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Responsible committee: ACE/12 Aerospace fasteners and fastening systems

Interested committees:

Title: Draft BS EN 4048 BS Aerospace series - Nuts, self-locking, MJ threads, in heat-resisting nickel base alloy NI-PH2601 (Inconel 718), MoS2 coated - Classification: 1 550 MPa (at ambient temperature)/425 °C - Technical specification.

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- iii) requires additional national guidance or information

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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 Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.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
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (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.	

English Version

Aerospace series - Nuts, self-locking, MJ threads, in heat-resisting nickel base alloy NI-PH2601 (Inconel 718), MoS2 coated - Classification: 1 550 MPa (at ambient temperature)/425 °C - Technical specification

Série aérospatiale - Écrous, à freinage interne, à filetage MJ, en alliage résistant à chaud à base de nickel NI-PH2601 (Inconel 718), revêtus MoS2 - Classification : 1 550 MPa (à température ambiante)/425 °C - Spécification technique

Luft- und Raumfahrt - Muttern, selbstsichernd, MJ-Gewinde, aus hochwarmfester Nickelbasislegierung NI-PH2601 (Inconel 718), MoS2-beschichtet - Klasse: 1 550 MPa (bei Raumtemperatur)/425 °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.

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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.

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

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European foreword

This document (prEN 4048:2024) 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 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 4048:2004.

This document includes the following significant technical changes with respect to EN 4048:2004:

- Clause 2: EN 3497 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 5.3.6.2: thickness measurement methods added;
- Table 1, Clause 5.4.4.1: Axial load requirement at ambient temperature modified;
- Table 1, Clause 5.4.4.2: Axial load requirement after 425°C baking modified;
- Table 1, Clause 5.4.5.1: Self-locking torque at ambient temperature (five cycles) method modified;
- Table 1, Clause 5.4.9: Hardness requirement modified;
- Table 5: requirement modified (wrench feature torque, push out load and torque out test);
- Table 7: seating torque values and footnote modified.

1 Scope

This document specifies the characteristics, qualification and acceptance requirements for self-locking nuts with MJ threads in NI-PH2601, MoS₂ coated, for aerospace applications.

Classification: 1 550 MPa¹/425 °C².

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 2491, *Aerospace series — Molybdenum disulphide dry lubricants — Coating methods*

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

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

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

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

ASTM E 112-96,⁴ *Standard Test Methods for Determining Average Grain Size*

3 Terms and definitions

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

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 parts, of the same type and same diameter, produced from the same 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

3.2

inspection lot

quantity of parts from a single production batch with the same part number which completely defines the part

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 by: ISO International Organization for Standardization <http://www.iso.org/>.

⁴ Published by: ASTM International (US) <https://www.astm.org/>.

3.3 Surface discontinuities

3.3.1

crack

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

3.3.2

seam

open surface defect

3.3.3

lap

surface defect caused by folding over metal fins or sharp corners and then rolling or forging them into the surface

3.3.4

inclusions

non-metallic particles originating from the material manufacturing process. These particles may be isolated or arranged in strings

3.4

test temperature

ambient temperature unless otherwise specified

3.5

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

3.6

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

3.7

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

3.8

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

3.9

sampling plan

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