BS EN 4121:2015

BSI Standards Publication

Aerospace series — Shank nuts, serrated, self-locking, in heat resisting steel FE-PA2601 (A286), silver plated on thread — Classification: 1 100 MPa (at ambient temperature) / 650 °C

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National foreword

This British Standard is the UK implementation of EN 4121:2015. It supersedes BS EN 4121:2004 which is withdrawn.

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.

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

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Amendments issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 4121

July 2015

ICS 49.030.30

Supersedes EN 4121:2004

English Version

Aerospace series - Shank nuts, serrated, self-locking, in heat resisting steel FE-PA2601 (A286), silver plated on thread - Classification: 1 100 MPa (at ambient temperature) / 650 °C

Série aérospatiale - Écrous dentelés à sertir, à freinage interne, en acier résistant à chaud FE-PA2601 (A286), argentés sur filetage - Classification: 1 100 MPa (à température ambiante) / 650 °C

Luft- und Raumfahrt - Einnietmuttern, verzahnt, selbstsichernd, aus hochwarmfestem Stahl steel FE-PA2601 (A286), Gewinde versilbert - Klasse: 1 100 MPa (bei Raumtemperatur) / 650 °C

This European Standard was approved by CEN on 8 November 2014.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

European foreword

This document (EN 4121:2015) 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 January 2016, and conflicting national standards shall be withdrawn at the latest by January 2016.

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1 Scope

This standard specifies the characteristics of self-locking serrated shank nuts in FE-PA2601, silver plated on thread, for aerospace applications.

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

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2399, *Aerospace series — Heat resisting steel FE-PA2601 (X4NiCrTiMoV26-15) — Rm ≥ 900 MPa — Bars for forged bolts — D ≤ 25 mm*

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

EN 2786, *Aerospace series — Electrolytic silver plating of fasteners*

EN 3004, *Aerospace series — Nuts, self-locking, MJ threads, in heat resisting steel FE-PA2601 (A286) — Classification: 1 100 MPa (at ambient temperature) / 650 °C — Technical specification*

EN 3064, *Aerospace series — Shank nuts, self-locking, serrated — Installation procedure*

EN 3065, Aerospace series — Installation holes for self-locking, serrated shank nuts — Design standard

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

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

3 Requirements characteristics

3.1 Configuration – Dimensions – Tolerances – Masses

See Figure 1 and Table 1.

Dimensions and tolerances are in millimetres. They apply after silver plating for thread surface.

3.2 Materials

EN 2399 or EN 3639.

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1) Correspond to the minimum tensile stress which the nut is able to withstand at ambient temperature without breaking or cracking when tested with a bolt of a higher strength class.

2) Maximum test temperature of the parts.

3) Published as ASD-STAN Prestandard at the date of publication of this standard (www.asd-stan.org).

3.3 Surface treatment

EN 2786 on thread only

Thickness:

— thread ≥ MJ6: 5 µm min. on thread flanks;

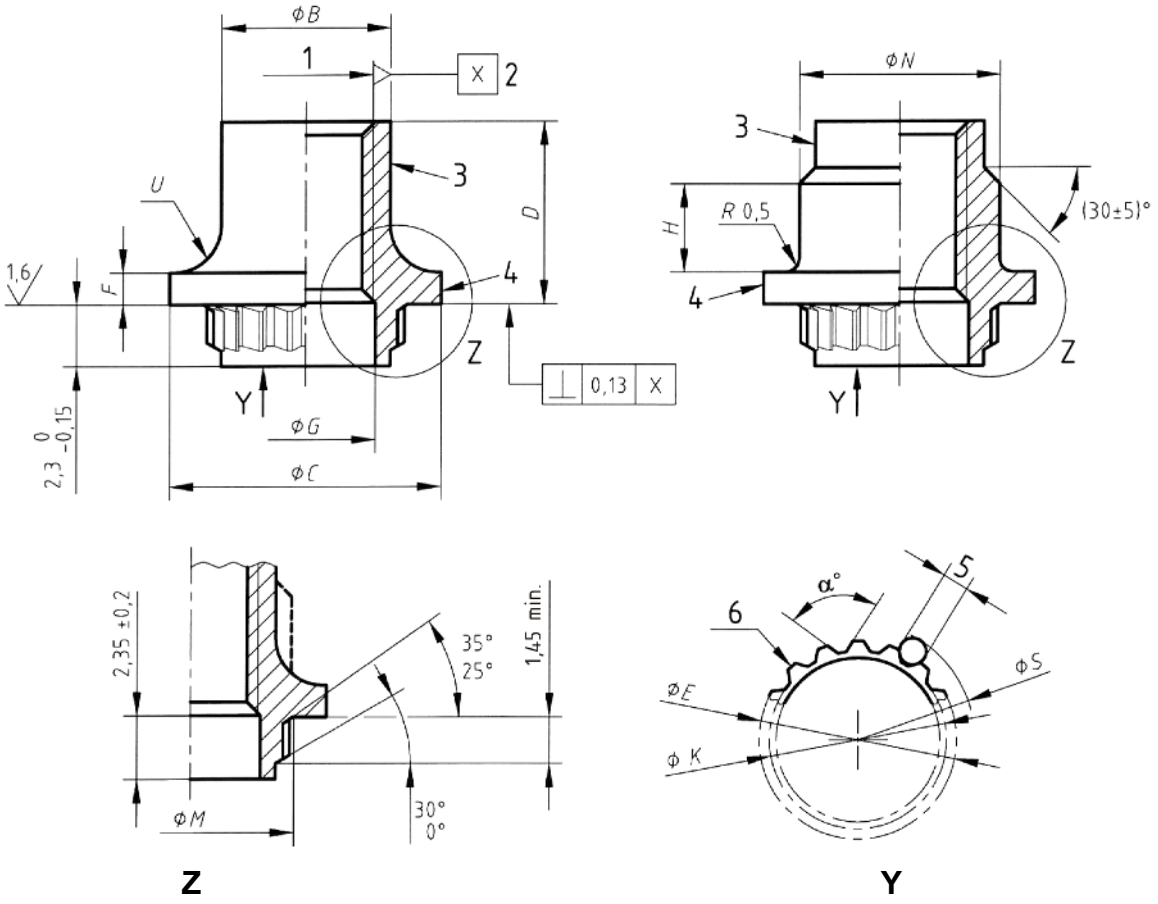
— thread MJ5: shall show complete coverage, without thickness requirement.

