SLOVENSKI STANDARD
oSIST prEN 4883:2021

01-julij-2021

Aeronavtika - Jeklo X5CrNiCu 17-4 (1.4542) - Taljeno - Topilno žarjena in izločevalno utrjena - Plošče - 6 mm ≤ a ≤ 100 mm - Rm ≥ 1070 MPa

Aerospace series - Steel X5CrNiCu 17-4 (1.4542) - Air melted - Solution treated and precipitation treated - Plates - 6 mm ≤ a ≤ 100 mm - Rm ≥ 1 070 MPa

Luft- und Raumfahrt - Stahl X5CrNiCu 17-4 (1.4542) - Lufterschmolzen - Lösungsgeglüht und ausgelagert - Ausgehärtet - 6 mm ≤ a ≤ 100 mm - Rm ≥ 1 070 MPa

Série aérospatiale - Acier X5CrNiCu 17-4 (1.4542) - Élaboré à l'air - Mis en solution et précipité - Plaques - 6 mm ≤ a ≤ 100 mm - Rm ≥ 1 070 MPa

Ta slovenski standard je istoveten z: **prEN 4883**

ICS:

49.025.10	Jekla	Steels
77.140.50	Ploščati jekleni izdelki in polizdelki	Flat steel products and semi-products

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

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prEN 4883

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English Version

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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.

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.

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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

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European foreword

This document (prEN 4883:2021) 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.

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.

This document has been prepared in accordance with EN 4500-005.

1 Scope

This document specifies the requirements relating to:

Steel X5CrNiCu 17-4 (1.4542)
Air melted
Solution treated and precipitation treated
Plates
6 mm ≤ a ≤ 100 mm
R_m ≥ 1 070 MPa

for aerospace applications.

W.nr: 1.4542.

The ASD-STAN designation of this material is FE-PM3801.

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.

EN 4700-001, *Aerospace series - Steel and heat resisting alloys - Wrought products - Technical specification - Part 001: Plate, sheet and strip*

AMS 2315, *Determination of delta ferrite content*[1)]

3 Terms and definitions

No terms and definitions are listed in this document.

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 Requirements

See Table 1.

1) Published by SAE International (US) Society of Automotive Engineers (http://www.sae.org/).

Table 1 — Requirements for steel X5CrNiCu 17-4 (1.4542)

1	Material designation		Steel X5CrNiCu 17-4 (1.4542)										
2	Chemical composition %	Element	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Nb + Ta	Fe
		min.	—	—	—	—	—	15,0	—	3,0	3,0	5 x C	Base
		max.	0,07	1,00	1,00	0,040	0,030	17,5	0,50	5,0	5,0	0,45	
3	Method of melting		Air melted										
4.1	Form		Plates										
4.2	Method of production		Hot rolled										
4.3	Limit dimension(s)	mm	$6 \le a \le 100$										
5	Technical specification		EN 4700-001										

6.1	Delivery condition	Solution treated	Solution treated and precipitation treated
	Heat treatment	1 025 °C ≤ θ ≤ 1 055 °C/t ≥ 30 min/AC, PQ or OQ + cool to θ ≤ 30 °C	1 025 °C ≤ θ ≤ 1 055 °C/t ≥ 30 min/AC, PQ or OQ + cool to θ ≤ 30 °C + 540 °C ≤ θ ≤ 560 °C/t ≥ 4 h/AC
6.2	Delivery condition code	*W*	*U*
7	Use condition	Solution treated and precipitation treated	Delivery condition
	Heat treatment	Delivery condition + 540 °C ≤ θ ≤ 560 °C/t ≥ 4 h/AC	—

Characteristics

8.1	Test sample(s)				See EN 4700-001.		
8.2	Test piece(s)				See EN 4700-001.		
8.3	Heat treatment				Solution treated	Use condition	
9	Dimensions concerned			mm	$6 \le a \le 100$		
10	Thickness of cladding on each face			%	—	—	—
11	Direction of test piece				—	*L*	*T*
12	T	Temperature	θ	°C	—	Ambient	Ambient
13		Proof stress	$R_{p0,2}$	MPa	—	≥ 1 000	≥ 1 000
14		Strength	R_m	MPa	—	≥ 1 070	≥ 1 070
15		Elongation	A	%	—	≥ 11	≥ 7
16		Reduction of area	Z	%	—	≥ 45	≥ 27
17	Hardness		HBW		≤ 363	331 ≤ HBW ≤ 401 [a]	331 ≤ HBW ≤ 401 [a]
18	Shear strength		R_c	MPa	—	—	—
19	Bending		k	—	—	—	—
20	Impact strength		*KV*	J	—	KV ≥ 25 J notch direction T	KV ≥ 20 J notch direction L [b]

21	C	Temperature	θ	°C	—
22		Time		h	—
23		Stress	σ_a	MPa	—
24		Elongation	a	%	—
25		Rupture stress	σ_R	MPa	—
26		Elongation at rupture	A	%	—
27	Notes (see line 98)				a, b
30	Microstructure			—	See EN 4700-001.
				1	See AMS 2315.
				7	The δ ferrite content shall not exceed 5 %.
34	Grain size			—	See EN 4700-001.
				7	$G \geq 4$
44	External imperfections (visual testing-VT)			—	See EN 4700-001.
				1	Visual.
50	Inclusion content			—	See EN 4700-001.
				7	Category 2
61	Internal imperfections (ultrasonic testing-UT)			—	See EN 4700-001.
				7	Class 2
95	Marking inspection			—	See EN 4700-001.
96	Dimensional inspection			—	See EN 4700-001.
98	Notes			—	a Or 34 ≤ HRC ≤ 42. b Only for thickness ≥ 12 mm.
99	Typical use			—	—

100	—	Product qualification	—	EN 4700-001
				Qualification programme to be agreed between manufacturer and purchaser.