
Aeronavtika - Sorniki, navoj MJ, iz toplotnoodporne zlitine na nikeljevi osnovi NI-PH2601 (Inconel 718) - Klasifikacija: 1 275 MPa (pri okoljski temperaturi)/650 °C - Tehnična specifikacija

Aerospace series - Bolts, MJ threads, in heat resisting nickel base alloy NI-PH2601 (Inconel 718) - Classification: 1 275 MPa (at ambient temperature)/650 °C - Technical specification

Luft- und Raumfahrt - Schrauben, MJ-Gewinde, aus hochwarmfester Nickelbasislegierung NI-PH2601 (Inconel 718) - Klasse: 1 275 MPa (bei Raumtemperatur)/650 °C - Technische Lieferbedingungen

Série aérospatiale - Vis à filetage MJ, en alliage résistant à chaud à base de nickel NI-PH2601 (Inconel 718) - Classification: 1 275 MPa (à température ambiante)/650 °C - Spécification technique

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Ta slovenski standard je istoveten z: prEN 2583

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This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee ASD-STAN.

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European foreword

This document (prEN 2583:2024) has been prepared by ASD-STAN.

This document will supersede EN 2583:2019.

This document includes the following significant technical changes with respect to EN 2583:2019:

- Clause 2, *Normative references*, has been updated;
- Subclause 4.1, *Qualification*, has been updated;
- Subclause 4.2.2, *conditions*, has been updated;
- Table 1, *Technical requirements and test methods*, has been updated;
- Table 4, *Sampling plans for visual inspections and dimensional characteristics*, has been deleted;
- Annex A, *Passivation treatment for bolts*, has been deleted.

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prEN 2583:2024 (E)**1 Scope**

This document specifies the characteristics, qualification and acceptance requirements for bolts with MJ threads in NI-PH2601.

Classification: 1 275 MPa¹/650 °C².

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.

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 3452-1, *Non-destructive testing — Penetrant testing — Part 1: General principles*

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

ISO 6892-1, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature*

ISO 7961, *Aerospace — Bolts — Test methods*

ASTM E112, *Standard Test Methods for Determining Average Grain Size*³

AMS2774, *Heat Treatment Wrought Nickel Alloy and Cobalt Alloy Parts*⁴

NASM 1312-8, *Aeronautical Fasteners Test Methods — Tensile Strength*⁵

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 bolts, 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 Minimum tensile strength of the material at ambient temperature.

² Maximum test temperature of the parts.

³ Published by American Society for Testing and Materials (ASTM International), available at: <https://www.astm.org>.

⁴ Published by SAE International.

⁵ Published by

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 may 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 (series)]

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 (series)]

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 (series)]

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

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[SOURCE: ISO 3534 (series)]

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 (series)]

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 (series), modified, - second sentence made into note to entry]

3.11 finished bolt

bolt 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 bolts

4 Quality assurance

4.1 Qualification

The qualification procedure for aerospace standard products (e.g. according to EN 9133 or an equivalent aerospace accepted and established qualification procedure) shall be used and documented according to the specified tests.

Qualification inspections and tests (requirements, methods, numbers of bolts) are specified in Table 1. They shall be carried out on:

- each type and diameter of bolt;
- 25 bolts selected from a single batch by simple random sampling.

Table 2 indicates the allocation of bolt specimens for the inspections and tests.

4.2 Acceptance

4.2.1 Purpose

The purpose of acceptance inspections and tests is to check, as simply as possible, by a method representative of actual use conditions, with the uncertainty inherent to statistical sampling, that the bolts constituting the batch satisfy the requirements of this document.

4.2.2 Conditions

Acceptance inspections and tests (requirements, methods, numbers of bolts) are specified in Table 1. They shall be carried out on each batch. Bolts from the batch to be tested shall be selected by simple random sampling.

4.2.3 Responsibility

Acceptance inspections and tests shall be carried out by the manufacturer, or under their responsibility.

4.2.4 Inspection and test report

A test report showing actual numerical values shall be provided if specified in the purchase order.

5 Requirements

See Table 1.

Table 1 — Technical requirements and test methods

Clause	Characteristic	Requirement	Inspection and test method	Q/A ^a	Sample size
5.1	Material	In accordance with the product standard or definition document.	Chemical analysis or certificate of compliance issued by the manufacturer of the semi-finished product	Q	
				A	
5.2	Dimensions, tolerances and tolerances of form and position	In accordance with the product standard or definition document.	Standard gauging	Q	25
				A	Table 3
5.3	Manufacturing				
5.3.1	Forging	The head of the bolts shall be formed by hot or cold forging. If hot forged, the forging temperature shall not exceed 1 150 °C and they shall be air cooled. The equipment shall ensure a uniform temperature throughout the batch.	The method of forging (hot or cold) shall be indicated	Q	

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Clause	Characteristic	Requirement	Inspection and test method	Q/A ^a	Sample size
5.3.2	Heat treatment	Heat treatment shall be performed in accordance with AMS2774. Alternative heat treatment process parameters may be established as long as all mechanical properties are achieved.		Q	
5.3.3	Head to shank fillet	After completion of solution, precipitation treatment and machining, the underhead radius shall be cold rolled to remove all visual signs of machining and to create cold working.	Dimensional check (see 5.2) and visual examination.	Q	25
				A	Table 3
		This may cause distortion which shall not exceed the values in Figure 2, unless otherwise specified on the product standard or definition document.			
		For parts with compound radii between head and shank (e.g. T head bolts), cold work only the radius that blends with the head, however it is acceptable for cold work to extend over the compound radius.			
		The fillet shall not show seams or inclusions (see Table 5).			
5.3.4	Threads	Shall be formed by a single rolling process after full heat treatment (see Figure 3).		Q	
5.3.5	Surface roughness	In accordance with the product standard or definition document.		Q	3
				A	Table 3
5.3.6	Surface coating	In accordance with the product standard or definition document.	See applicable coating standard.		
5.4	Mechanical properties	Mechanical tensile test	EN ISO 6892-1	Q	5
				A	Table 7, column B
5.4.1	Tensile strength	The finished bolts shall withstand the minimum tensile loads specified in Table 6.	NASM 1312-8	Q	Table 7, column B
				A	Table 7, column B