

საქართველოს სტანდარტი

მილტუჩები და მათი შემადგენელი-მრგვალ მილტუჩებიანი და
მამჭიდროვებით მილტუჩა მადრთებლების პროექტირების წესები ნაწილი 1:
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თბილისი

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4 რეგისტრირებულია საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს რეესტრში: 2015 წლის 4 მარტი №268-1.3-6670

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English Version

Flanges and their joints - Design rules for gasketed circular flange connections - Part 1: Calculation

Brides et leurs assemblages - Règles de calcul des assemblages à brides circulaires avec joint - Partie 1: Méthode de calcul

Flansche und ihre Verbindungen - Regeln für die Auslegung von Flanschverbindungen mit runden Flanschen - Teil 1: Berechnung

This European Standard was approved by CEN on 12 October 2013.

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.

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Contents

Page

Foreword.....	5
1 Scope	7
2 Normative references	7
3 Notation	7
3.1 Use of figures	7
3.2 Subscripts and special marks	7
3.2.1 Subscripts	7
3.2.2 Special marks.....	9
3.3 Symbols	9
3.4 Terminology	14
3.4.1 Flanges	14
3.4.2 Loading.....	14
3.4.3 Load conditions	14
3.4.4 Compliances.....	14
4 Requirements for use of the calculation method	22
4.1 General.....	22
4.2 Geometry	22
4.3 Material	23
4.4 Loads	23
5 Checking the assembly for a specified initial tightening bolt force (or torque)	23
6 Calculation parameters	24
6.1 General.....	24
6.2 Flange parameters	24
6.2.1 General.....	24
6.2.2 Flange ring.....	25
6.2.3 Connected shell	26
6.2.4 Flexibility-related flange parameters	27
6.3 Bolt and washer parameters.....	28
6.3.1 General.....	28
6.3.2 Effective cross-section area of bolts	28
6.3.3 Flexibility modulus of bolts	28
6.3.4 Geometric parameters for washers and contact surfaces	28
6.3.5 Flexibility modulus of washers	29
6.4 Gasket parameters	29
6.4.1 General.....	29
6.4.2 Theoretical dimensions.....	29
6.4.3 Effective dimensions.....	29
6.4.4 Axial flexibility modulus of gasket.....	30
6.4.5 Lever arms.....	32
7 Forces	33
7.1 General.....	33
7.2 Applied loads	33
7.2.1 Assembly condition ($I = 0$)	33
7.2.2 Subsequent conditions ($I = 1, 2 \dots$).....	33
7.3 Compliance of the joint	34
7.4 Minimum forces necessary for the gasket.....	35
7.4.1 Assembly condition ($I = 0$)	35
7.4.2 Subsequent conditions ($I = 1, 2, \dots$)	35
7.5 Internal forces in assembly condition ($I = 0$).....	35
7.5.1 Required forces.....	35

საინფორმაციო ნაწილი. სრული ტექსტის სახსრავად შეიძინეთ სტანდარტი.

7.5.2	Accounting for bolt-load scatter at assembly	36
7.6	Internal forces in subsequent conditions ($l = 1, 2, \dots$)	37
8	Load limits	38
8.1	General	38
8.2	Bolts	38
8.3	Gasket	39
8.4	Integral flange and collar	39
8.5	Blank flange	41
8.6	Loose flange with collar	42
Annex A	(informative) Dimensions of standard metric bolts	43
Annex B	(informative) Tightening	44
B.1	Scatter of initial bolt load of a single bolt — Indicative values ε_{1-} and ε_{1+} for a single bolt	44
B.2	Scatter for the global load of all the bolts	44
B.3	Manual uncontrolled tightening	45
B.4	Assembly using torque wrench	45
B.5	Assembly using bolt tensioner	46
Annex C	(informative) Flange rotations	48
C.1	General	48
C.2	Use of flange rotation	48
C.3	Calculation of flange rotations	48
Annex D	(informative) Use of the calculation method	50
D.1	Calculation method principle	50
D.2	Mechanical model	51
D.3	Required checks	52
D.4	Calculation sequence	52
Annex E	(informative) Gasket/flange face friction coefficients examples	54
Annex F	(normative) Determination of $\Delta_{eGc,l}$ based on a given P_{QR}	55
F.1	Determination of the deflection occurring during a P_{QR} test	55
F.2	Determination of the deflection to be taken into account in the calculation	56
Annex G	(informative) Sealing gasket parameter when no leakage rate is specified	57
Annex H	(informative) Alternative calculation procedure taking into account the plastic deformation of the gasket in subsequent load conditions procedures (after assembly)	58
H.1	Introduction	58
H.2	Calculation procedure	58
H.2.1	General description	58
H.2.2	No additional plastic deformation	59
H.2.3	Additional plastic deformation	59
H.3	Flat gaskets	59
H.3.1	Flat gaskets with small or median deformations	59
H.3.2	Flat gaskets with greater deformations	61
H.4	Metal gaskets with curved surfaces (Figures 3b, c, e, f)	62
H.5	Metal gaskets with octagonal section (Figure 3d)	62
Annex I	(informative) Available, incomplete models for conversion of the leakage rates in different conditions (based on certain flow models)	63
I.1	Introduction and warning	63
I.2	Flow theory fundamentals	63
I.2.1	Transport modes	63
I.2.2	Case of gases	64
I.2.3	Case of liquids: Parallel capillary model	65
I.3	Factors of influence on the leakage rate of gaskets and gasketed joints	65
I.3.1	List of identified factors	65
I.3.2	Limits and restriction of the proposed models	65
I.3.3	Dependence on pressure	66
I.3.4	Dependence on temperature	67

