KONSTRUKTSIOONILISED EELPINGESTATAVAD KÕRGTUGEVAD POLDIKOMPLEKTID. OSA 1: ÜLDNÕUDED

High-strength structural bolting assemblies for preloading - Part 1: General requirements

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 14399-1:2015 sisaldab Euroopa standardi EN 14399-1:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 14399-1:2015 consists of the English text of the European standard EN 14399-1:2015.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 18.02.2015.	Date of Availability of the European standard is 18.02.2015.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 21.060.01

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14399-1

February 2015

ICS 21.060.01

Supersedes EN 14399-1:2005

English Version

High-strength structural bolting assemblies for preloading - Part 1: General requirements

Boulonnerie de construction métallique à haute résistance apte à la précontrainte - Partie 1: Exigences générales

Hochfeste vorspannbare Garnituren für Schraubverbindungen im Metallbau - Teil 1: Allgemeine Anforderungen

This European Standard was approved by CEN on 22 August 2014.

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, 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 United Kingdom.

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

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

Ref. No. EN 14399-1:2015 E

Contents

Page

Foreword

This document (EN 14399-1:2015) 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 August 2015 and conflicting national standards shall be withdrawn at the latest by November 2016.

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 14399-1:2005.

In comparison with EN 14399-1:2005, the following modifications have been made:

— 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 14399-2;

— the table containing the overview of the composition of bolting assemblies and component marking has been transferred to EN 14399-2.

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. 305/201, see informative Annex ZA, which is an integral part of this document.

EN 14399 consists of the following parts, under the general title *High-strength structural bolting assemblies for preloading*:

— *Part 1: General requirements* (the present document);

— *Part 2: Suitability for preloading*;

— *Part 3: System HR — Hexagon bolt and nut assemblies*;

— *Part 4: System HV — Hexagon bolt and nut assemblies*;

— *Part 5: Plain washers*;

— *Part 6: Plain chamfered washers*;

— *Part 7: System HR — Countersunk head bolt and nut assemblies*;

— *Part 8: System HV — Hexagon fit bolt and nut assemblies*;

— *Part 9: System HR or HV — Direct tension indicators for bolt and nut assemblies*;

— *Part 10: System HRC — Bolt and nut assemblies with calibrated preload*.

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

This document on structural bolting assemblies reflects the situation in Europe where two technical solutions exist to achieve the necessary ductility of bolting assemblies. These solutions utilize different bolting assemblies (system HR, HV and HRC). Both systems are well proven and it is the responsibility of the experts for structural connections whether they use the one or the other system.

It is however important for the performance of the bolting assembly to avoid mixing up the components of both systems. Therefore, the bolts and nuts for both systems are standardized in one single part of this European Standard each and the marking of the components of the same system is consistent.

1 Scope

This European Standard specifies the general requirements for bolt/nut/washer(s) assemblies for high-strength structural bolting, which are suitable for preloading.

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

NOTE 1 High-strength structural bolting assemblies in accordance with EN 14399-2 to EN 14399-10 are designed to fulfil the requirements of this European Standard.

NOTE 2 High-strength structural bolting assemblies are suitable for preloading in accordance with EN 1090-2 in steel structures.

High-strength structural bolting assemblies smaller than M12 are not designed to be preloaded.

High-strength structural bolting assemblies are not designed to be welded.

Railway rail fasteners are not covered by this 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 1090-2:2008+A1:2011, *Execution of steel structures and aluminium structures - Part 2: Technical requirements for steel structures*

EN 14399-2:2015, *High-strength structural bolting assemblies for preloading - Part 2: Suitability for preloading*

EN 14399-3:2015, *High-strength structural bolting assemblies for preloading - Part 3: System HR - Hexagon bolt and nut assemblies*

EN 14399-4:2015, *High-strength structural bolting assemblies for preloading - Part 4: System HV - Hexagon bolt and nut assemblies*

EN 14399-5, *High-strength structural bolting assemblies for preloading - Part 5: Plain washers*

EN 14399-6, *High-strength structural bolting assemblies for preloading - Part 6: Plain chamfered washers*

EN 14399-7:2007, *High-strength structural bolting assemblies for preloading - Part 7: System HR - Countersunk head bolt and nut assemblies*

EN 14399-8:2007, *High-strength structural bolting assemblies for preloading - Part 8: System HV - Hexagon fit bolt and nut assemblies*

EN 14399-9:2009, *High-strength structural bolting assemblies for preloading - Part 9: System HR or HV - Direct tension indicators for bolt and nut assemblies*

EN 14399-10:2009, *High-strength structural bolting assemblies for preloading - Part 10: System HRC - Bolt and nut assemblies with calibrated preload*

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

EN ISO 898-1:2013, *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 898-1:2013)*

EN ISO 898-2:2012, *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 898-2:2012)*

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 4759-3, *Tolerances for fasteners - Part 3: Plain washers for bolts, screws and nuts - Products grades A and C (ISO 4759-3)*

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

EN ISO 6508-1, *Metallic materials - Rockwell hardness test - Part 1: Test method (scales A, B, C, D, E, F, G, H, K, N, T) (ISO 6508-1)*

EN ISO 10684, *Fasteners - Hot dip galvanized coatings (ISO 10684)*

ISO 888, *Fasteners - Bolts, screws and studs - Nominal lengths and thread lengths*

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 965-5, *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 1090-2:2008+A1:2011 and the following apply.

3.1
bolting assembly
matching bolt, nut, washer(s) and if relevant, direct tension indicator and nut face washer or bolt face washer

3.2
single bolting assembly lot
bolting assembly lot containing:

— bolts from a single manufacturing lot;

— nuts from a single manufacturing lot;

— washers from a single manufacturing lot;

and, if relevant:

— direct tension indicators from a single manufacturing lot;

— nut face washers from a single manufacturing lot;

— bolt face washers from a single manufacturing lot