BS EN 2869:2009

Aerospace series — Nuts, hexagonal, slotted/castellated, normal height, normal accross flats, in heat resisting steel, passivated — Classification: 1 100 MPa (at ambient temperature) / 650 °C

ICS 49.030.30

National foreword

This British Standard is the UK implementation of EN 2869:2009.

The UK participation in its preparation was entrusted to Technical Committee ACE/12, Aerospace fasteners and fastening systems.

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.

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

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EUROPEAN STANDARD

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EN 2869

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English Version

Aerospace series - Nuts, hexagonal, slotted/castellated, normal height, normal accross flats, in heat resisting steel, passivated - Classification: 1 100 MPa (at ambient temperature) / 650 °C

Série aérospatiale - Écrous hexagonaux à créneaux, hauteur normale, surplats normaux, en acier résistant à chaud, passivés - Classification : 1 100 MPa (à température ambiante) / 650 °C

Luft- und Raumfahrt - Flache Kronenmuttern, normale Höhe, normale Schlüsselweite, aus hochwarmfestem Stahl, passiviert - Klasse: 1 100 MPa (bei Raumtemperatur) / 650 °C

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 2869:2009) 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of an identical text or by endorsement, at the latest by May 2010, and conflicting national standards shall be withdrawn at the latest by May 2010.

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1 Scope

This European Standard specifies the characteristics of hexagonal slotted/castellated nuts, normal height, normal across flats, in heat resisting steel, passivated.

Classification: 1 100 MPa [1] / 650 °C [2] .

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 2398, *Aerospace series — Heat resisting steel FE-PA2601 (X6NiCrTiMoV26-15) — $R_m \geq 900$ MPa — Bars for machined bolts — $D \leq 25$ mm*

EN 2399, *Aerospace series — Heat resisting steel FE-PA2601 (X4NiCrTiMoV26-15) — $R_m \geq 900$ MPa — Bars for forged bolts — $D \leq 25$ mm*

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

EN 2516, *Aerospace series — Passivation of corrosion resisting steels and decontamination of nickel base alloys*

EN 3639, *Aerospace series — Heat resisting alloy FE-PA2601 — Softened and cold worked — Wire for forged fasteners — $D \leq 15$ mm — 900 MPa $\leq R_m \leq$ 1 100 MPa* [3]

EN 9100, *Quality Management Systems - Requirements for Aviation, Space and Defense Organizations*

ISO 4147, *Aerospace — Nuts, hexagonal, slotted (castellated), 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, 1100 MPa (at ambient temperature)/235 °C, 1100 MPa (at ambient temperature)/315 °C, 1100 MPa (at ambient temperature)/650 °C, 1210 MPa (at ambient temperature)/730 ° C, 1250 MPa (at ambient temperature)/235 ° C and 1550 MPa (at ambient temperature)/ 600° C — Dimensions*

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*

TR 3823, *Aerospace series — Materials for plain, slotted and self-locking by plastic ring hexagonal nuts* [4]

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

2) 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 material.

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

4) Published as ASD-STAN Technical Report at the date of publication of this standard.

3 Required characteristics

3.1 Configuration — Dimensions — Masses

See Figure 1 and Table 1.

Dimensions and tolerances are in conformity with ISO 4147, expressed in millimetres and apply after surface treatment.

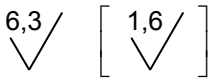
Form and position tolerances shall be in conformity with ISO 8788.

3.2 Materials

EN 2398, EN 2399, EN 3639 or TR 3823.

