SLOVENSKI STANDARD
SIST EN 4883:2023

01-marec-2023

Aeronavtika - Jeklo X5CrNiCu 17-4 (1.4542) - Taljeno - Topilno žarjeno in izločevalno utrjeno - 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 ausscheidungsgehärtet - Platten - 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: **EN 4883:2022**

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

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EUROPÄISCHE NORM

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English Version

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

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

This European Standard was approved by CEN on 22 August 2022.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 4883:2022) 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, prior to its presentation to CEN.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2023, and conflicting national standards shall be withdrawn at the latest by June 2023.

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.

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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.

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,[1)] *Determination of Delta Ferrite Content*

3 Terms and definitions

No terms and definitions are listed in this document.

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/

4 Requirements

See Table 1.

1) Published by: SAE International (US), https://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		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	T	Proof stress	$R_{p0,2}$ MPa	—	≥ 1 000	≥ 1 000
14	T	Strength	R_m MPa	—	≥ 1 070	≥ 1 070
15	T	Elongation	A %	—	≥ 11	≥ 7
16	T	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	C	Time	h —	—		—
23	C	Stress	σ_a MPa	—		—
24	C	Elongation	a %	—		—
25	C	Rupture stress	σ_R MPa	—		—
26	C	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	—	—
				The qualification programme shall be agreed between manufacturer and purchaser.