



SLOVENSKI STANDARD
SIST EN 4500-005:2014

01-marec-2014

Aeronavtika - Kovinski materiali - Pravila za načrtovanje in predstavljanje standardov za materiale - 005. del: Posebna pravila za jekla

Aerospace series - Metallic materials - Rules for drafting and presentation of material standards - Part 005: Specific rules for steels

Luft- und Raumfahrt - Metallische Werkstoffe - Regeln für das Erstellen und die Gestaltung von Werkstoffnormen Teil 005: Besondere Regeln für Stähle

Série aérospatiale - Matériaux métalliques - Règles pour la rédaction et la présentation des normes de matériaux - Partie 005: Règles spécifiques aux aciers

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49.025.10 Jekla Steels

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EUROPEAN STANDARD

EN 4500-005

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 2012

ICS 49.025.10

English Version

Aerospace series - Metallic materials - Rules for drafting and presentation of material standards - Part 005: Specific rules for steels

Série aérospatiale - Matériaux métalliques - Règles pour la rédaction et la présentation des normes de matériaux - Partie 005: Règles spécifiques aux aciers

Luft- und Raumfahrt - Metallische Werkstoffe - Regeln für das Erstellen und die Gestaltung von Werkstoffnormen - Teil 005: Besondere Regeln für Stähle

This European Standard was approved by CEN on 23 June 2012.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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



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Foreword

This document (EN 4500-005:2012) 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 Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, 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 April 2013, and conflicting national standards shall be withdrawn at the latest by April 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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

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Introduction

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

1 Scope

This European Standard specifies the specific rules for the drafting and presentation of steels material standards for aerospace applications.

It should be used in conjunction with EN 4500-001.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 4258, *Aerospace series — Metallic materials — General organization of standardization — Links between types of EN standards and their use*

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

EN 10083-1, *Steels for quenching and tempering — Part 1: general technical delivery conditions*

3 Terms and definitions

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

4 Rules for drafting and presentation

4.1 Page 1 – Title

4.1.1 General

See EN 4500-001 and Example 1 of this standard.

The following are examples of descriptions which shall be used.

4.1.2 Method of melting

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

- air melted;
- vacuum induction melted;
- vacuum refined;
- vacuum arc remelted;
- electro-slag remelted;
- consumable electrode remelted.

4.1.3 Form entries

- a) sheet, strip, plate;

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

- rolled;
- cold rolled;
- hot rolled.

- b) bar;

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

- rolled;
- hot rolled;
- cold rolled;
- drawn;
- extruded;
- forged.

- c) section;

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

- rolled;
- hot rolled;
- cold rolled;
- drawn;
- extruded;
- forged.

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d) tube;

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

- rolled;
- drawn;
- extruded;
- seamless;
- welded.

e) wire;

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

- hot drawn;
- cold drawn;
- hot rolled;
- cold rolled.

f) forging stock;

g) forgings;

h) remelting stock;

i) castings;

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

- sand;
- chill;
- investment;
- centrifugal;
- hot isostatically pressed (hipped).

j) ring;

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

- rolled;
- forged;
- welded.

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4.1.4 Additional information entries

- for structural applications;
- for pressure applications;
- for the manufacture and fasteners;
- for the manufacture of rivets;
- for machining;
- for forged rings;
- for rolled rings;
- for welding;
- for the manufacture of bearings;
- for carburizing or other thermo-chemical treatment;
- for nitriding.

4.2 Page 2

See EN 4500-001.

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4.3 Page 3

See EN 4500-001 and Example 2 of this standard. [SIST EN 4500-005:2014
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4.4 Page 4

4.4.1 Page 4, line 1: Material designation

See EN 4500-001 and Example 3 of this standard.

4.4.2 Page 4, 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, Cr, Mo, Ni;
- Al, As, B, Co, Cu, N, Nb, Pb, Sn, Ti, V, W, Zr;
- all other elements except hydrogen shall be written in alphabetical order of their chemical symbols;
- H;
- ratio and/or total of above elements.

EN 4500-005:2012 (E)**4.4.3 Page 4, line 3: Method of melting**

See EN 4500-001 and Example 3 of this standard, using the terms listed in 4.1.2.

4.4.4 Page 4, line 4.1: Form

See EN 4500-001 and Example 3 of this standard.

4.4.5 Page 4, line 4.2: Method of production

See EN 4500-001 and Example 3 of this standard, using the applicable terms given in 4.1.

4.4.6 Page 4, line 4.3: Limit dimension(s)

See EN 4500-001 and Example 3 of this standard.

For steels, the equivalent diameter D_e for determining the limiting dimensions is obtained as follows:

- for uniform single shapes, use the information given in EN 10083-1;
- for non-uniform shapes, use the procedure given in EN 10083-1.

4.4.7 Page 4, line 5: Technical specification

See EN 4500-001 and Example 3 of this standard.

4.4.8 Page 4, line 6.1: Delivery condition and Heat treatment

See EN 4500-001 and Example 3 of this standard. Use one or more of the following terms:

- not heat treated;
- softened;
- annealed;
- solution treated;
- precipitation treated;
- hardened;
- tempered;
- sub-zero treated;
- cold worked;
- descaled;
- machined
- ground.

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4.4.9 Page 4, line 6.2: Delivery condition code

See EN 4500-001 and Example 3 of this standard.

4.4.10 Page 4, line 7: Use condition and Heat treatment

See EN 4500-001 and Example 3 of this standard. Use the terms given in 4.4.8 or state:

— Delivery condition.

4.4.11 Page 4, line 8.1: Test sample(s)

See EN 4500-001 and Example 3 of this standard.

4.4.12 Page 4, line 8.2: Test piece(s)

See EN 4500-001 and Example 3 of this standard.

4.4.13 Page 4, line 8.3: Heat treatment

See EN 4500-001 and Example 3 of this standard.

4.4.14 Page 4, line 9: Dimensions concerned

See EN 4500-001 and Example 3 of this standard.

4.4.15 Page 4, line 10: Thickness of cladding on each face

Not applicable to steel.

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4.4.16 Page 4, line 11: Direction of test piece

See EN 4500-001 and Example 3 of this standard.
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4.4.17 Page 4, lines 12 to 16: Tensile (T)

See EN 4500-001 and Example 3 of this standard.

4.4.18 Page 4, line 17: Hardness

See EN 4500-001 and Example 3 of this standard.

4.4.19 Page 4, line 18: Shear strength

See EN 4500-001 and Example 3 of this standard.

4.4.20 Page 4, line 19: Bending

See EN 4500-001 and Example 3 of this standard.

4.4.21 Page 4, line 20: Impact strength

See EN 4500-001 and Example 3 of this standard.

4.4.22 Page 4, lines 21 to 26: Creep (C)

See EN 4500-001 and Example 3 of this standard.