Form 36

DPC: 24/30502726 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000
Fax: +44 (0)20 8996 7400
www.bsigroup.com

Date: 14 November 2024
Origin: European

Latest date for receipt of comments: 07 January 2025

Project No. 2024/03083

Responsible committee: ACE/12 Aerospace fasteners and fastening systems

Interested committees:

Title: Draft BS EN 3004 BS 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.

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

i) has any issues related to 3rd party IPR, patent or copyright
ii) affects other national standard(s)
iii) requires additional national guidance or information

WARNING: THIS IS A DRAFT AND MUST NOT BE REGARDED OR USED AS A BRITISH STANDARD. THIS DRAFT IS NOT CURRENT BEYOND 07 January 2025

This draft is issued to allow comments from interested parties; all comments will be given consideration prior to publication. No acknowledgement will normally be sent. **See overleaf for information on the submission of comments.**

No copying is allowed, in any form, without prior written permission from BSI except as permitted under the Copyright, Designs and Patent Act 1988 or for circulation within a nominating organization for briefing purposes. Electronic circulation is limited to dissemination by e-mail within such an organization by committee members.

Further copies of this draft may be purchased from BSI Shop http://shop.bsigroup.com or from BSI Customer Services, Tel: +44(0) 20 8996 9001 or email cservices@bsigroup.com. British, International and foreign standards are also available from BSI Customer Services.

Information on the co-operating organizations represented on the committees referenced above may be obtained from https://standardsdevelopment.bsigroup.com/.

Responsible Committee Secretary: Dr Beata Mroz-Orlikowska (BSI)
Direct tel: 020 8996 7773
E-mail: beata.mroz-orlikowska@bsigroup.com

Documents
Document Sharing Hub

Full document details: 24/30502726 DC

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at **https://standardsdevelopment.bsigroup.com/**. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx

1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex **(e.g. 3.1)**	Paragraph/ Figure/Table/Note	**Type of comment**	**Commend (justification for change) by the MB**	**Proposed change by the MB**	**Secretariat observations on each comment submitted**
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

Documents
Document Sharing Hub

Full document details: 24/30502726 DC

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 3004

November 2024

ICS 49.030.30

Will supersede EN 3004:1997

English Version

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

Série aérospatiale - Écrous à freinage interne, à filetage MJ, en acier résistant à chaud FE-PA2601 (A286), classification : 1 100 MPa (à température ambiante)/650 °C - Spécification technique

Luft- und Raumfahrt - Muttern, selbstsichernd, MJ-Gewinde, aus hocharmfestem Stahl FE-PA2601 (A286), klasse: 1 100 MPa (bei Raumtemperatur)/650 °C - Technische Lieferbedingungen

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.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.

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.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

© 2024 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. prEN 3004:2024 E

Documents
Document Sharing Hub

Full document details: 24/30502726 DC

Contents

Page

European foreword ... 3
1 Scope ... 4
2 Normative references ... 4
3 Terms and definitions ... 4
3.2 Surface discontinuities ... 5
4 Quality assurance ... 7
4.1 Qualification ... 7
4.2 Acceptance ... 7
4.2.1 Purpose ... 7
4.2.2 Conditions ... 7
4.2.3 Responsibility ... 7
4.2.4 Inspection and test report ... 7
5 Requirements ... 7
Bibliography ... 23

Documents
Document Sharing Hub
Full document details: 24/30502726 DC

European foreword

This document (prEN 3004:2024) has been prepared by ASD-STAN.

After enquiries and votes carried out in accordance with the rules of this Association, this document 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 3004:1997.

This document includes the following significant technical changes with respect to EN 3004:1997:

— Clause 2: EN 2516, ISO 3497 and ISO 1463 added;

— Table 1, Clause 5.3.2: heat treating temperature tolerances and duration modified;

— Table 1, Clause 5.3.4: thread and thread deformation requirements modified;

— Table 1, Clause 5.3.6.1: EN 2516 visual requirements added;

— Table 1, Clause 5.3.6.2: thickness measurements only applicable to silver plated parts and thickness measurement methods added;

— Table 1, Clause 5.3.6.3: adhesion requirements only applicable to silver plated parts;

— Table 1, Clause 5.4.1.1: axial load requirements at ambient temperature modified and axial load at 100 % load added;

— Table 1, Clause 5.4.9: hardness requirements modified and Vickers method added;

— Table 5: push out load and torque out test torque values modified for diameters range from MJ5x0,8 to MJ10x1,25.

