

Flanges and their joints - Design rules for gasketed circular flange connections - Part 2: Gasket parameters

Flanges and their joints - Design rules for gasketed circular flange connections - Part 2: Gasket parameters

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 1591-2:2008 sisaldab Euroopa standardi EN 1591-2:2008 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 21.07.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 11.06.2008.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 1591-2:2008 consists of the English text of the European standard EN 1591-2:2008.

This standard is ratified with the order of Estonian Centre for Standardisation dated 21.07.2008 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 11.06.2008.

The standard is available from Estonian standardisation organisation.

ICS 23.040.60

Võtmesõnad:

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

English Version

Flanges and their joints - Design rules for gasketed circular flange connections - Part 2: Gasket parameters

Brides et leurs assemblages - Règles de calcul des assemblages à brides circulaires avec joint - Partie 2: Paramètres de joint

Flansche und ihre Verbindungen - Regeln für die Auslegung von Flanschverbindungen mit runden Flanschen und Dichtung - Teil 2: Dichtungskennwerte

This European Standard was approved by CEN on 8 May 2008.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, 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.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Page

Foreword.....	3
1 Scope	4
2 Normative references	4
3 Symbols and definitions	4
4 Typical gasket parameters for various gasket styles	4
4.1 General.....	4
4.2 $Q_{\min[L]}$, $Q_{S\min[L]}$.....	6
4.3 $Q_{S\max}$ and P_{QR}.....	23
4.4 E_G.....	27
Annex A (informative) Relation between the gasket types and the codes used in the tables	43
Annex B (informative) Public sources of reliable data.....	46
Annex C (informative) Outline of a pre-calculation method of gasket selection.....	47
Bibliography	48

Foreword

This document (EN 1591-2:2008) 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 December 2008, and conflicting national standards shall be withdrawn at the latest by December 2008.

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 ENV 1591-2:2001.

EN 1591 "*Flanges and their joints — Design rules for gasketed flange connections*" consists of the following three parts:

- *Part 1: Calculation method*
- *Part 2: Gasket parameters*
- *Part 3: Calculation method for metal to metal contact type flanged joint (CEN/TS)*

The data values given in this European Standard were all determined by the test methods given in EN 13555. The data given was obtained during the PERL Project¹⁾ during which the test methods of EN 13555 were assessed for practicability & repeatability by the test laboratories at MPA & CETIM, (see footnotes 2 & 3 of Table A.1). The materials selected for evaluation during that project were those suggested by the organisations taking part in the PERL project. The materials tested in that project, and therefore the data given in this document, must be seen as just a selection of the total range of commercial gasket offerings that are available from the various gasket manufacturers and distributors. The data presented in this document is intended to assist engineers using EN 1591-1 during their preliminary calculations. Other public sources of reliable data are given in Annex B. In all cases it is expected that engineers will obtain from the manufacturer of their choice the data for the gasket intended to be used in the application in hand. The website of the European Sealing Association, www.europeansealing.com, contains links to their members throughout Europe.

The importance of using the data for the exact style, make and thickness of gasket intended to be used can be seen from the dispersion of the results between gasket makes within a style and thickness in this document.

NOTE The objective for the Publication of this version of EN 1591-2 is to present and make available during the standardization work of CEN/TC 54/TC 74/TC 267/TC 69/TC 269/JWG tables of values (results of tests) more reliable than those specified in the experimental standard ENV 1591-2:2001. This EN 1591-2 is therefore dedicated to be amended somehow in accordance with the revision in progress carried out by the Joint Working Group on EN 1591-1.

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, 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 the United Kingdom.

1) PERL, *Pressure Equipment, Reduction of Leak rate: Gasket parameters measurement, RTD Project in the Framework of the "Competitive & Sustainable Growth" Programme*

1 Scope

This European Standard details generic gasket parameters for use in EN 1591-1 during preliminary calculations during which the type of gasket to be used in an application is to be decided. Once the gasket type has been decided the parameters for gaskets of that type from the different potential commercial suppliers should be used in further calculations as within a gasket type there will be differences depending upon the supplier.

WARNING — For the final calculations using the method given in EN 1591-1 the reader is directed to obtain gasket parameters for the selected generic type of gasket from the intended gasket manufacturer. This is because the data for a generic gasket type will vary between manufacturers. This variation can be seen in the tables of data which are embodied in this document.

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 1591-1:2001, *Flanges and their joints — Design rules for gasketed circular flange connections — Part 1: Calculation method*

EN 13555:2004, *Flanges and their joints — Gasket parameters and test procedures relevant to the design rules for gasketed circular flange connections*

3 Symbols and definitions

For the purposes of this document, the symbols and definitions given in EN 1591-1:2001 and EN 13555:2004 apply.

4 Typical gasket parameters for various gasket styles

4.1 General

It shall be noted that the data given in the following tables is only intended to be used in preliminary calculations using EN 1591-1. The data was obtained using the test methods given in EN 13555 during the testing of a selection of a few of the many styles and makes of commercial gasket that are on offer in Europe. For final calculations the user of EN 1591-1 shall contact the gasket supplier of choice and obtain the data for the style and thickness of the gasket intended to be used.

A group of end users has derived a pre-calculation method of use of EN 1591-1 that allows gasket selection without any further calculation. This is outlined in Annex C.

EN 13555 permits the testing of gaskets sized for either DN40/PN40 or NPS 4 CLASS 300 flanges. All the data values given in this document were obtained from DN40/PN 40 gaskets.

It should be noted that the rules of EN 13555 regarding Q_{Smax} have been adhered to in that where no collapse was found during the Q_{Smax} test then the value of Q_{Smax} is taken to be that of the surface pressure, Q_i , used during the P_{QR} test with the highest surface pressure tabulated.

The data in the following sets of tables is presented in three gasket parameter groupings, $Q_{min[L]}$ and $Q_{Smin[L]}$ in the 4.2 set of tables followed by Q_{Smax} and P_{QR} in the 4.3 set and then E_G in the 4.4 set to allow easy appreciation of how the parameter varies with gasket type. A brief explanation of the parameters in the grouping is given at the start of each set. For more information about the gasket parameters or test methods EN 13555 should be consulted.