BS EN 3015:2015

BSI Standards Publication

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

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National foreword

This British Standard is the UK implementation of EN 3015:2015. It supersedes BS EN 3015:2001 which is withdrawn.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.

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Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 3015

June 2015

ICS 49.030.30

Supersedes EN 3015:2001

English Version

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

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

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

This European Standard was approved by CEN on 5 December 2014.

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 3015:2015) 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of an identical text or by endorsement, at the latest by December 2015, and conflicting national standards shall be withdrawn at the latest by December 2015.

This document supersedes EN 3015:2001.

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1 Scope

This European Standard specifies the characteristics of self-locking serrated shank nuts in FE-PA2601, for aerospace applications.

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

NOTE FE-PA2601 is the new designation for FE-PA92HT, see TR 3900.

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) — $R_m \geq 900$ MPa — Bars for forged bolts — $D \leq 25$ mm*

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

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 — $D \leq 15$ mm — 900 MPa $\leq R_m \leq$ 1 100 MPa* [3)]

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

TR 3900, *Metallic materials — Relationship between AECMA designation systems* [4)]

3 Required characteristics

3.1 Configuration – Dimensions – Tolerances — Masses

Figure 1 and Table 1.

Dimensions and tolerances are in millimetres.

1) Corresponds 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 (http://www.asd-stan.org/)

4) Published as ASD-STAN Technical Report at the date of publication of this standard (http://www.asd-stan.org/).

3.2 Materials

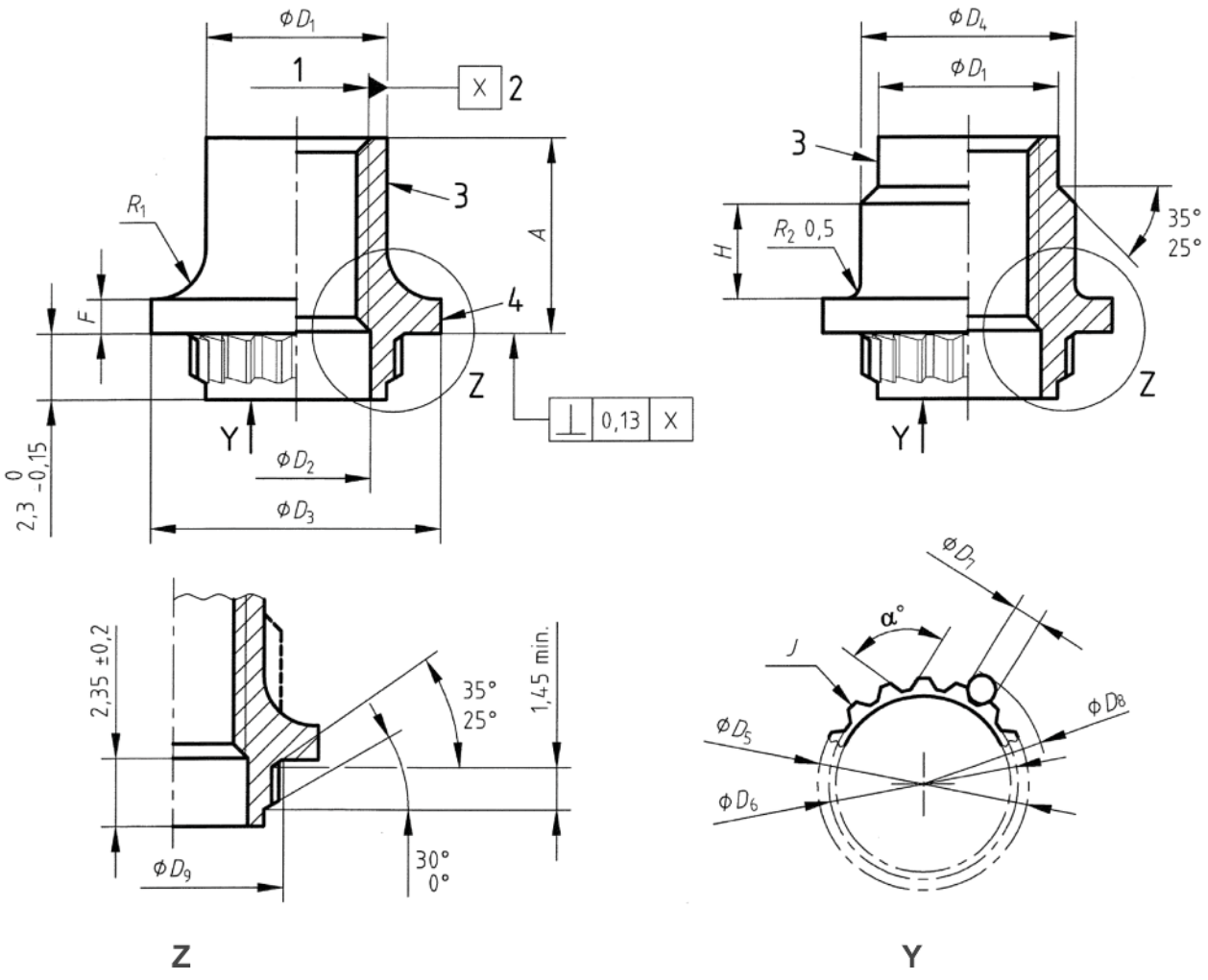
EN 2399 or EN 3639.

