
**Aeronavtika - Kovinski materiali - Pravila za načrtovanje in predstavljanje
standarov za materiale - 001. del: Splošna pravila**

Aerospace series - Metallic materials - Rules for drafting and presentation of material standards - Part 001: General rules

Luft- und Raumfahrt - Metallische Werkstoffe - Regeln für das Erstellen und die Gestaltung von Werkstoffnormen - Teil 001: Allgemeine Regeln

Série aérospatiale - Matériaux métalliques - Règles pour la rédaction et la présentation des normes de matériaux - Partie 001: Règles générales

**Ta slovenski standard je istoveten z: [oSIST prEN 4500-001:2022](https://standards.iteh.ai/catalog/standards/sist/514c95ee-99a4-44de-88da-9bc243958187/osist-pren-4500-001-2022)
[prEN 4500-001](https://standards.iteh.ai/catalog/standards/sist/514c95ee-99a4-44de-88da-9bc243958187/osist-pren-4500-001-2022)**

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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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
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Will supersede EN 4500-001:2012

English Version

Aerospace series - Metallic materials - Rules for drafting and presentation of material standards - Part 001: General rules

Série aérospatiale - Matériaux métalliques - Règles
pour la rédaction et la présentation des normes de
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Luft- und Raumfahrt - Metallische Werkstoffe - Regeln
für das Erstellen und die Gestaltung von
Werkstoffnormen - Teil 001: Allgemeine Regeln

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.

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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 4500-001:2021) 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 4500-001:2012.

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prEN 4500-001:2021 (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 001 specifies the “General Rules” framework valid for all parts.

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.

prEN 2002-001, *Aerospace series — Metallic materials — Test methods — Part 001: Tensile testing at ambient temperature*

EN 2032-2, *Aerospace series — Metallic materials — Part 2: Coding of metallurgical condition in delivery condition*

prEN 4258, *Aerospace series — Metallic materials — General organization of standardization — links between types of European Standards and their use*

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

prEN 4500-002, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 2: Specific rules for aluminium, aluminium alloys and magnesium alloys*

EN 4500-003, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 003: Specific rules for heat resisting alloys*

EN 4500-004, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 004: Specific rules for titanium and titanium alloys*

EN 4500-005, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 005: Specific rules for steels*

prEN 4500-006, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 006: Specific rules for filler metals for brazing*

ISO 80000-1, *Quantities and units — Part 1: General*

ISO 80000-2, *Quantities and units — Part 2: Mathematics*

ISO 80000-3, *Quantities and units — Part 3: Space and time*

ISO 80000-4, *Quantities and units — Part 4: Mechanics*

ISO 80000-5, *Quantities and units — Part 5: Thermodynamics*

ISO 80000-10, *Quantities and units — Part 10: Atomic and nuclear physics*

prEN 4500-001:2021 (E)**3 Terms and definitions**

For the purposes of this document, the terms and definitions given in EN 4258 and FprEN 4259 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/>

4 Rules for drafting a European Standard for aerospace metallic materials**4.1 Document structure**

The document shall have the following basic structure:

- Title of the material standard;
- Introduction;
- Clause 1: Scope;
- Clause 2: Normative references;
- Clause 3: Terms and definitions;
- Clause 4: Requirements;
- Bibliography (if appropriate).

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4.2 Title of the material standard [oSIST prEN 4500-001:2022](https://standards.iteh.ai/catalog/standards/sist/514c95ee-99a4-44de-88da-96c243958187/osist-pr-en-4500-001-2022)

The title shall give sufficient information to unambiguously identify the semi-finished product, in the use condition (see 4.6.13).

Consequently:

- 1) The same title shall not be used for different material standards;
- 2) Overlapping of mechanical property limits for otherwise identical material standards shall not normally be permitted.

Each part of the title shall consist of one or several different lines:

- “Aerospace series”;
- family of metallic material, followed by the designation of the metallic material (see 4.6.2);
- method of melting (optional for aluminium and aluminium base alloys or magnesium and magnesium base alloys);
- use condition and heat treatment;
- forms written in plural and the method of production and, if appropriate, further intended processing;
- limiting dimensions;

- relevant mechanical property or physical property limits, if appropriate.

4.3 Introduction

This clause shall read:

- “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”;
- “This document has been prepared in accordance with EN 4500-002” or “EN 4500-003” or “EN 4500-004” or “EN 4500-005” or “EN 4500-006”.

4.4 Scope

This clause shall read: “This document specifies the requirements relating to”:

Repeat all information in the title, presented in the same format, followed by “for aerospace applications”.

If necessary, further information may be added to clarify the scope.

EXAMPLE

NOTE Other common designation used by the industry:

(insert designation),

List of designations for *(material family)* can be found in TR XXXX.¹

4.5 Normative references

This clause shall read:

“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.”

