

**Eelkoormatavad kõrgtugevad
ehituslikud kinnitusmehhanismid. Osa
1: Üldnõuded**

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 14399-1:2005 sisaldab Euroopa standardi EN 14399-1:2005 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 30.05.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 14399-1:2005 consists of the English text of the European standard EN 14399-1:2005.</p> <p>This document is endorsed on 30.05.2005 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>Käsitlusala: This Part of this European standard specifies the general requirements for the components of bolt/nut/washer(s) assemblies for high-strength structural bolting, which are suitable for preloading and for the assemblies themselves</p>	<p>Scope: This Part of this European standard specifies the general requirements for the components of bolt/nut/washer(s) assemblies for high-strength structural bolting, which are suitable for preloading and for the assemblies themselves</p>
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ICS 21.060.01

Võtmesõnad: acceptance testing, conformity tests, material, mechanical properties, mechanical properties of materials, ph, physical properties, prestressed, production, properties, screws, screws (bolts), specification (approval), specifications, steels, structural steel work

ICS 21.060.01

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

Garnituren für hochfeste planmäßig vorspannbare
Schraubverbindungen für den Metallbau - Teil 1:
Allgemeine Anforderungen

This European Standard was approved by CEN on 3 February 2005.

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Foreword

This document (EN 14399-1:2005) has been prepared by Technical Committee CEN/TC 185, "Threaded and non-threaded mechanical fasteners and accessories", 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 2005, and conflicting national standards shall be withdrawn at the latest by September 2005.

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 EC Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

This document includes a Bibliography

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This document on structural bolting reflects the situation in Europe where two technical solutions exist to achieve the necessary ductility of bolt/nut/washer assemblies. These solutions utilize different systems (HR and HV) of bolt/nut/washer assemblies, see Table 1. Both systems are well proved and it is up to the experts responsible for structural bolting whether they use the one or the other system.

It is, however, important for the performance of the 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 uniform.

Table 1 — Systems of bolt/nut/washer assemblies

	Bolt/nut/washer assembly System HR		Bolt/nut/washer assembly System HV
General requirements	EN 14399-1		
Bolt/nut assembly	EN 14399-3		EN 14399-4
Marking	HR		HV
Property classes	8.8/8	10.9/10	10.9/10
Washer(s)	EN 14399-5 or EN 14399-6		EN 14399-5 or EN 14399-6
Marking	H		H
Suitability test for preloading	EN 14399-2		EN 14399-2

Preloaded bolted assemblies are very sensitive to differences in manufacture and lubrication. Therefore it is important that the assembly is 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 assembly is under the control of one manufacturer.

Beside the mechanical properties of the components the functionality of the assembly requires that the specified preload can be achieved if the assembly is tightened with a suitable procedure. For this purpose a test method for the suitability of the components for preloading was created which will demonstrate whether the function of the assembly is fulfilled.

For the time being, the product standards EN 14399-3 to EN 14399-6 are the only European Standards which have regard to the general requirements of EN 14399-1. However, further product standards on

- fit bolts,
- countersunk head bolts, and
- load indicating washers

for the use in high strength structural bolting for preloading are under preparation.

1 Scope

This document specifies the general requirements for the components of bolt/nut/washer(s) assemblies for high-strength structural bolting, which are suitable for preloading, and for the assemblies themselves.

Examples for components which fulfil the requirements of this document are specified in EN 14399-3, EN 14399-4, EN 14399-5 and EN 14399-6.

NOTE For clauses of this document addressing the provisions of the EU Construction Products Directive, see Annex ZA.

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.

ENV 1090-1:1996, *Execution of steel structures — Part 1: General rules and rules for buildings*.

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

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

EN 14399-2, *High-strength structural bolting for preloading — Part 2: Suitability test for preloading*.

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

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

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

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

EN 20225, *Fasteners — Bolts, screws, studs and nuts — Symbols and designation of dimensions (ISO 225:1983)*.

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 6507-1, *Metallic materials — Vickers hardness test — Part 1: Test method (ISO 6507-1:1997)*.

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in *Guide to the Implementation of Directives Based on the New Approach and Global Approach* and ENV 1090-1:1996 and the following apply.

3.1

assembly

comprises matching bolt, nut and necessary washer(s)