



NSAI
Standards

Irish Standard
I.S. EN 1515-4:2021

Flanges and their joints - Bolting - Part 4: Selection of bolting for equipment subject to the Pressure Equipment Directive 2014/68/EU

I.S. EN 1515-4:2021

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

I.S. EN 1515-4:2021 is the adopted Irish version of the European Document EN 1515-4:2021, Flanges and their joints - Bolting - Part 4: Selection of bolting for equipment subject to the Pressure Equipment Directive 2014/68/EU

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EUROPEAN STANDARD

EN 1515-4

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2021

ICS 21.060.10; 21.060.20; 23.040.60

Supersedes EN 1515-4:2009

English Version

**Flanges and their joints - Bolting - Part 4: Selection of
bolting for equipment subject to the Pressure Equipment
Directive 2014/68/EU**

Brides et leurs assemblages - Boulonnerie - Partie 4 :
Sélection de la boulonnerie pour équipements relevant
de la Directive Equipments sous pression 2014/68/EU

Flansche und ihre Verbindungen - Schrauben und
Muttern - Teil 4: Auswahl von Schrauben und Muttern
zur Anwendung im Gültigkeitsbereich der
Druckgeräterichtlinie 2014/68/EU

This European Standard was approved by CEN on 1 February 2021.

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.

CEN members are the national standards bodies of 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, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (EN 1515-4:2021) 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 September 2021, and conflicting national standards shall be withdrawn at the latest by September 2021.

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 1515-4:2009.

EN 1515, *Flanges and their joints — Bolting*, consists of the following parts:

- *Part 1: Selection of bolting;*
- *Part 2: Classification of bolt materials for steel flanges, PN designated;*
- *Part 3: Classification of bolt materials for steel flanges, class designated;*
- *Part 4: Selection of bolting for equipment subject to the Pressure Equipment Directive 2014/68/EU.*

Main changes compared to edition EN 1515-4:2009:

- explanation of requirements for starting material in accordance to EN 10269:2013;
- some temperature ranges and assignment of material groups are amended in Table 3;
- option for traceability by means of lot identification marking instead of inspection documents;
- separate requirements have been given to bolting other than those in EN 10269:2013;
- requirements for prevention of brittle fracture have been updated.

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 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, Turkey and the United Kingdom.

EN 1515-4:2021 (E)**1 Scope**

This document is applicable to the selection of bolting for flanged joints on equipment subject to the Pressure Equipment Directive 2014/68/EU.

It specifies standards and additional requirements for dimensions, material properties and technical conditions of delivery for bolting.

NOTE 1 Washers are not within the scope of this document.

The selection is based on commonly used bolting. It covers common temperature ranges of the general service of flanges.

When selecting bolting according to this document it is essential to take into account environmental conditions and other parameters including type of fluids, corrosion hazards, sour service, low temperature brittle failure and relaxation at elevated temperatures.

The purpose of this document is to provide a selection of most commonly used bolting types and bolting material combinations.

It is not the intention to specify all possible applications but to give guidance on the most common applications. For example, application limits for material in the creep range are not explicitly covered in this document. Where material standard provides mechanical properties for the creep range respective reference is made in Table 3.

NOTE 2 Special services and ambient conditions may require the application of coatings. It is the purchaser's option to decide on this. Depending on the coating used, a verification of the temperature ranges given in Table 3 and Table 4 may be required.

NOTE 3 In Annex B there are bolting types and bolting material combinations according to commonly used national standards other than those listed in Table 2, Table 3 and Table 4.

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

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

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 10204:2004, *Metallic products - Types of inspection documents*

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

EN 13445-3:2014,¹ *Unfired pressure vessels - Part 3: Design*

¹ As impacted by EN 13445-3:2014/A1:2015, EN 13445-3:2014/A2:2016, EN 13445-3:2014/A3:2017, EN 13445-3:2014/A4:2018, EN 13445-3:2014/A5:2018, EN 13445-3:2014/A6:2019, EN 13445-3:2014/A7:2019 and EN 13445-3:2014/A8:2019.

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