I.3.5	Dependence on the type of fluid	68
I.3.6	Influence of the gasket thickness	68
I.3.7	Influence of gasket width	69
I.3.8	Influence of gasket stress	69
I.3.9	Influence of other factors	69
I.3.10	Conclusion on the factors of influence	70
I.4	Practical application for EN 1591-1 calculations	70
I.4.1	General	70
I.4.2	Determination of a trend for the leakage rate for the flange connection in “actual” from “reference” conditions	71
I.4.3	Determination of a trend for the leakage rate for the flange connection in “reference” from “actual” conditions	72
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 97/23/EC		74
Bibliography		75

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.

Foreword

This document (EN 1591-1:2013) has been prepared by Technical Committee CEN/TC 74 “Flanges and their joints”, the secretariat of which is held by DIN.

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 June 2014, and conflicting national standards shall be withdrawn at the latest by June 2014.

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 1591-1:2001+A1:2009.

The major changes in comparison with the previous edition include:

- correction of load ratio calculation for blind flanges;
- integration of spacers (washers);
- modification of bolt load ratio calculation;
- integration of lateral forces and torsion moments applied on the bolted joint;
- integration of an alternative calculation method (more precise) for the determination of the gasket effective width (informative annex);
- integration of the possibility to handle gasket creep/relaxation behaviour through additional deflection;
- integration of an informative annex concerning leakage rates conversions;
- integration of the possibility to check a bolted flange connection for a specified initial bolt load value;
- integration of the possibility to perform a calculation even when no tightness requirement is defined through basic gasket parameters (Annex G).

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.

EN 1591 consists of several parts:

- EN 1591-1, *Flanges and their joints — Design rules for gasketed circular flange connections — Part 1: Calculation*
- EN 1591-2, *Flanges and their joints — Design rules for gasketed circular flange connections — Part 2: Gasket parameters*
- CEN/TS 1591-3, *Flanges and their joints — Design rules for gasketed circular flange connections — Part 3: Calculation method for metal to metal contact type flanged joint*
- EN 1591-4, *Flanges and their joints — Part 4: Qualification of personnel competency in the assembly of the bolted connections of critical service pressurized systems*

EN 1591-1:2013 (E)

- CEN/TR 1591-5, *Flanges and their joints — Design rules for gasketed circular flange connections — Part 5: Calculation method for full face gasketed joints*

The calculation method satisfies both leak tightness and strength criteria. The behaviour of the complete flanges-bolts-gasket system is considered. Parameters taken into account include not only basic ones such as:

- fluid pressure;
- material strength values of flanges, bolts and gaskets;
- gasket compression factors;
- nominal bolt load;

but also:

- possible scatter due to bolting up procedure;
- changes in gasket force due to deformation of all components of the joint;
- influence of connected shell or pipe;
- effect of external axial and lateral forces and torsion and bending moments;
- effect of temperature difference between bolts and flange ring.

The use of this calculation method is particularly useful for joints where the bolt load is monitored when bolting up. The greater the precision of this, the more benefit can be gained from application of the calculation method.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.