Documents
Document Sharing Hub
Full document details: 24/30502726 DC

1 Scope

This document specifies the characteristics, qualification and acceptance requirements for self-locking nuts with MJ threads in FE-PA2601.

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

It is applicable whenever referenced.

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

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

ISO 1463,[3] *Metallic and oxide coatings — Measurement of coating thickness — Microscopical method*

ISO 3452-1,[3] *Non-destructive testing — Penetrant testing — Part 1: General principles*

ISO 3497,[3] *Metallic coatings — Measurement of coating thickness — X-ray spectrometric methods*

ISO 21920-3,[3] *Geometrical product specifications (GPS) — Surface texture: Profile — Part 3: Specification operators*

ISO 8642:2008,[3] *Aerospace — Self-locking nuts with maximum operating temperature greater than 425 °C — Test methods*

ASTM E 112-88, [4] *Standard Test Methods for Determining Average Grain Size*

3 Terms and definitions

For the purposes of this document, the following terms and definitions.

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

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

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

3.1
batch
quantity of finished nuts, of the same type and same diameter, produced from a material obtained from the same melt, manufactured in the course of the same production cycle, following the same manufacturing route and having undergone all the relevant heat treatments and surface treatments

[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 by: ISO International Organization for Standardization http://www.iso.ch/.
[4] Published by: ASTM International (US) https://www.astm.org/.

Documents
Document Sharing Hub
Full document details: 24/30502726 DC

3.2 Surface discontinuities

3.2.1
crack
rupture in the material which may extend in any direction and which may be intercrystalline or transcrystalline in character

3.2.2
seam
open surface defect

3.2.3
lap
surface defect caused by folding over metal fins or sharp corners and then compressing them into the surface

3.2.4
inclusions
non-metallic particles originating from the material manufacturing process

Note 1 to entry: These particles can be isolated or arranged in strings.

3.3
test temperature
ambient temperature, unless otherwise specified

3.4
simple random sampling
taking of *n* items from a population of *N* items in such a way that all possible combinations of *n* items have the same probability of being chosen

[SOURCE: ISO 3534:1977]

3.5
critical defect
defect that, according to judgement and experience, is likely to result in hazardous or unsafe conditions for individuals using, maintaining, or depending upon the considered product, or that is likely to prevent performance of the function of a major end item

[SOURCE: ISO 3534:1977]

3.6
major defect
defect other than critical, that is likely to result in a failure or to reduce materially the usability of the considered product for its intended purpose

[SOURCE: ISO 3534:1977]

3.7
minor defect
defect that is not likely to reduce materially the usability of the considered product for its intended purpose, or that is a departure from established specification having little bearing on the effective use or operation of this product

Documents
Document Sharing Hub
Full document details: 24/30502726 DC

[SOURCE: ISO 3534:1977]

3.8
sampling plan
plan according to which one or more samples are taken in order to obtain information and possibly to reach a decision

[SOURCE: ISO 3534:1977]

3.9
limiting quality
in a sampling plan, the quality level which corresponds to the specified 10 % probability of acceptance

3.10
acceptable quality level
AQL
quality level which, in a sampling plan, corresponds to a specified but relatively high probability of acceptance

Note 1 to entry: It is the maximum per cent defective (or the maximum number of defects per hundred units) that, for purposes of sampling inspection can be considered satisfactory as a process average

[SOURCE: ISO 3534:1977]

3.11
finished nut
nut ready for use, inclusive of any possible treatments and/or surface coatings, as specified in the product standard or definition document

3.12
definition document
document specifying all the requirements for finished nuts

3.13
self-locking torque
torque to be applied to the nut or bolt to maintain its movement of rotation in relation to the associated part, the assembly being under no axial load and the nut locking zone being completely engaged with the bolt (minimum protrusion of two pitches, including the end chamfer)

3.14
seating torque
tightening torque to be applied to the nut or bolt to introduce or to increase the axial load in the assembly

3.15
unseating torque
untightening torque to be applied to the nut or bolt to reduce or remove the axial load in the assembly

3.16
breakaway torque
torque required to start unscrewing the nut or bolt with respect to the associated part, with the nut locking zone still fully engaged on the bolt, but after the axial load in the assembly has been removed by unscrewing half a turn followed by a halt in rotational movement

Documents
Document Sharing Hub
Full document details: 24/30502726 DC