

**Mitte-eelkoormatavad ehituslikud  
kinnitusmehhanismid. Osa 1:  
Üldnõuded**

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

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 15048-1:2007 sisaldab Euroopa standardi EN 15048-1:2007 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 31.05.2007 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 15048-1:2007 consists of the English text of the European standard EN 15048-1:2007.</p> <p>This document is endorsed on 31.05.2007 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b></p> <p>This part of this European Standard specifies the general requirements for the components of bolt/nut/washer assemblies for non-preloaded structural bolting and for the assemblies themselves. It applies to bolts (including screws, studs and stud bolts) and nuts made of carbon steel, alloy steel and stainless steel 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; - nuts made of carbon steel and alloy steel: 4, 5, 6, 8, 10, 12; - bolts made of austenitic stainless steel: 50, 70, 80; - nuts made of austenitic stainless steel: 50, 70, 80; - if appropriate, washers according to hardness class HV 100 or HV 200.</p>	<p><b>Scope:</b></p> <p>This part of this European Standard specifies the general requirements for the components of bolt/nut/washer assemblies for non-preloaded structural bolting and for the assemblies themselves. It applies to bolts (including screws, studs and stud bolts) and nuts made of carbon steel, alloy steel and stainless steel 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; - nuts made of carbon steel and alloy steel: 4, 5, 6, 8, 10, 12; - bolts made of austenitic stainless steel: 50, 70, 80; - nuts made of austenitic stainless steel: 50, 70, 80; - if appropriate, washers according to hardness class HV 100 or HV 200.</p>
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Võtmesõnad:

English Version

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

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

Garnituren für nicht planmäßig vorgespannte  
Schraubenverbindungen für den Metallbau - Teil 1:  
Allgemeine Anforderungen

This European Standard was approved by CEN on 18 September 2006.

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.

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## Foreword

This document (EN 15048-1:2007) has been prepared by Technical Committee CEN/TC 185 “Fasteners”, 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 October 2007, and conflicting national standards shall be withdrawn at the latest by October 2009.

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 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 United Kingdom.

## Introduction

Rules for design and execution of bolted connections with non-preloaded low strength or high-strength structural bolts respectively are defined for instance in EN 1993-1-8 (Eurocode 3) and prEN 1090-2.

The parts of this European Standard on structural bolting specify the general requirements which ensure that bolt/nut/washer assemblies are suitable for use in non preloaded structural bolting. They can be used in shear connections and/or in tension connections if no preload is required. Structural fasteners which meet the requirements of this part of this European Standard have been designed to allow tensile loading of at least  $f_{ub} \times A_s$  as defined in EN 1993-1-8.

Structural fasteners which meet the requirements of EN 14399-1 are suitable for use in preloaded and non-preloaded structural bolting. This European Standard deals with structural fasteners which are intended for use as non-preloaded assemblies.

Since the tensile resistance of bolt/nut assemblies is very sensitive to differences in manufacture, it is important that the assemblies are supplied by one manufacturer who is always responsible for the function of the assembly. For the same reason it is important that coating of the assemblies is under the control of one manufacturer.

Beside the mechanical properties of the components the functionality of the assembly requires that the required tensile resistance is achieved. For this purpose the tensile test of assemblies is a means to check whether the function of the assembly is fulfilled.

## 1 Scope

This part of this European Standard specifies the general requirements for the components of bolt/nut/washer assemblies for non-preloaded structural bolting and for the assemblies themselves. It applies to bolts (including screws, studs and stud bolts) and nuts made of carbon steel, alloy steel and stainless steel 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;
- nuts made of carbon steel and alloy steel: 4, 5, 6, 8, 10, 12;
- bolts made of austenitic stainless steel: 50, 70, 80;
- nuts made of austenitic stainless steel: 50, 70, 80;
- if appropriate, washers according to hardness class HV 100 or HV 200.

NOTE The property classes 4.8, 5.8 and 6.8 may be subjected to limitations of use, it is recommended to refer to prEN 1090-2.

The standard applies to thread sizes from M12 to M36 and to the associated washers but does not preclude the use of other sizes.

Bolted connections with components according to this European Standard are able to be shear and/or tensile loaded.

Bolts, nuts and washers according to this European Standard are not normally intended for welding.

## 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.

prEN 1090-2:2005, *Execution of steel structures and aluminium structures - Part 2: Technical requirements for the execution of steel structures*

EN 1993-1-8:2005, *Eurocode 3: Design of steel structures - Part 1-8: Design of joints*

EN 10045-1, *Metallic materials — Charpy impact test — Part 1: Test method*

EN 10204, *Metallic products — Types of inspection documents*

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

EN 20898-2, *Mechanical properties of fasteners — Part 2: Nuts with specified proof load values — Coarse thread (ISO 898-2:1992)*

EN ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs (ISO 898-1:1999)*

EN ISO 3506-1, *Mechanical properties of corrosion-resistant stainless-steel fasteners — Part 1: Bolts, screws and studs (ISO 3506-1:1997)*

EN ISO 3506-2, *Mechanical properties of corrosion-resistant stainless-steel fasteners — Part 2: Nuts (ISO 3506-2:1997)*

EN ISO 6507-1, *Metallic materials - Vickers hardness test - Part 1: Test method (ISO 6507-1:2005)*

EN ISO 9001, *Quality management systems - Requirements (ISO 9001:2000)*