Followed by the list of documents with their titles, to which normative reference is made in the text.

4.6 Table 1 (1 of 3): corresponds to template 1 given in Annex A

4.6.1 General

The template 1 always has a fixed content.

If there is insufficient space on a line, then:

- use notes; or
- repeat the line(s).

The relevant lines shall be completed with the pertinent requirements according to 4.6.2 to 4.6.25.

Requirements (test method, frequency of testing, sample type, test piece definition, heat treatment condition of test piece, testing condition) that are already specified in the technical specification or the test method standard called up by the technical specification referenced on line 5, shall not be repeated. In such cases “According to EN XXXX” shall be written.

¹ This Technical Report is currently in preparation.

prEN 4500-001:2021 (E)

If it is necessary to modify the requirements of the technical specification or test method, notes in the table (see Annex A) shall be used.

A hyphen shall be marked on those lines that are not required.

Values other than those mentioned on lines 2, 12, 19, 21, 23 and 25 shall be preceded by a sign depending on whether they are minimum or maximum values (<, >, ≤, ≥).

Where more than one

- test method,
- test condition or
- test value

is stated, all are mandatory except when indicated by a note, which one is to be used.

Symbols for sizes and units shall be according to ISO 80000-1, ISO 80000-2, ISO 80000-3, ISO 80000-4, ISO 80000-5 and ISO 80000-10.

Specific examples are given for each family of metallic material in prEN 4500-002, EN 4500-003, EN 4500-004, EN 4500-005 or prEN 4500-006.

4.6.2 Line 1: Material designation

This line shall give the family of the metallic material and the conventional designation, in accordance with the specific material designation standard described in the related part of the EN 4500 series.

The list of designations for steels can be found in TR XXXX².

4.6.3 Line 2: Chemical composition

The chemical symbols of the elements shall be written in the first line of boxes, in accordance with established conventions according to ISO 80000-10.

The second line of boxes shall indicate the minimum content of that element.

The third line of boxes shall indicate the maximum content of that element.

The mass content of alloying elements shall be explicitly defined by the specified values in the second and third line of the boxes.

The mass content of other identified elements (e.g. trace elements, impurities, base metal for filler metals) shall only be specified by a minimum and/or a maximum value, as applicable.

When other elements are not identified, indicate them as “others”, subdivided into “each” and “total”.

For each element shown, the absence of a value shall be indicated by means of a hyphen.

Ratio and/or total content of two or more elements may be specified on line 2.

All values V shall be expressed in mass percentage. When very low values are expressed in mass parts per million, a note shall be used to define the abbreviation “p.p.m.”.

The following rules shall be observed for the value V :

- $V_{\min.}$ or $V_{\max.} \leq 0,01 \%$ express $V_{\min.}$ and $V_{\max.}$ in “p.p.m.”;
- $V_{\min.} > 0,01 \%$ express in %. The number of decimal places written shall be consistent with the accuracy required.

² This Technical Report is currently in preparation.

The base metal shall be indicated in the last column of the second line of boxes by means of a minimum and/or maximum value or by the expression “base”.

The standard order for presentation of the elements for each family of metallic materials is specified in prEN 4500-002, EN 4500-003, EN 4500-004, EN 4500-005 or prEN 4500-006.

4.6.4 Line 3: Method of melting

Line 3 shall be completed when one or several specific methods of melting are required.

Modification to line 3 (by addition of further melting methods or changes to melting methods) shall not change the EN reference number if the requirements defined in lines 12 to 99 do not change.

When several methods of melting can be used under the same EN reference (i.e. the requirements in the lines 12 to 99 do not change), line 3 shall contain a note which will state in line 98; “the melting route for qualification and delivery of products shall be identical”.

4.6.5 Line 4.1: Form

The form or similar forms of the semi-finished products covered by the standard shall be stated using the same terms as specified in the title.

4.6.6 Line 4.2: Method of production

The method or methods of production shall be indicated, if necessary.

In the case of castings or forgings, indicate requirements for remelting stock or forging stock as follows:

- cast from remelting stock EN XXXX; or
- forged from forging stock EN XXXX.

4.6.7 Line 4.3: Further intended processing

Further intended processing (e.g. for machining, for nitriding) may be indicated.

4.6.8 Line 4.4: Limit dimension(s)

The dimensions to which limits apply shall be indicated and expressed in millimetres. The following symbols shall be used as applicable:

- “*a*” for thickness;
- “*b*” for width;
- “*l*” for length;
- “*D*” for outside diameter;
- “*d*” for inside diameter;
- “*D_e*” for the equivalent diameter.

4.6.9 Line 5.1: Technical specification

This line shall indicate the applicable technical specification.

4.6.10 Line 5.2: Dimensional standard

This line shall indicated the applicable dimensional standard.