TÖÖSTUSVENTIILID. ÜLDOTSTARBELISED METALLIST TIIBSULGURID

Industrial valves - Metallic butterfly valves for general purposes

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 593:2017 sisaldab Euroopa standardi EN 593:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 593:2017 consists of the English text of the European standard EN 593:2017.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 25.10.2017.	Date of Availability of the European standard is 25.10.2017.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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EUROPEAN STANDARD

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English Version

Industrial valves - Metallic butterfly valves for general purposes

Robinetterie industrielle - Robinets métalliques à papillon d'usage général

Industriearmaturen - Metallische Klappen für den allgemeinen Gebrauch

This European Standard was approved by CEN on 31 August 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 593:2017) 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 April 2018, and conflicting national standards shall be withdrawn at the latest by April 2018.

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

This document supersedes EN 593:2009+A1:2011.

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 2014/68/EU.

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

The main technical changes compared to the previous edition are:

a) the extension of the dimensions to cover PN 2,5 to PN 160, Class 150 to Class 900 and DN 20 to DN 4 000;

b) the inclusion of single, double and triple eccentric designs;

c) a reference to EN 16668 for valves subject to European legislation on pressure equipment;

d) the addition of informative Annex D giving the correspondence between DN and NPS;

e) the addition of informative Annex E on valve torque curves at different flow velocities;

f) the updating of Annex ZA according to the new PED.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies minimum general requirements for butterfly valves having metallic bodies for use with all type of pipe end connections (e.g. wafer, lug, flange, butt welding) and used for isolating, regulating or control applications.

The PN and Class ranges are:

— PN 2,5; PN 6; PN 10; PN 16; PN 25; PN 40; PN 63; PN 100; PN 160;

— Class 150; Class 300; Class 600; Class 900.

The size range is:

— 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 1 000; DN 1 050; DN 1 100; DN 1 200; DN 1 400; DN 1 500; DN 1 600; DN 1 800; DN 2 000; DN 2 200; DN 2 400; DN 2 600; DN 2 800; DN 3 000; DN 3 200; DN 3 400; DN 3 600; DN 3 800; DN 4 000.

DN 750 and DN 1 050 are used only for Class 150 and Class 300.

Intermediate DNs are allowed upon agreement between manufacturer and customer.

For valves subject to European legislation on pressure equipment, EN 16668 applies together with this European Standard.

For industrial process control valves, EN 1349 and EN 60534-2-1 apply together with this European Standard.

For water supply application, EN 1074-1 and EN 1074-2 apply together with this European Standard.

NOTE 1 Butterfly valves for water supply application do not comply with Annex ZA and are not CE marked because they are excluded from the pressure equipment European legislation.

NOTE 2 The range of DN, applicable to each PN, for wafer and wafer lug valve types is as given in the appropriate part of EN 1092 for Type 11 flanges for the applicable material. The range of DN, applicable to each PN, for flanged valve types is as given in the appropriate part of EN 1092 for Type 21 flanges for the applicable material.

The correspondence between DN and NPS is given for information in Annex D.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 19:2016, *Industrial valves — Marking of metallic valves*

EN 558:2017, *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 736-2:2016, *Valves — Terminology — Part 2: Definition of components of valves*

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

EN 1074-2:2000, *Valves for water supply — Fitness for purpose requirements and appropriate verification tests — Part 2: Isolating valves*

EN 1092-1:2007+A1:2013, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 1: Steel flanges*

EN 1092-2:1997, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 2: Cast iron flanges*

EN 1092-3:2003, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 3: Copper alloy flanges*

EN 1092-4:2002, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 4: Aluminium alloy flanges*

EN 1267:2012, *Industrial valves — Test of flow resistance using water as test fluid*

EN 1759-1:2004, *Flanges and their joint — Circular flanges for pipes, valves, fittings and accessories, Class designated — Part 1: Steel flanges, NPS 1/2 to 24*

EN 1759-3:2003, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, Class designated — Part 3: Copper alloy flanges*

EN 1759-4:2003, *Flanges and their joint — Circular flanges for pipes, valves, fittings and accessories, class designated — Part 4: Aluminium alloy flanges*

EN 10269:2013, *Steels and nickel alloys for fasteners with specified elevated and/or low temperature properties*

EN 12266-1:2012, *Industrial valves — Testing of metallic valves — Part 1: Pressure tests, test procedures and acceptance criteria — Mandatory requirements*

EN 12266-2:2012, *Industrial valves — Testing of metallic valves — Part 2: Tests, test procedures and acceptance criteria — Supplementary requirements*

EN 12516-1:2014, *Industrial valves — Shell design strength — Part 1: Tabulation method for steel valve shells*

EN 12516-2:2014, *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 12516-4:2014, *Industrial valves — Shell design strength — Part 4: Calculation method for valve shells manufactured in metallic materials other than steel*

EN 12570:2000, *Industrial valves — Method for sizing the operating element*

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

EN 12982:2009, *Industrial valves — End-to-end and centre-to-end dimensions for butt welding end valves*

EN 16668:2016, *Industrial valves — Requirements and testing for metallic valves as pressure accessories*

EN 60534-2-3:2016, *Industrial-process control valves — Part 2-3: Flow capacity — Test procedures (IEC 60534-2-3:2015)*

EN ISO 1043-1:2011, *Plastics — Symbols and abbreviated terms — Part 1: Basic polymers and their special characteristics (ISO 1043-1:2011)*

EN ISO 5211:2017, *Industrial valves — Part-turn actuator attachments (ISO 5211:2017)*

EN ISO 9606-1:2017, *Qualification testing of welders — Fusion welding — Part 1: Steels (ISO 9606-1:2012 including Cor 1:2012 and Cor 2:2013)*

EN ISO 10497:2010, *Testing of valves — Fire type-testing requirements (ISO 10497:2010)*

EN ISO 14732:2013, *Welding personnel — Qualification testing of welding operators and weld setters for mechanized and automatic welding of metallic materials (ISO 14732:2013)*

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

ISO 1629:2013, *Rubber and latices — Nomenclature*

ASME B1.1:2003, *Unified Inch Screw Threads, (UN and UNR Thread Form)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 736-1, EN 736-2, EN 736-3 and the following apply.

3.1
maximum allowable pressure
PS
maximum pressure for which the pressure equipment is designed as specified by the manufacturer

[SOURCE: EN 764-1:2015+A1:2016, 3.2.87]

3.2
maximum allowable temperature
$\boldsymbol{TS_{max}}$
maximum temperature for which the pressure equipment is designed as specified by the manufacturer

[SOURCE: EN 764-1:2015+A1:2016, 3.1.9]

3.3
end of line service
condition that occurs when the downstream side of the valve is opened to atmosphere

3.4
driving shaft
shaft connected to the obturator to operate the valve in the case of a multi-shaft valve

3.5
trim
parts in contact with the fluid

3.6
eccentration
offset
deviation of the operating axes in respect to the reference axes of the pipe/valve