



**SLOVENSKI STANDARD**  
**oSIST prEN 4500-003:2022**

**01-februar-2022**

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**Aeronavtika - Kovinski materiali - Pravila za načrtovanje in predstavljanje standardov za materiale - 003. del: Posebna pravila za toplotno odporne zlitine**

Aerospace series - Metallic materials - Rules for drafting and presentation of material standards - Part 003: Specific rules for heat resisting alloys

Luft- und Raumfahrt - Metallische Werkstoffe - Regeln für das Erstellen und die Gestaltung von Werkstoffnormen - Teil 003: Besondere Regeln für hochwarmfeste Legierungen

Série aérospatiale - Matériaux métalliques - Règles pour la rédaction et la présentation des normes de matériaux - Partie 003: Règles spécifiques aux alliages résistant à chaud

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**Ta slovenski standard je istoveten z: prEN 4500-003**

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**ICS:**

49.025.05	Železove zlitine na splošno	Ferrous alloys in general
49.025.15	Neželezove zlitine na splošno	Non-ferrous alloys in general

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**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 4500-003**

December 2021

ICS 49.025.05; 49.025.15

Will supersede EN 4500-003:2012

English Version

## Aerospace series - Metallic materials - Rules for drafting and presentation of material standards - Part 003: Specific rules for heat resisting alloys

Série aérospatiale - Matériaux métalliques - Règles  
pour la rédaction et la présentation des normes de  
matériaux - Partie 003: Règles spécifiques aux alliages  
résistant à chaud

Luft- und Raumfahrt - Metallische Werkstoffe - Regeln  
für das Erstellen und die Gestaltung von  
Werkstoffnormen - Teil 003: Besondere Regeln für  
hochwarmfeste Legierungen

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 4500-003:2021) 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 4500-003:2012.

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**prEN 4500-003:2021 (E)****Introduction**

This document is part of the series of EN metallic material standards for aerospace applications. The general organization of this series is described in EN 4258.

The EN 4500 series (*Aerospace series — Metallic materials — Rules for drafting and presentation of material standards*) is composed by the following documents:

- General rules EN 4500-001;
- Aluminium, aluminium alloys and magnesium alloys EN 4500-002;
- Heat-resisting alloys EN 4500-003;
- Titanium and titanium alloys EN 4500-004;
- Steels EN 4500-005;
- Filler metals for welding EN 4500-002 to EN 4500-005;
- Filler metals for brazing EN 4500-006.

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## 1 Scope

The EN 4500 series specifies the rules for the drafting and presentation of metallic material standards for aerospace applications. This Part 003 specifies the “Specific rules for heat resisting alloys”.

## 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.

FprEN 4259, *Aerospace series — Metallic materials — Definitions of general terms*

EN 4500-001, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 001: General rules*

EN 10027-1, *Designation systems for steels — Part 1: Steel names*

EN 10027-2, *Designation systems for steels — Part 2: Numerical system*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in FprEN 4259 and EN 4500-001 apply.

ISO and IEC maintain terminological 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/>  
<https://standards.iteh.ai/catalog/standards/sist/e5690ca2->

## 4 Rules for drafting a European Standard for aerospace metallic materials

### 4.1 General

Examples given in Annexes are only intended to illustrate the rules for drafting and presentation and may not correspond to real standardized EN semi-finished products. Technological development may require the use of terms additional to those listed.

### 4.2 Title

#### 4.2.1 General

According to EN 4500-001 and Annex A of this document.

The following are examples of descriptions which shall be used.

#### 4.2.2 Method of melting

Complete in accordance with EN 4500-001 using one or more of the following terms:

- air melted;
- vacuum melted;
- vacuum refined;

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- vacuum arc melted;
- vacuum arc remelted;
- electro-slag remelted;
- consumable electrode remelted;
- inert gas atomised;
- rotating electrode atomised;
- rotating crucible atomised;
- water atomised.

**4.2.3 Form entries**

## a) Sheets, strips, plates;

The term may be qualified with one of the following terms:

- 1) rolled;
- 2) cold rolled;
- 3) hot rolled;

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## b) bars;

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The term may be qualified with one or more of the following terms:

- 1) hot rolled;
- 2) cold rolled;
- 3) drawn;
- 4) extruded;

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## c) sections;

The term may be qualified with one or more of the following terms:

- 1) extruded;
- 2) hot rolled;



## d) tubes;

The term may be qualified with one or more of the following terms:

- 1) rolled;
- 2) drawn;
- 3) extruded;
- 4) seamless;
- 5) welded;

## e) wires;

The term may be qualified with one or more of the following terms:

- 1) drawn;
- 2) hot rolled;

## f) forging stock;

## g) forgings;

The term may be qualified with one or more of the following terms:

- 1) die;
- 2) hand;

## h) remelting stock;

## i) castings;

The term may be qualified with one or more of the following terms:

- 1) sand;
- 2) chill;
- 3) investment;
- 4) centrifugal;
- 5) precision;
- 6) hot isostatically pressed (hipped).

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**prEN 4500-003:2021 (E)****4.2.4 Form entries for powder metallurgy**

- Powder;
- compacted material;
- part;

The term may be qualified with one or more of the following terms:

- hot isostatically pressed (hipped);
- extruded;
- forged.

**4.2.5 Additional information entries**

- For structural applications;
- for pressure applications;
- for rivets;
- for forged fasteners;
- for forged rings;
- for machined fasteners;
- for welding.

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**4.3 Introduction**

According to EN 4500-001 and Annex B of this document.

**4.4 Scope, normative references, terms and definitions, requirements**

According to EN 4500-001 and Annex C of this document.

**4.5 Table 1 (1 of 3)****4.5.1 Line 1: Material designation**

According to EN 4500-001 and Annex D of this document.

For steels, the designation shall be according to EN 10027-1 and EN 10027-2.

**4.5.2 Line 2: Chemical composition**

The chemical composition shall be written in accordance with EN 4500-001 and the order of presentation of elements shall conform to the following rules:

- C, Si, Mn, P, S;
- alloying elements in alphabetical order using their chemical symbol;

- ratio and/or total of above elements in alphabetical order;
- trace elements in alphabetical order.

#### 4.5.3 Line 3: Method of melting

According to EN 4500-001 and Annex D of this document, using the terms listed in 4.2.2.

#### 4.5.4 Line 4.1: Form

According to EN 4500-001, and Annex D of this document.

#### 4.5.5 Line 4.2: Method of production

According to EN 4500-001, and Annex D of this document, using the applicable terms given in 4.2.

#### 4.5.6 Line 4.3: Limit dimension(s)

According to EN 4500-001 and Annex D of this document.

#### 4.5.7 Line 5: Technical specification

According to EN 4500-001 and Annex D of this document.

#### 4.5.8 Line 6.1: Delivery condition and Heat treatment

According to EN 4500-001 and Annex D of this document. One or more of the following terms shall be used:

- not heat treated;
- annealed;
- solution treated;
- precipitation treated;
- tempered;
- cold worked;
- hot isostatically pressed (hipped);
- descaled;
- machined;
- ground;
- as cast;
- as forged.

#### 4.5.9 Line 6.2: Delivery condition code

According to EN 4500-001 and Annex D of this document.

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