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**Vijačne zveze brez prednapetja - 1. del: Splošne zahteve**

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

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

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

**Ta slovenski standard je istoveten z: FprEN 15048-1 rev**

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21.060.10 Sorniki, vijaki, stebelni vijaki Bolts, screws, studs

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**FINAL DRAFT**  
**FprEN 15048-1**

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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 draft European Standard is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 185.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## Foreword

This document (FprEN 15048-1:2014) has been prepared by Technical Committee CEN/TC 185 "Fasteners", the secretariat of which is held by DIN.

This document is currently submitted to the Unique Acceptance Procedure.

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.

**NOTE** Due to fact that the Framework Partnership Agreement between the Commission and CEN & CENELEC is not signed yet, there are currently no New Approach Consultants in place for 2014. Therefore the provisions of CEN-CENELEC Guide 15 cannot be met.

This shall not prevent the processing of draft standards nor the offering of harmonized standards to the Commission. In particular, draft standards can be sent to vote without Consultant assessment.

This note will be removed from the Foreword of the finalized publication.

This document will supersede EN 15048-1:2007.

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*.

**FprEN 15048-1:2014 (E)****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.

## 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 and 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 and 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*

EN 15048-2, *Non-preloaded structural bolting assemblies — Part 2: Suitability test*

**FprEN 15048-1:2014 (E)**

EN 28839, *Mechanical properties of fasteners — Bolts, screws, studs and nuts made of non-ferrous metals (ISO 8839)*

EN ISO 225, *Fasteners — Bolts, screws, studs and nuts — Symbols and descriptions of dimensions (ISO 225)*

EN ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specified property classes — Coarse thread and fine pitch thread (ISO 898-1)*

EN ISO 898-2, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 2: Nuts with specified property classes — Coarse thread and fine pitch thread (ISO 898-2)*

EN ISO 3506-1, *Mechanical properties of corrosion-resistant stainless steel fasteners — Part 1: Bolts, screws and studs (ISO 3506-1)*

EN ISO 3506-2, *Mechanical properties of corrosion-resistant stainless steel fasteners — Part 2: Nuts (ISO 3506-2)*

EN ISO 4759-1, *Tolerances for fasteners — Part 1: Bolts, screws, studs and nuts - Product grades A, B and C (ISO 4759-1)*

EN ISO 10684:2004, *Fasteners — Hot dip galvanized coatings (ISO 10684:2004)*

ISO 965-1, *ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data*

ISO 965-2, *ISO general purpose metric screw threads — Tolerances — Part 2: Limits of sizes for general purpose external and internal screw threads — Medium quality*

ISO 965-3, *ISO general purpose metric screw threads — Tolerances — Part 3: Deviations for constructional screw threads*

ISO 965-4, *ISO general purpose metric screw threads — Tolerances — Part 4: Limits of sizes for hot-dip galvanized external screw threads to mate with internal screw threads tapped with tolerance position H or G after galvanizing*

ISO 965-5, *ISO general purpose metric screw threads — Tolerances — Part 5: Limits of sizes for internal screw threads to mate with hot-dip galvanized external screw threads with maximum size of tolerance position h before galvanizing*

**3 Terms and definitions**

For the purposes of this document, the terms and definitions given in EN 1090-2 and the following apply.

**3.1****bolting assembly**

matching bolts (including screws, studs and stud bolts) and nuts

**3.2****manufacturing lot (for bolting assemblies components)**

quantity of components of a single designation including product grade, property class, type, and size, manufactured from bar, wire, rod or flat product from a single cast, processed through the same or similar steps at the same time or over a continuous time period, through the same heat treatment, coating and/or lubrication process, if any

Note 1 to entry: Same process means:

— for a continuous process, the same treatment cycle without any setting modification;