



**NSAI**  
Standards

Irish Standard  
I.S. EN 3226:2009

Nuts, hexagon, plain, normal height,  
normal across flats, steel, cadmium  
plated - Classification 1 100 MPa/235 °C

## I.S. EN 3226:2009

*Incorporating amendments/corrigenda issued since publication:*

<i>This document replaces:</i>	<i>This document is based on:</i> EN 3226:2009	<i>Published:</i> 12 August, 2009
This document was published under the authority of the NSAI and comes into effect on: 15 September, 2009		ICS number: 49.030.30
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<b>Price Code:</b> <b>E</b>		
Údarás um Chaighdeáin Náisiúnta na hÉireann		

I.S. EN 3226:2009

EUROPEAN STANDARD

**EN 3226**

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2009

ICS 49.030.30

English Version

**Nuts, hexagon, plain, normal height, normal across flats, steel,  
cadmium plated - Classification 1 100 MPa/235 °C**

Ecrous hexagonaux, ordinaires, hauteur normale, à surplat  
normal, en acier, cadmiés - Classification 1 100 MPa/235  
°C

Luft- und Raumfahrt - Sechskantmuttern mit normaler  
Schlüsselweite, aus Stahl, verkadmet; Klasse: 1 100  
MPa/235 °C

This European Standard was approved by CEN on 27 June 2009.

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.

CEN members are the national standards bodies of 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.



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## **Foreword**

This document (EN 3226:2009) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

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 February 2010, and conflicting national standards shall be withdrawn at the latest by February 2010.

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.

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## 1 Scope

This standard specifies the characteristics of plain, hexagonal nuts, normal height, normal across flats, in steel, cadmium plated.

Classification: 1 100 MPa <sup>1)</sup> / 235 °C <sup>2)</sup>

## 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.

EN 2133, *Aerospace series — Cadmium plating of steels with specified tensile strength  $\leq 1\,450$  MPa, copper, copper alloys and nickel alloys.*

EN 2205, *Steel FE-PL43S —  $900\text{ MPa} \leq R_m \leq 1\,100\text{ MPa}$  — Bars  $D_e \leq 40\text{ mm}$  — Aerospace series.* <sup>3)</sup>

EN 2424, *Aerospace series — Marking of aerospace products.*

EN 2438, *Aerospace series — Steel FE-PL2102 (35NiCr6) —  $900\text{ MPa} \leq R_m \leq 1\,100\text{ MPa}$  — Bars —  $D_e \leq 40\text{ mm}$ .*

EN 2448, *Aerospace series — Steel FE-PL1503 (35CrMo4) —  $900\text{ MPa} \leq R_m \leq 1\,100\text{ MPa}$  — Bars —  $D_e \leq 40\text{ mm}$ .*

EN 3513, *Aerospace series — Steel FE-PL711 — Hardened and tempered —  $900 \leq R_m \leq 1\,100\text{ MPa}$  — Bar and wire —  $D_e \leq 45\text{ mm}$ .* <sup>4)</sup>

EN 9100, *Aerospace series — Quality management systems — Requirements (based on ISO 9001:2000) and Quality systems — Model for quality assurance in design, development, production, installation and servicing (based on ISO 9001:1994).*

TR 3823, *Aerospace series — Materials for plain, slotted and self-locking by plastic ring hexagonal nuts.* <sup>5)</sup>

ISO 5855-2, *Aerospace — MJ threads — Part 2: Limit dimensions for bolts and nuts.*

ISO 8279, *Aerospace — Nuts, hexagonal, plain, normal height, normal across flats, with MJ threads, classifications: 600 MPa (at ambient temperature)/120 °C, 600 MPa (at ambient temperature)/235 °C, 900 MPa (at ambient temperature)/425 °C, 1 100 MPa (at ambient temperature)/235 °C, 1 100 MPa (at ambient temperature)/315 °C, 1 100 MPa (at ambient temperature)/650 °C, 1 210 MPa (at ambient temperature)/730 °C, 1 250 MPa (at ambient temperature)/235 °C and 1 550 MPa (at ambient temperature)/600 °C — Dimensions.*

ISO 8788, *Aerospace — Nuts, metric — Tolerances of form and position*

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1) Corresponds to strength class of the associated bolt, the 100 per cent load of which it is able to withstand, when tested at ambient temperature, without breaking or cracking.

2) Maximum temperature that the nut can withstand without continuous change in its original characteristics, after return to ambient temperature. The maximum temperature is determined by the surface treatment.

3) Published as ASD Prestandard at the date of publication of this standard.

4) Published as ASD Standard at the date of publication of this standard.

5) Published as ASD Technical Report at the date of publication of this standard.

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