-22-LT	EN-JS1015
	1563	350	EN-GJS-350-22-RT	EN-JS1014
	1563	400	EN-GJS-400-18-LT	EN-JS1025
	1563	400	EN-GJS-400-18-RT	EN-JS1024
	1563	400	EN-GJS-400-15	EN-JS1030
	1563	500	EN-GJS-500-7	EN-JS1050
	1563	600	EN-GJS-600-3	EN-JS1060
	545	420-5	EN-545-420-5	-
a Grade 200 shall not be used for valves with PN 25 flanged end connections.				

4.1.1.2 The manufacturer shall declare the materials of construction and any coatings of components in contact with the line fluid from which the suitability of the valve for the application can be determined.

4.1.1.3 Welding of grey cast iron and impregnation of castings of all materials is not permitted.

4.1.2 Pressure/temperature ratings

4.1.2.1 The pressure/temperature ratings shall be in accordance with EN 1092-2 for the equivalent ISO material grade except that valves with metallic seats shall not be used above 230°C and valves with soft seats shall not be used above 70°C.

Annex B shall be used to determine the equivalent ISO material grade for the EN material grades specified in Table 1.

4.1.2.2 Any restrictions of temperature and pressure below those specified in EN 1092-2, for example, those imposed by soft seals, special trims, shall be indicated on the valve (see 8.1.2).

4.1.2.3 The use of valves at lower temperatures than shown in the pressure/temperature rating tables in EN 1092-2 is permitted providing that the body, bonnet and cover is manufactured from Spheroidal graphite cast iron material grades EN-GJS-350-22-LT or EN-GJS-400-18-LT. For temperatures below the lowest temperature shown in the rating tables the service pressure shall be no greater than the pressure corresponding to the lowest temperature in the rating tables. The lowest scheduled operating temperature shall not be less than the temperature specified in EN 1563 for the charpy impact tests.

4.1.3 Dimensions

4.1.3.1 Face-to-face and centre-to-face dimensions

Face-to-face and centre-to-face dimensions for PN designated flanged end valves shall be in accordance with EN 558-1 and specified by the purchaser (see Annex A). Face-to-face dimensions for valves other than flanged are the choice of the manufacturer.

4.1.3.2 Body ends - flanged type

Flanged ends shall be in accordance with the requirements of EN 1092-2.

4.1.3.3 Wafer type body

The body of wafer type valves shall have means to centralise its location within the flange bolting of the pipe end flanges with which the valve will be assembled.

4.1.4 Operation

A check valve automatically opens by fluid flow in a defined direction and automatically closes to prevent fluid flow in the reverse direction. Means may be provided to restrict the degree of opening and/or influence the speed of opening or closing. Wafer type obturators shall be capable of operation when the valve is connected to pipework to ISO 4200. Depending on obturator type, valves operate in horizontal or vertical pipe, or both.

4.1.5 Auxiliary connections

When auxiliary connections are required, they shall be specified by the purchaser and shall be of the internal form in accordance with Type Rc or Rp to ISO 7-1.

4.2 Functional characteristics

4.2.1 Shell design strength

The shell design strength shall be verified by a type test in accordance with prEN 12516-3:1999.

4.2.2 Flow Characteristics

Manufacturers shall give guidance in their literature in respect of recommended maximum and minimum flow velocities of liquids and/or gases.

4.2.3 Seat leakage

The allowable rate for seat leakage tests specified in prEN 12266-1:1999 shall be:

a) for resilient seated valves, no visible leakage ;

b) for metal seated valves, $2 mm^3/s$ x DN (expressed in millimetres).

4.2.4 Anti-blow out design

The valve designs shall ensure that the shaft or stem of the obturator hinge mechanism cannot be fully blown out of the shell when the valve is under pressure

— by disassembly of any external part or

— by failure of the connection between obturator and shaft or stem even when external parts are removed.

5 Test procedures

5.1 Valves shall be pressure tested by the manufacturer prior to dispatch in accordance with prEN 12266-1:1999.

5.2 Additional tests of finished valves can also be carried out to the requirements of prEN 12266-2:1999. The customer shall specify which tests are required except that test F21 shall not be applied to cast iron check valves.

6 Declaration of compliance

The manufacturer shall declare compliance with this standard by marking the valve with the number of this standard.

7 Designation

Check valves in accordance with this standard shall be designated by the following elements in the same order:

— Check valve type (see EN 736-1);

— EN 12334 ;

— Body type (flanged or wafer);

— Symbol DN and number;

— Pressure designation PN;

— Material of the body and cover (if any);

— The face-to-face or centre-to-face dimensions basic series.

EXAMPLE

A double disk check valve to EN 12334 in wafer pattern, DN 65, PN 16 in EN 1561-GJL-200 cast iron.

8 Marking, preparation for storage and transportation.

8.1 Marking

8.1.1 Marking shall be in accordance with prEN 19:2000

For valves equal to or smaller than nominal size DN 50, where due to the physical size of the valve it is not practical to apply the mandatory markings as specified in prEN 19:2000, items 1, 2 and 4 may be omitted provided they are shown on the identification plate.