SLOVENSKI STANDARD
oSIST prEN 3228:2020

01-november-2020

Aeronavtika - Matice, šestrobe, drsne, z normalnim zevom ključa, iz jekla, kadmirane - Klasifikacija: 900 MPa (pri temperaturi okolice)/235 °C

Aerospace series - Nuts, hexagonal, plain, reduced height, normal across flats, in steel, cadmium plated - Classification: 900 MPa (at ambient temperature)/235 °C

Luft- und Raumfahrt - Flache Sechskantmutter mit normaler Schlüsselweite, aus Stahl, verkadmet - Klasse: 900 MPa (bei Raumtemperatur)/235 °C

Série aérospatiale - Écrous hexagonaux ordinaires hauteur réduite, surplats normaux, en acier, cadmiés - Classification : 900 MPa (à température ambiante)/235 °C

Ta slovenski standard je istoveten z: **prEN 3228**

ICS:

49.025.10	Jekla	Steels
49.030.30	Matice	Nuts

oSIST prEN 3228:2020 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 3228

September 2020

ICS 49.030.30

Will supersede EN 3238:2010

English Version

Aerospace series - Nuts, hexagonal, plain, reduced height, normal across flats, in steel, cadmium plated - Classification: 900 MPa (at ambient temperature)/235 °C

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Luft- und Raumfahrt - Flache Sechskantmutter mit normaler Schlüsselweite, aus Stahl, verkadmet - Klasse: 900 MPa (bei Raumtemperatur)/235 °C

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee ASD-STAN.

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.

This draft European Standard was established by CEN 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.

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

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European foreword

This document (prEN 3228:2020) 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-STAN, prior to its presentation to CEN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 3238:2010.

1 Scope

This document specifies the characteristics of plain hexagonal nuts, reduced height, normal across flats, in steel, cadmium plated, for aerospace applications.

Classification: 900 MPa/235 °C[1].

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 ≤ 1 450 MPa, copper, copper alloys and nickel alloys*

EN 2205, *Aerospace series - Steel FE-PL1502 (25CrMo4) - 900 MPa ≤ Rm ≤ 1 100 MPa - Bars - De ≤ 40 mm*

EN 2424, *Aerospace series - Marking of aerospace products*

EN 2438, *Aerospace series - Steel FE-PL2102 (35NiCr6) - 900 MPa ≤ Rm ≤ 1 100 MPa - Bars - De ≤ 40 mm*

EN 2448, *Aerospace series - Steel FE-PL1503 (35CrMo4) - 900 MPa ≤ Rm ≤ 1 100 MPa - Bars - De ≤ 40 mm*

EN 3513,[2] *Steel FE-PL711 - Hardened and tempered - 900 ≤ Rm ≤ 1 100 MPa - Bar and wire - De ≤ 45 mm*

TR 3823,[3] *Materials for plain, slotted and self-locking by plastic ring hexagonal nuts*

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

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

ISO 9139, *Aerospace - Nuts, plain or slotted (castellated) - Procurement specification*

ISO 9609, *Aerospace - Nuts, hexagonal, plain, reduced height, normal across flats, with MJ threads, classifications: 450 MPa (at ambient temperature) /120 degrees C, 450 MPa (at ambient temperature) /235 degrees C, 600 MPa (at ambient temperature) /425 degrees C, 900 MPa (at ambient temperature) /235 degrees C, 900 MPa (at ambient temperature) /315 degrees C, 900 MPa (at ambient temperature) /650 degrees C, 1 100 MPa (at ambient temperature) /235 degrees C, 1 100 MPa (at ambient temperature) /730 degrees C and 1 250 MPa (at ambient temperature)/600 degrees C - Dimensions*

[1] Maximum temperature that the nut is able to withstand, without permanent alteration to its original characteristics, after ambient temperature has been restored. The maximum temperature is conditioned by the surface treatment.

[2] Published as ASD-STAN Prestandard at the date of publication of this standard by AeroSpace and Defence Industries Association of Europe – Standardization (ASD-STAN) (www.asd-stan.org).

[3] Published as ASD STAN Technical Report at the date of publication of this standard by AeroSpace and Defence Industries Association of Europe – Standardization (ASD STAN) (www.asd stan.org).

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Required characteristics

4.1 Configuration — Dimensions — Masses

See Figure 1 and Table 1.

Dimensions and tolerances shall be in accordance with ISO 9609 and apply after surface treatment.

