

BS EN 14399-3:2015



BSI Standards Publication

High-strength structural bolting assemblies for preloading

Part 3: System HR — Hexagon bolt and nut
assemblies

bsi.

...making excellence a habit.™

This is a preview. [Click here to purchase the full publication.](#)

National foreword

This British Standard is the UK implementation of EN 14399-3:2015. It supersedes BS EN 14399-3:2005 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee FME/9/-/2, Fasteners for structural bolting.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2015. Published by BSI Standards Limited 2015

ISBN 978 0 580 81779 3

ICS 21.060.01; 21.060.10; 21.060.20

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 28 February 2015.

Amendments issued since publication

Date	Text affected
------	---------------

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 14399-3

February 2015

ICS 21.060.01

Supersedes EN 14399-3:2005

English Version

High-strength structural bolting assemblies for preloading - Part 3: System HR - Hexagon bolt and nut assemblies

Boulonnerie de construction métallique à haute résistance
apte à la précontrainte - Partie 3 : Système HR - Boulons à
tête hexagonale (vis + écrou)

Hochfeste vorspannbare Garnituren für
Schraubverbindungen im Metallbau - Teil 3: System HR -
Garnituren aus Sechskantschrauben und -muttern

This European Standard was approved by CEN on 18 October 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

Contents

Page

Foreword.....	3
Introduction	4
1 Scope	6
2 Normative references	6
3 Bolts	7
3.1 Dimensions of bolts.....	7
3.2 Specification for bolts and reference standard	11
3.3 Marking of bolts	11
4 Nuts	12
4.1 Dimensions of nuts.....	12
4.2 Specification for nuts and reference standards	14
4.3 Proof load values of nuts	15
4.4 Decarburization of the nut thread	15
4.5 Marking of nuts	15
5 Designation of the bolt/nut assemblies.....	16
6 Associated washers	16
7 Functional characteristics of the bolt/nut/washer(s) assembly.....	16
7.1 General.....	16
7.2 Maximum individual value of the bolt force during fitness for purpose test ($F_{bi,max}$)	17
7.3 Values of angle $\Delta\theta_1$	17
7.4 Values of angle $\Delta\theta_2$	17
7.5 Individual values of the k -factor (k_i), mean value of the k -factor (k_m) and coefficient of variation of the k -factor (V_k)	17
7.5.1 Individual values of the k -factor (k_i) for k -class K1.....	17
7.5.2 Mean value of the k -factor (k_m) and coefficient of variation of the k -factor (V_k) for k -class K2	18
Annex A (normative) Clamp lengths and grip lengths	19
A.1 Clamp lengths for bolting assemblies with one or two washers.....	19
A.2 Grip lengths for bolting assemblies with one or two washers	22
Bibliography	28

Foreword

This document (EN 14399-3:2015) 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 14399-3:2005.

In comparison with EN 14399-3:2005, the following modifications have been made:

- Table 1 containing the overview of the composition of bolting assemblies and component marking has been added;
- the coefficient of variation of the k -factor, V_k , was changed from 0,10 to 0,06;
- specifications for the designation of the bolting assemblies have been revised;
- Annex A with detailed specifications on clamp lengths and grip lengths has been added.

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

- *Part 1: General requirements*;
- *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.