SLOVENSKI STANDARD
SIST EN 593:2026

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SIST EN 593:2018

Industrijski ventili - Kovinske zaporne lopute

Industrial valves - Metallic butterfly valves

Industriearmaturen - Metallische Klappen

Robinetterie industrielle - Robinets métalliques à papillon

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Ta slovenski standard je istoveten z: **EN 593:2026**

ICS:

23.060.30	Zapirni ventili (zasuni)	Gate valves

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 593

September 2026

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Industrial valves - Metallic butterfly valves

Robinetterie industrielle - Robinets métalliques à papillon

Industriearmaturen - Metallische Klappen

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SIST EN 593:2026

Contents

Page

European foreword 4

Introduction 5

1 Scope 6

2 Normative references 6

3 Terms and definitions 8

4 Design requirements 9
4.1 General 9
4.2 Shell 12
4.3 Body 13
4.4 Obturator (disc) 15
4.5 Seat seal 16
4.6 Driving shaft 16
4.7 Shaft seal 16
4.8 Optional design features 16
4.9 Materials 17
4.10 Pressure/temperature ratings 19
4.11 Dimensions and tolerances 19
4.12 Operation 20
4.13 Manufacturing 22
4.14 Functional characteristics and performances 22
4.15 Additional requirements for butterfly valves classified as pressure accessories in accordance with EN 16668:2025 23
4.16 Additional requirements for butterfly valves intended to be used in other applications 23

5 Final assessment 24

6 Designation 25

7 Marking and preparation for storage and transportation 25
7.1 Marking 25
7.2 Preparation for storage and transportation 26

8 Documentation 26
8.1 General 26
8.2 Operating instructions 26

Annex A (informative) Valve data sheet 27

Annex B (informative) Trim material list 29

Annex C (informative) Environmental corrosion protection 30

Annex D (informative) Correspondence between DN and NPS 31

Annex E (informative) Example for valve shaft calculation 32

E.1 General 32

E.2 Calculation 33

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SIST EN 593:2026 • https://standards.iteh.ai/catalog/standards/sist/9d959c69-9ba2-4c02-bde8-4a8d09482d6c/sist-en-593-2026

SIST EN 593:2026

E.3 Examples of influence of flow velocity/hydrodynamic torques for shaft sizing 34
Annex F (informative) Relationship between this document and EN 16668:2025 37
Annex ZA (informative) Relationship between this European Standard and the essential requirements of Directive 2014/68/EU (Pressure Equipment Directive) aimed to be covered 39
Bibliography 41

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European foreword

This document (EN 593:2026) 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 March 2027, and conflicting national standards shall be withdrawn at the latest by March 2027.

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 593:2017.

This document includes the following significant technical changes with respect to EN 593:2017:

a) inclusion of an introduction to explain the reason of this revision;

b) the inclusion of a sentence in the scope to clarify that this document applies to all industrial applications;

c) addition of new 4.15 and 5.3 on the design requirements and final assessment for the European legislation for pressure equipment;

d) addition of a new Clause 8 for the documentation;

e) addition of Annex F providing the relationship between the clauses/subclauses of this document and those of EN 16668:2025;

f) update of Annex ZA.

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This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

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

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

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Introduction

This document was revised to refer to EN 16668:2025 for those requirements related to the European legislation for pressure equipment applicable to butterfly valves.

EN 16668:2025 was drafted to cover the requirements for the European legislation on Pressure Equipment. Therefore, for the applications in accordance with the European legislation for pressure equipment, EN 16668:2025 applies together with this document.

Annex F provides the relationship between the clauses/subclauses of this document and those of EN 16668:2025.

NOTE Annex ZA of this document is identical to Annex ZA of EN 16668:2025, for those requirements applicable to butterfly valves.

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1 Scope

This document specifies minimum requirements applicable to design, final assessment, designation, marking and documentation for butterfly valves having metallic bodies for use with all type of pipe end connections (e.g. wafer, lug, flange, butt welding, threaded ends) and used for isolating, regulating or controlling 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 apply only for Class 150 and Class 300.

NOTE Sizes are listed in Table D.1.

For applications in accordance with the European legislation for pressure equipment, EN 16668:2025 applies together with this document.

For chemical applications, EN 12569:2020 applies together with this document.

For gas distribution systems, EN 13774:2013 applies together with this document.

For gas transport systems, EN 1594:2024 applies together with this document.

For water supply application, EN 1074-2:2000 applies together with this document.

For process control application, EN 1349:2009 applies together with this document.

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

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2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 19:2023, *Industrial valves - Marking of metallic valves*

EN 558:2022, *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 736-1:2018, *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 764-1:2015+A1:2016, *Pressure equipment - Part 1: Vocabulary*

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EN 764-5:2014, *Pressure equipment - Part 5: Inspection documentation of metallic materials and compliance with the material specification*

EN 1074-2:2000,[1] *Valves for water supply — Fitness for purpose requirements and appropriate verification tests — Part 2: Isolating valves*

EN 1092-1:2018, *Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 1: Steel flanges*

EN 1092-2:2023, *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 1349:2009, *Industrial process control valves*

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*

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

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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+A1:2018, *Industrial valves - Shell design strength - Part 1: Tabulation method for steel valve shells*

EN 12516-2:2014+A1:2021, *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+A1:2018, *Industrial valves - Shell design strength - Part 4: Calculation method for valve shells manufactured in metallic materials other than steel*

[1] Document impacted by EN 1074-2:2000/A1:2004.