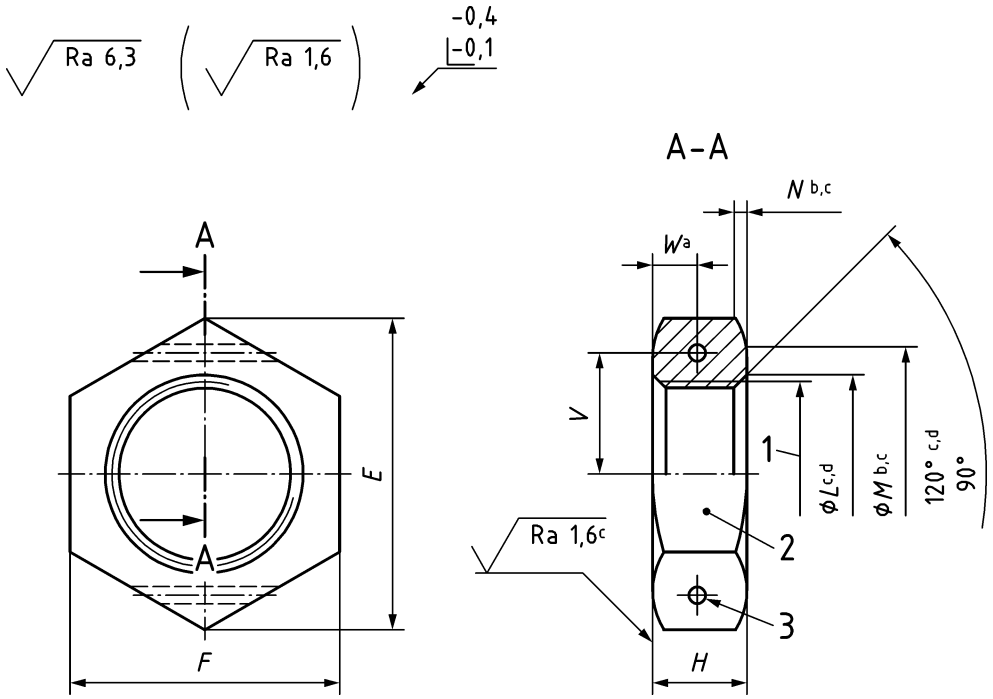
Break sharp edges 0,1 to 0,4.

Details of form not stated are at the manufacturer's option.

Tolerances of form and position shall be according to ISO 8788.

These values in micrometres apply before surface treatment. The values do not apply to threads.

Dimensions in millimetres



Key

1 thread
2 marking
3 two holes ø*U* optional
a from either face
b diameter *M* may be tangential to, but shall not intrude on the flats.
c applicable to both faces
d all forms of entry (chamfer or radius) option within these limiting dimensions

Figure 1 — Hexagonal nut

Table 1 — Dimensions, masses

Dimensions in millimetres

Diameter code	Thread[a]	*E* min.	*F*		*H* h14	*L*		*M* min.	*N* max.	*N* min.	*U* H13	*V* ±0,2	*W* min.	Mass kg/1 000 pieces approx.
040	MJ4 × 0,7–4H6H	7,6	7	h12	2,6	4,2	+0,6 0	6,4	0,5	0,2	b	b	b	0,65
050	MJ5 × 0,8–4H6H	8,7	8		3	5,2		7,4						0,9
060	MJ6 × 1–4H5H	10,9	10	h13	3,5	6,3	+0,8 0	9,3			1	3,9	1,4	1,6
070	MJ7 × 1–4H5H	12	11		4	7,3		10,2				4,4	1,6	2,1
080	MJ8 × 1–4H5H	14,3	13			8,3		12,2				5		3,1
100	MJ10 × 1,25–4H5H	18,9	17		5	10,3		16	0,6	0,3	1,5	6,9	2,1	6,9
120	MJ12 × 1,25–4H5H	21,1	19		6	12,3		18				8	2,6	9,7
140	MJ14 × 1,5–4H5H	24,5	22		7	14,4		21				9,6	3,1	15
160	MJ16 × 1,5–4H5H	26,8	24		8	16,4		23				10,7	3,6	19,4
180	MJ18 × 1,5–4H5H	30,2	27		9	18,4		26				12	4,1	27
200	MJ20 × 1,5–4H5H	33,6	30		10	20,4		29				13,4	4,6	37
220	MJ22 × 1,5–4H5H	35,8	32		11	22,4		30,9				14,4	5	49
240	MJ24 × 2–4H5H	40,4	36		12	24,5		34,9				16,1	5,5	65

a In accordance with ISO 5855-2.

b Lockwire holes not provided for these diameters.

4.2 Materials

Materials shall be according to EN 2205, EN 2438, EN 2448, EN 3513 or TR 3823.

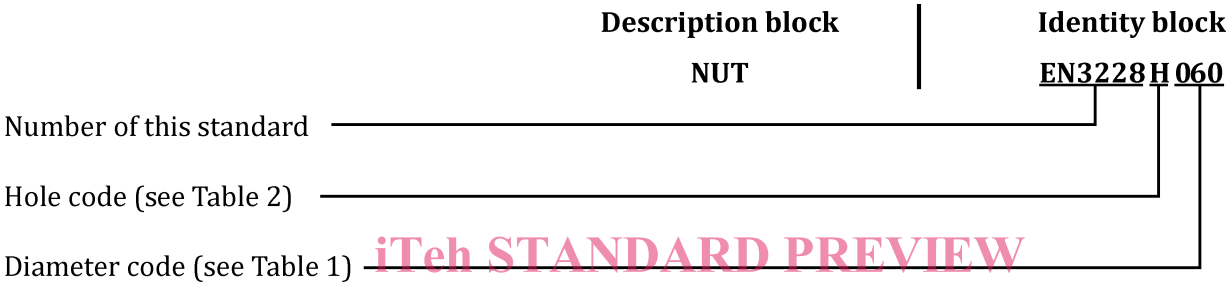
4.3 Surface treatment

The surface treatment shall be according to EN 2133, 5 µm minimum on threads and all surfaces which can be contacted by a 20 mm diameter ball. On all other surfaces, a continuous cadmium plating shall be present.

5 Designation

If necessary the originator code I9005 shall be placed between the description block and the identity block.

EXAMPLE



The hole code shall be according to Table 2.

Table 2 — Hole code

Option	Code
Lockwire holes	H
No hole	– (hyphen)

6 Marking

The marking shall be according to Table 3.

Table 3 — Marking

Diameter code	EN 2424 Style
040 to 070	N
080 to 160	C
180 to 240	A