Coating may extend to counterbore and chamfers at manufacturer's option, without thickness requirement.

3,2 (1,6) Values applicable before silver plating. Thread surface will be as achieved by normal methods of manufacture.

Remove sharp edges 0,1 to 0,4.

Style 1 **Style 2**



Z **Y**

Key

1 Thread
2 Pitch diameter
3 Form out-of-round in this area to achieve the self-locking requirement (tooling marks permissible).
4 Marking
5 Diameter P (wire)
6 Number of teeth J

NOTE Configurations, style 1 or style 2, are permitted.

Figure 1

Table 1

Thread [a]		*B* [b]	*C*		*D*		*E*		*F*	*G*	*H*	*J*
Code	**Designation**		max.	min.	max.	min.	max.	min.	min.	min.	max.	**Number of teeth**
050	MJ5×0,8-4H6H	6,3	10,1	9,8	6,8	6,1	7,38	7,15	0,9	5,12	3,3	17
060	MJ6×1-4H5H	7,7	11,5	11,2	8,6	7,9	8,98	8,75	1,4	6,56	3,6	20
070	MJ7×1-4H5H	8,4	12,7	12,4	9,7	9	10,28	10,05		8,10	5	23
080	MJ8×1-4H5H	9,5			10	9,3					7	

Code	*K*		*M*	*N*	**Wire**		*S*		*U*		α°	**Mass** [c]	
	max.	min.	max.	max.	No.	*P*	max.	min.	max.	min.	± 1°	Style 1	Style 2
050	6,62	6,36	7,7	7,7	3	1,0	8,730	8,639	2,4	1,6	86°30'	1,71	1,97
060	8,17	7,91	9,1	8,7	2	1,2	10,638	10,547			102°	2,73	3,02
070	9,44	9,18	10,4	9,8	3	1,5	12,536	12,445	2,9	2,1		3,46	3,84
080				10,9								3,58	4,21

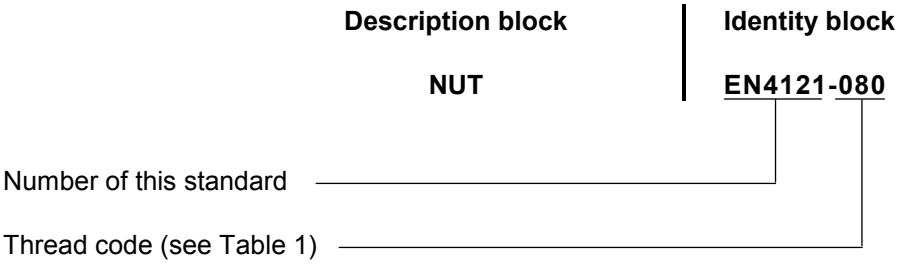
[a] In accordance with ISO 5855-2. In the self-locking zone, the tolerances apply before forming out-of-round.

[b] Applicable before forming out-of-round.

[c] Mass ≈ quoted in kg/1 000 parts.

4 Designation

EXAMPLE



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

5 Marking

EN 2424, style A, as indicated on Figure 1.

6 Technical specification

EN 3004.

7 Installation

The nuts shall be installed according to the procedure specified in EN 3064 in installation holes to EN 3065. Careful attention shall be paid to notch sensitivity of the materials in which they are to be installed.

Annex A
(informative)
Standard evolution form

MODIFICATION	REASON AND VALIDATION
Before: Figure 1 size G external. After: Figure 1 size G internal.	
Before: Figure 1 teeth width 14,5 min. from external side of skirt to end of teeth. After: Figure 1 teeth width 1,45 min. from beginning of teeth to flange.	
Before: Figure 1 key notes 1 to 10. After: Figure 1 key notes 1 to 6.	Four notes changed to full text. Others become: 1 Thread 2 Pitch diameter 3 Form out-of-round in this area to achieve the self-locking requirement (tooling marks permissible) 4 Marking 5 Diameter P (wire) 6 Number of teeth J

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