



SLOVENSKI STANDARD
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Visokotrdnostne strukturne vijačne zveze za prednapetje - 4. del: Sistem HV - Zveze vijakov s šestrobo glavo in šestrobo matico

High-strength structural bolting assemblies for preloading - Part 4: System HV - Hexagon bolt and nut assemblies

Hochfeste vorspannbare Garnituren für Schraubverbindungen im Metallbau - Teil 4: System HV - Garnituren aus Sechskantschrauben und muttern

Ensembles de boulonnerie de construction métallique à haute résistance apte à la précontrainte - Partie 4: Système HV - Boulons à tête hexagonale (vis + écrou)

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21.060.01 Vezni elementi na splošno Fasteners in general

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High-strength structural bolting assemblies for preloading - Part 4: System HV - Hexagon bolt and nut assemblies

Boulonnerie de construction métallique à haute résistance
apte à la précontrainte - Partie 4: Système HV - Boulons à
tête hexagonale (vis + écrou)

Hochfeste vorspannbare Garnituren für
Schraubverbindungen im Metallbau - Teil 4: System HV -
Garnituren aus Sechskantschrauben und muttern

This draft European Standard is submitted to CEN members for enquiry. 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.

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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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Foreword

This document (prEN 14399-4:2013) 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 CEN Enquiry.

This document will supersede EN 14399-4:2005.

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 EU Directive(s).

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.*

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 utilise 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, bolts and nuts for both systems are standardised in one single part of this European Standard each and the marking of the components of the same system is uniform.

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.

It should be pointed out that compared to ISO 272 the widths across flats (large series) for M12 and M20 have been changed to 22 mm and 32 mm respectively. These changes are justified by the following reasons.

Under the specific conditions of structural bolting, the compressive stresses under the bolt head or nut for the sizes M12 may become too large with the width across flats of 21 mm, especially if the washer is fitted excentrically to the bolt axis.

For the size M20, the width across flats of 34 mm is very difficult to be produced. The change to 32 mm is primarily motivated by economics but it should also be pointed out that the width across flats of 32 mm is already common practice in Europe.