

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

The European Standard EN 4048:2004 has the status of a
British Standard

ICS 49.030.30

National foreword

This British Standard is the official English language version of EN 4048:2004. It supersedes BS EN 4048:2003 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ACE/12, Aerospace fasteners and fastening systems, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

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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 aéronautique - 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 European Standard was approved by CEN on 11 September 2003.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists 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 Central Secretariat has the same status as the official versions.

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



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Foreword

This document EN 4048:2004 has been prepared by the European Association of Aerospace Manufacturers - Standardization (AECMA-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 AECMA, 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 2005, and conflicting national standards shall be withdrawn at the latest by May 2005.

This document supersedes EN 4048:2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard 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 MPa ¹⁾ / 425 °C ²⁾

It is applicable whenever referenced.

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.

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

ISO 2859-1, *Sampling procedures for inspection by attributes – Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

ISO 3452, *Non-destructive testing – Penetrant inspection – General principles*

ISO 4288, *Geometrical Product Specifications (GPS) – Surface texture: Profile method – Rules and procedures for the assessment of surface texture*

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

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

EN 2491, *Aerospace series – Molybdenum disulphide dry lubricants – Coating methods*

EN 9133, *Aerospace series – Quality management systems – Qualification Procedure for Aerospace Standard Parts* ³⁾

ASTM E112-96, *Standard Test Methods for Determining Average Grain Size* ⁴⁾

3 Terms and definitions

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

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 as AECMA Prestandard at the date of publication of this standard

4) Published by: American Society for Testing and Materials (ASTM), 1916, Race Street, Philadelphia, PA 19103, USA

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

the 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

a 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

a 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

a 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

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

3.10

limiting quality (LQ₁₀)

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

3.11

acceptance quality limit (AQL)

a quality limit which in a sampling plan corresponds to a specified but relatively high probability of acceptance

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.