SLOVENSKI STANDARD

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Industrijski ventili – Jekleni protipovratni ventili

Industrial valves - Steel check valves

Industriearmaturen - Rückflussverhinderer aus Stahl

Robinetterie industrielle - Clapets de non-retour en acier

Ta slovenski standard je istoveten z: EN 14341:2006

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23.060.50 Blokirni ventili Check valves

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Industrial valves - Steel check valves

Robinetterie industrielle - Clapets de non-retour en acier

Industriearmaturen - Rückflussverhinderer aus Stahl

This European Standard was approved by CEN on 19 June 2006.

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Foreword

This document (EN 14341:2006) 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of an identical text or by endorsement, at the latest by January 2007, and conflicting national standards shall be withdrawn at the latest by January 2007.

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(s).

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

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, 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 United Kingdom.

1 Scope

This European Standard specifies the requirements for steel check valves, which are forged, cast or fabricated in straight, angle or oblique pattern (see EN 736-2) with end connections flanged or wafer, butt welding, socket welding, or threaded.

This standard is applicable to steel 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.

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

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 450; DN 500; DN 600; DN 700; DN 750; DN 800; DN 900; DN 1000.

DN 750 is used for Class designated valves only.

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 end, wafer type and butt welding end valves:

PN 10; PN 16; PN 25; PN 40; PN 63; PN 100;

Class 150; Class 300; Class 600.

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

PN 40; PN 63; PN 100;

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 19:2002, *Industrial valves — Marking of metallic valves*

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

prEN 558:2005[1)], *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 736-3:1999, *Valves — Terminology — Part 3: Definition of terms*

EN 1092-1:2001, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 1: Steel flanges*

EN 1418:1997, *Welding personnel — Approval testing of welding operators for fusion welding and resistance weld setters for fully mechanized and automatic welding of metallic materials*

EN 1503-1:2000, *Valves — Materials for bodies, bonnets and covers — Part 1: Steels specified in European Standards*

EN 1503-2:2000, *Valves — Materials for bodies, bonnets and covers — Part 2: Steels other than those specified in European Standards*

EN 1759-1:2004, *Flanges and their joint — Circular flanges for pipes, valves, fittings and accessories, Class designated — Part 1: Steel flanges, NPS ½ to 24*

EN 10045-1:1990, *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 12351:1999, *Industrial valves — Protective caps for valves with flanged connections*

EN 12516-1:2005, *Industrial valves — Shell design strength — Part 1: Tabulation method for steel valve shells*

EN 12516-2:2004, *Industrial valves — Shell design strength — Part 2: Calculation method for steel valve shells*

EN 12516-3:2002, *Valves — Shell design strength — Part 3: Experimental method*

EN 12627:1999, *Industrial valves — Butt welding ends for steel valves*

EN 12760:1999, *Valves — Socket welding ends for steel valves*

EN 12982:2000, *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 15607:2003, *Specification and qualification of welding procedures for metallic materials — General rules (ISO 15607:2003)*

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1) Under preparation.

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

ISO 4200:1991, *Plain end steel tubes, welded and seamless — General tables of dimensions and masses per unit length*

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

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 736-1:1995, EN 736-2:1997 and EN 736-3:1999 apply.

NOTE 1 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.

NOTE 2 EN 736-1 illustrates four basic check valve types. The axial and lift types are based on the globe valve, the swing type is based on the butterfly valve and the diaphragm type is based on the diaphragm valve. Other check valve types are possible and are considered to be within the scope of this standard.

4 Requirements

4.1 Design

4.1.1 Materials

4.1.1.1 The body and cover materials shall be selected from those listed in EN 1503-1 and EN 1503-2.

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.

4.1.2 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 and special trims shall be indicated on the valve (see 8.1e).

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 not 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 cover material measured on three 10 mm × 10 mm specimens in accordance with EN 10045-1, shall be not 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 or Class designated flanged end and wafer type valves shall be in accordance with prEN 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 end 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 flange may be attached by welding in accordance with 4.1.6. 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 R_c and R_p to ISO 7-1 or Type G to EN ISO 228-1 or Type NPT to ASME B1.20.1.

4.1.3.2.5 The body of wafer type valves shall have means of centralising its location within the bolting of flanges in accordance with EN 1092-1 and EN 1759-1 as appropriate.

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.