3,2 Thread surface will be as achieved by normal methods of manufacture.

Remove sharp edges 0,1 to 0,4.

Details of form not stated as well as style 1 or style 2, are at the manufacturer's discretion.

Style 1 **Style 2**



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

Figure 1

Table 1

Thread [a]		A	D_1 [b]	D_2	D_3	D_4	D_5	D_6	Wire	
Code	Designation	$^{0}_{-0,7}$	min.	min.	$^{0}_{-0,3}$	max.	$^{0}_{-0,23}$	$^{+0,26}_{0}$	No.	D_7
050	MJ5×0,8-4H6H	6,8	6,3	5,12	10,1	7,7	7,38	6,36	3	1,0
060	MJ6×1-4H5H	8,6	7,7	6,56	11,5	8,7	8,98	7,91	2	1,2
070	MJ7×1-4H5H	9,7	8,4	8,10	12,7	9,8	10,28	9,18	3	1,5
080	MJ8×1-4H5H	10	9,5			10,9				

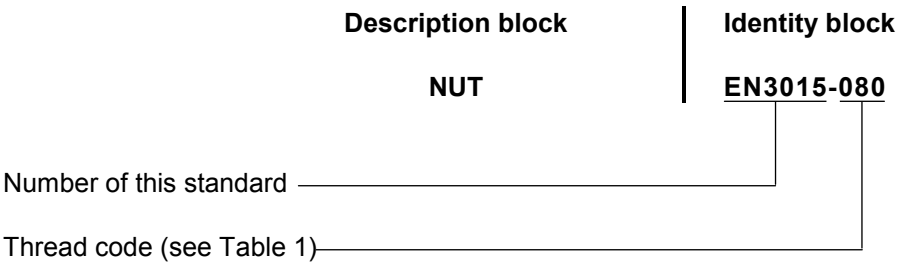
Thread Code	D_8		D_9	F	H	J	R_1	$\alpha°$	Mass kg/1 000 parts	
	max.	min.	max.	min.	max.	Number of teeth	± 0,4	± 0,1°	max.	min.
050	8,730	8,639	7,75	0,9	3,3	17	2,0	86°30'	1,97	1,71
060	10,638	10,547	9,15	1,4	3,6	20		102°	3,02	2,73
070	12,536	12,445	10,4		5	23	2,5		3,84	3,46
080					7				4,21	3,58

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

[b] Dimensions apply before forming out-of-round.

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
Figure 1 Before: D_2 is external diameter of the shank After: D_2 is internal diameter of the shank	Error during EN 3015 transforming
Figure 1 Before: Length of serration = 14,5 min. After: Length of serration = 1,45 min.	The previous value is not compatible with the length of the shank (2,3)
Figure 1 Before: Length of nut = D After: Length of nut = A	Error during EN 3015 transforming
Table 1 Before: D_2 max. After: D_2 min.	Error during EN 3015 transforming
Table 1 Before: “Number” + all values except for code 080. After: “Number of teeth” + values for all codes.	Error during EN 3015 transforming

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