



SLOVENSKI STANDARD
oSIST prEN 3488:2020

01-november-2020

Aeronavtika - Jeklo X6CrNiTi18-10 (1.4541) - Taljeno na zraku - Popuščano - Pločevina in trakovi - $a \leq 6 \text{ mm}$ - $500 \text{ MPa} \leq R_m \leq 700 \text{ MPa}$

Aerospace series - Steel X6CrNiTi18-10 (1.4541) - Air melted - Softened - Sheets and strips - $a \leq 6 \text{ mm}$ - $500 \text{ MPa} \leq R_m \leq 700 \text{ MPa}$

Luft- und Raumfahrt - Stahl X6CrNiTi18-10 (1.4541) - Lufterschmolzen - Weichgeglüht - Bleche und Bänder - $a \leq 6 \text{ mm}$ - $500 \text{ MPa} \leq R_m \leq 700 \text{ MPa}$

Série aérospatiale - Acier X6CrNiTi18-10 (1.4541) - Elaboré à l'air - Adouci - Tôles et bandes - $a \leq 6 \text{ mm}$ - $500 \text{ MPa} \leq R_m \leq 700 \text{ MPa}$

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Ta slovenski standard je istoveten z: prEN 3488

ICS:

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

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en,fr,de

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 3488

September 2020

ICS 49.025.10

Will supersede EN 3488:2007

English Version

**Aerospace series - Steel X6CrNiTi18-10 (1.4541) - Air
melted - Softened - Sheets and strips - $a \leq 6$ mm - 500 MPa
 $\leq R_m \leq 700$ MPa**

Série aérospatiale - Acier X6CrNiTi18-10 (1.4541) -
Élaboré à l'air - Adouci - Tôles et bandes - $a \leq 6$ mm -
500 MPa $\leq R_m \leq 700$ MPa

Luft- und Raumfahrt - Stahl X6CrNiTi18-10 (1.4541) -
Lufterschmolzen - Weichgeglüht - Bleche und Bänder -
 $a \leq 6$ mm - 500 MPa $\leq R_m \leq 700$ MPa

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 3488:2020) 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-STAN, prior to its presentation to CEN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 3488:2007.

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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.

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1 Scope

This document specifies the requirements relating to:

Steel X6CrNiTi18-10 (1.4541)

Air melted

Softened

Sheets and strips

$a \leq 6$ mm

$500 \text{ MPa} \leq R_m \leq 700 \text{ MPa}$

for aerospace applications.

W. nr: 1.4541.

ASD-STAN designation: FE-PA3601.

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 2951, *Aerospace series - Metallic materials - Micrographic determination of content of non-metallic inclusions*

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EN 4436,¹ *Aerospace series - Steel - Test methods - Determination of δ ferrite content*

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

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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 <http://www.electropedia.org/>

4 Requirements

See Table 1.

¹ Published as ASD-STAN Standard at the date of publication of this document by AeroSpace and Defence industries Association of Europe — Standardization (ASD-STAN), <http://www.asd-stan.org/>

Table 1 — Requirements for steel X6CrNiTi18-10 (1.4541)

1	Material designation	Steel X6CrNiTi18-10 (1.4541)									
2	Chemical composition %	Element	C	Si	Mn	S ^a	P ^a	Cr ^a	Ni ^a	Ti	Fe
		min.	—	—	—	—	—	17,0	9,0	5 × C	Base
		max.	0,08	1,00	2,00	0,030	0,045	19,0	12,0	0,70	
3	Method of melting	Air melted									
4.1	Form	Sheets and strips									
4.2	Method of production	Rolled									
4.3	Limit dimension(s)	mm	$a \leq 6$								
5	Technical specification	EN 4700-001									

6.1	Delivery condition	Softened									
	Heat treatment	$1\ 050\ ^\circ\text{C} \leq \theta \leq 1\ 100\ ^\circ\text{C}/\text{WQ}$ or AQ									
6.2	Delivery condition code	U									
7	Use condition	Delivery condition									
	Heat treatment	—									

Characteristics											
8.1	Test sample(s)	See EN 4700-001.									
8.2	Test piece(s)	See EN 4700-001.									
8.3	Heat treatment	Delivery condition									
9	Dimensions concerned	mm	$a \leq 3$							$3 < a \leq 6$	
10	Thickness of cladding on each face	%	—								
11	Direction of test piece	L - LT									
12	Temperature	θ	°C	Ambient							
13	Proof stress	$R_{p0,2}$	MPa	≥ 220							
14	Strength	R_m	MPa	$500 \leq R_m \leq 700$							
15	Elongation	A	%	≥ 40							
16	Reduction of area	Z	%	—							
17	Hardness	HV		≤ 207							
18	Shear strength	R_c	MPa	—							
19	Bending	k	—	$0,5 ; \alpha = 180^\circ$					—		

20	Impact strength			—
21	Temperature	θ	°C	—
22	Time		h	—
23	Stress	σ_a	MPa	—
24	C	Elongation	a	%
25		Rupture stress	σ_R	MPa
26		Elongation at rupture	A	%
27	Notes (see line 98)			a

30	Microstructure	—	See EN 4700-001.
		1	EN 4436
		7	The δ -ferrite content shall not exceed 8 %.
34	Grain size	—	See EN 4700-001.
		7	$G \geq 5$
44	External imperfections (visual testing - VT)	—	See EN 4700-001.
50	Inclusion content	1	EN 2951
		7	Category 2
			https://standards.iteh.ai/catalog/standards/sist/e5b60155-3d86-485f9583-b3d59851e546/osist-pren-3488-2020
95	Marking inspection	—	See EN 4700-001.
96	Dimensional inspection	—	See EN 4700-001.
98	Notes	—	^a For specific welding applications (e.g. high power beam), and after agreement between manufacturer and purchaser: <ul style="list-style-type: none"> - maximum content of S and P should be reduced to 0,005 % and 0,020 %, respectively; - ratio between Cr and Ni according to SUUTALA Formula should be > 1,67 %; - S + P + B should be ≤ 0,025 %.
99	Typical use	—	—

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

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