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EN 12569:2020, *Industrial valves - Valves for chemical and petrochemical process industry - Requirements and tests*

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

EN 12627:2017, *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 13774:2013, *Valves for gas distribution systems with maximum operating pressure less than or equal to 16 bar - Performance requirements*

EN 16668:2025, *Industrial valves - Requirements and testing for metallic valves as pressure accessories*

EN 16722:2015, *Industrial valves - End-to-end and centre-to-end dimensions for valves with threaded ends*

EN 60534-2-1:2011, *Industrial-process control valves - Part 2-1: Flow capacity - Sizing equations for fluid flow under installed conditions (IEC 60534-2-1:2011)*

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

EN ISO 5211:2023, *Industrial valves - Part-turn actuator attachments (ISO 5211:2023)*

EN ISO 10497:2022, *Testing of valves - Fire type-testing requirements (ISO 10497:2022)*

ISO 1629:2025, *Rubber and latices — Nomenclature*

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3 Terms and definitions

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For the purposes of this document the terms and definitions given in EN 736-1:2018, EN 736-2:2016, EN 736-3:2008, EN 764-1:2015+A1:2016 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
butterfly valve
valve in which the obturator rotates about an axis at right angle to the direction of flow and, in the open position, the flow passes around the obturator, designed as double flange body, single flanged body, lug type body, wafer type body or with butt weld ends

Note 1 to entry: Butterfly valve and eccentric plug valve are defined in EN 736-1:2018, 4.1.5.

Note 2 to entry: Double flanged body, single flanged body, lug type body, wafer type body, butt welding end are defined in EN 736-2:2016, 3.1.1.4 to 3.1.1.7, 3.1.1.12.

3.2
maximum allowable pressure
PS
maximum pressure for which the pressure equipment is designed

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[SOURCE: EN 764-1:2015+A1:2016, 3.2.87 – "as specified by the manufacturer" deleted.]

3.3
maximum allowable temperature
TS_{max}
maximum temperature for which the pressure equipment is designed

[SOURCE: EN 764-1:2015+A1:2016, 3.1.9 – "as specified by the manufacturer" deleted.]

3.4
end of line service
condition that occurs when the downstream side of the valve is opened to atmosphere

3.5
driving shaft
shaft connected to the obturator to operate the valve in the case of a multi-shaft valve

3.6
trim
functional components of a valve excluding the shell components which are in contact with the fluid inside the valve

[SOURCE: EN 736-2:2016, 3.2]

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3.7
eccentration
offset
deviation of the operating axes in respect to the reference axes of the pipe/valve

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3.8
body bolting
bolting which connects the body components

3.9
maximum allowable stem torque
MAST
maximum torque that can be applied to a valve stem or shaft without causing permanent deformation or mechanical damage to the stem or any other components of the valve that prevent sealing or operation

[SOURCE: EN ISO 23632:2022, 3.3]

4 Design requirements

4.1 General

The requirements of the design shall be agreed. For this purpose, it is recommended to use the valve data sheet (including for service conditions) in accordance with Annex A.

The valve shall be of either concentric design (see Figure 1) or eccentric design (see Figures 2 to 4). The offset can be single, double or triple.

A first offset is an axial offset of the shaft to the seat contact.

A second offset is an offset from the pipe centreline to the valve obturator centreline.

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In the triple offset design, the seat and seal contact surface centreline is inclined in respect to the pipe/valve centreline, whatever the form of the contact.

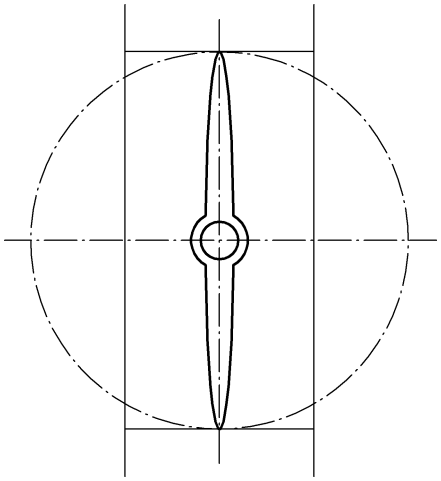
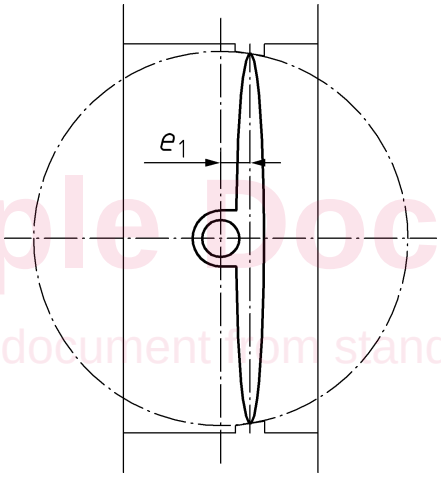


Figure 1 — Concentric design



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Key

e_1 eccentricity 1

Figure 2 — Single eccentric design (single offset)

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