3.3 Surface treatment

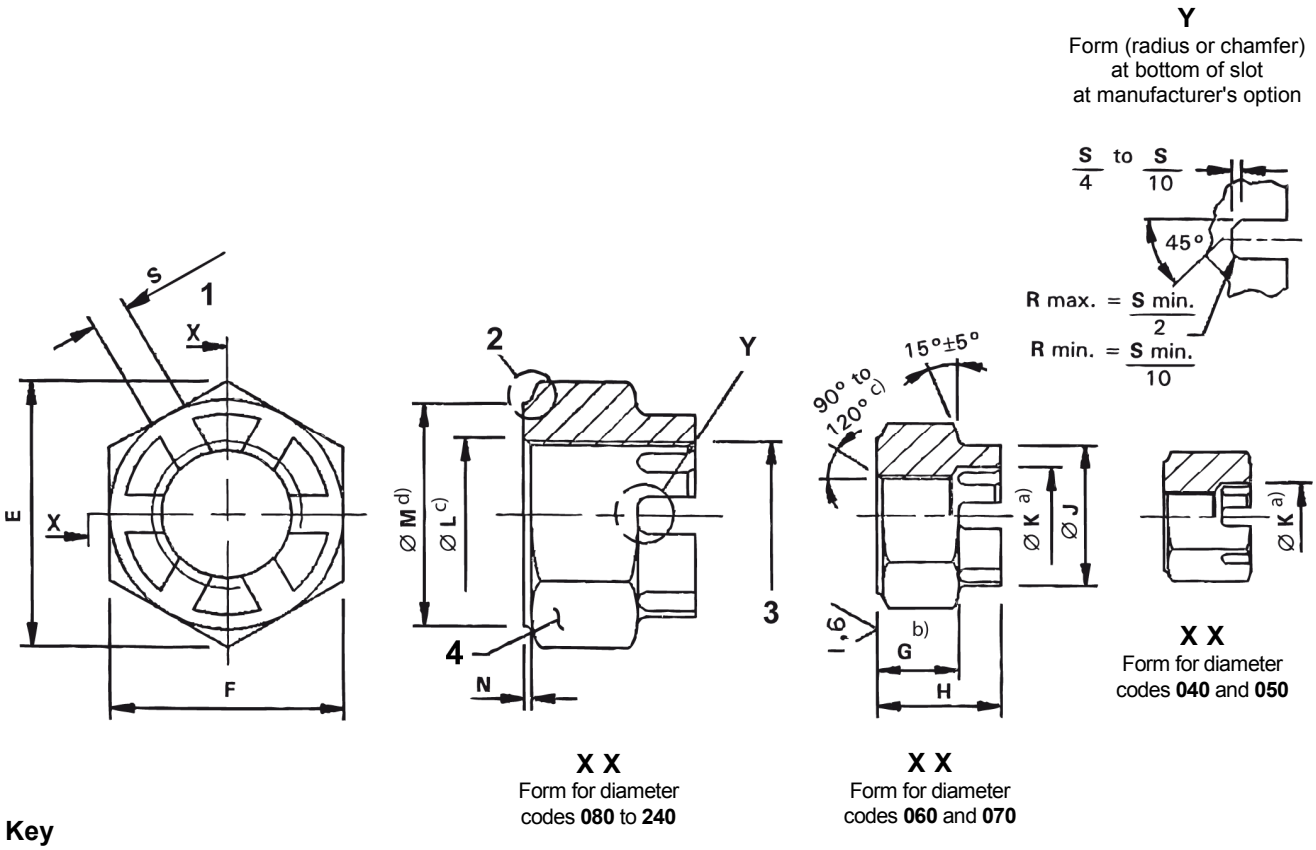
EN 2516, process class appropriate to the material.



These values in micrometres apply before surface treatment. The values do not apply to threads the surface texture of which will be achieved by usual manufacturing methods.

Remove sharp edges 0,1 to 0,4.

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



Key

1 6 Slots

2 Form of contour within limiting dimensions at manufacturer's option

3 Thread

4 Marking

a Tooling marks are permissible within counterbore.

b Dimension G applies to:

- height below slots (diameter codes 040 to 240);
- height of flats (diameter codes 060 to 240);
- bottom of counterbore (diameter 040 to 070).

c This dimension also applies to upper chamfer. All forms of entry (chamfer or radius) optional within these limiting dimensions.

d Diameter M may be tangential to, but shall not intrude on the flats.

Figure 1

Table 1

Diameter code	**Thread** [a]	*E*	*F*		*G*	*H*	*J*	*K*	*L*		*M*	*N*	*S*	**Mass** kg/1 000 pieces approx.	**Split pin diameter** [b]
		min.	Nom.	Tol.	± 0,25	± 0,25	± 0,25	H15	min.	Tol.	min.	0 − 0,3	H14		
040	MJ4×0,7 - 4H6H	7,6	7	h12	3	5	—	4	4,2	+ 0,6	6,4	0,5	1,3	1,3	1
050	MJ5×0,8 - 4H6H	8,7	8		3,75	6,2	—	5	5,2		7,4		1,7	1,8	1,4
060	MJ6×1 - 4H5H	10,9	10	h13	4,5	6,9	9	6	6,3	+ 0,8	9,3			2,8	
070	MJ7×- 4H5H	12	11		5,25	8,1	10	7	7,3		10,2		2,1	3,8	1,8
080	MJ8×1 - 4H5H	14,3	13		6	8,8	11	—	8,3		12,2			5,6	
100	MJ10×1,25 - 4H5H	18,9	17		7,5	11,1	13	—	10,3		16	0,6	2,6	11,5	2,3
120	MJ12×1,25 - 4H5H	21,1	19		9	12,6	16	—	12,3		18			16	
140	MJ14×1,5 - 4H5H	24,5	22		10,5	14,9	18	—	14,4		21		3,2	24,5	2,9
160	MJ16×1,5 - 4H5H	26,8	24		12	16,4	22	—	16,4		23			33,5	
180	MJ18×1,5 - 4H5H	30,2	27		13,5	18,7	25	—	18,4		26		4	48,5	3,7
200	MJ20×1,5 - 4H5H	33,6	30		15	20,2	28	—	20,4		29			66	
220	MJ22×1,5 - 4H5H	35,8	32		16,5	21,7	30	—	22,4		30,9			78,9	
240	MJ24×2 - 4H5H	40,4	36		18	23,7	32	—	24,5		34,9			113,9	

[a] In accordance with ISO 5855-2.

[b] For information, in conformity with EN 2367.

4 Designation

EXAMPLE

Description block	**Identity block**
NUT	**EN2869–080**

Number of this standard

Diameter code (see Table 1)

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

5 Marking

See Table 2.

Table 2

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

6 Technical specification

ISO 9139, except for approval of manufacturers, see EN 9100.

Bibliography

[1] EN 2367, *Aerospace series — Split pins in steel EN 2573*

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