



**NSAI**  
Standards

Irish Standard  
I.S. EN 15048-1:2016

# Non-preloaded structural bolting assemblies - Part 1: General requirements

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**I.S. EN 15048-1:2016**

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## National Foreword

I.S. EN 15048-1:2016 is the adopted Irish version of the European Document EN 15048-1:2016, Non-preloaded structural bolting assemblies - Part 1: General requirements

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**EUROPEAN STANDARD**

**EN 15048-1**

**NORME EUROPÉENNE**

**EUROPÄISCHE NORM**

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English Version

## **Non-preloaded structural bolting assemblies - Part 1: General requirements**

Boulonnerie de construction métallique non  
précontrainte - Partie 1: Exigences générales

Garnituren für nicht vorgespannte  
Schraubverbindungen im Metallbau - Teil 1:  
Allgemeine Anforderungen

This European Standard was approved by CEN on 19 March 2015.

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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 foreword

This document (EN 15048-1:2016) has been prepared by Technical Committee CEN/TC 185 "Fasteners", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by January 2017, and conflicting national standards shall be withdrawn at the latest by April 2018.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 [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15048-1:2007.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports basic work requirements of Regulation (EU) No 305/2011.

For relationship with Regulation (EU) No 305/2011 see informative Annex ZA, which is an integral part of this document.

EN 15048 consists of the following parts, under the general title *Non-preloaded structural bolting assemblies*:

— *Part 1: General requirements*;

— *Part 2: Fitness for purpose*.

Compared to the previous version, the modifications are the following:

- the standard was revised to meet the new format for harmonized standards and in relation to the Regulation (EU) No. 305/2011 (CPR);
- the requirements of this standard only relate to the product characteristics of bolting assemblies which are necessary for CE marking;
- all clauses dealing with further technical or other requirements have been transferred to EN 15048-2;
- washers are not considered as part of the non-preloaded bolting assemblies, however they can be used as relevant;
- addition of bolting assemblies made in aluminum and aluminum alloys;
- addition of nominal diameters M5 to M10;
- Railway rail fasteners have been excluded.

**EN 15048-1:2016 (E)**

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.



## Introduction

Rules for design and execution of bolted connections with non-preloaded structural bolts are defined for instance in EN 1993-1-8 and EN 1090-2 for steel structures or EN 1999-1-1 and EN 1090-3 for aluminium or aluminium alloy structures.

The parts of this European Standard on structural bolting assemblies specify the general requirements which ensure that bolting assemblies comprising bolts and nuts are suitable for use as non-preloaded structural bolting in structural metallic works. They can be used in shear connections and/or in tension connections if no preload is required.

Structural bolting assemblies which meet the requirements of this part of this European Standard have been designed to allow tensile resistance of at least  $f_{ub} \times A_s$ . For this purpose the tensile test of bolting assemblies specified in EN 15048-2 is a mean to check whether the function of the assembly is fulfilled.

Washers or other elements can be used additionally if necessary.

## EN 15048-1:2016 (E)

## 1 Scope

This part of this European Standard specifies the general requirements for bolting assemblies for non-preloaded structural bolting. Bolting assemblies in accordance with this European Standard are designed to be used in structural bolting connections for shear and/or tensile loading.

The intended use of bolting assemblies in accordance with this European standard is structural metallic works.

It applies to bolts (the term used when bolts partially threaded, screws, studs and stud-bolts are considered all together) and nuts made of carbon steel, alloy steel, stainless steel or aluminium or aluminium alloy with the following property classes:

- bolts made of carbon steel or alloy steel: 4.6, 4.8, 5.6, 5.8, 6.8, 8.8, 10.9 (in accordance with EN ISO 898-1);
- nuts made of carbon steel or alloy steel: 5, 6, 8, 10, 12 (in accordance with EN ISO 898-2);
- bolts made of austenitic stainless steel: 50, 70, 80 (in accordance with EN ISO 3506-1);
- nuts made of austenitic stainless steel: 50, 70, 80 (in accordance with EN ISO 3506-2);
- bolts made of aluminium or aluminium alloy: AL1 to AL6 (in accordance with EN 28839);
- nuts made of aluminium or aluminium alloy: AL1 to AL6 (in accordance with EN 28839).

This European Standard applies to bolting assemblies with ISO metric coarse pitch thread from sizes M12 to M39 for use in steel structures according to EN 1090-2, and from M5 to M39 for use in aluminium or aluminium alloy structures according to EN 1090-3. The use of thread sizes larger than M39 is not precluded provided all applicable requirements of this standard are met.

**WARNING** — Only bolting assemblies are covered by this harmonized standard: separate bolts or nuts, not tested as part of an assembly lot of bolting assemblies in accordance with EN 15048-2, are not covered by this harmonized standard and cannot be CE marked.

NOTE 1 The property classes 4.8, 5.8 and 6.8 may be subjected to limitations of use.

NOTE 2 High-strength structural bolting assemblies for preloading which meet the requirements of EN 14399-1 are not within the scope of this European Standard but they are also suitable for use in non-preloaded structural bolting.

NOTE 3 Bolts and nuts made of aluminium or aluminium alloys are not designed to be used in steel structures, see EN 1090-2.

Bolting assemblies in accordance with this European Standard are not designed to be welded.

Railway rail fasteners are not covered by this European Standard.

## 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 1090-2, *Execution of steel structures and aluminium structures — Part 2: Technical requirements for steel structures*

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