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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 3479**

September 2021

ICS 49.025.10

Will supersede EN 3479:2007

English Version

**Aerospace series - Steel X5CrNiCu15 5 (1.4545) -  
Consumable electrode remelted - Solution treated and  
precipitation treated - Plates - 6 mm < a ≤ 20 mm -  
1 070 MPa ≤ Rm ≤ 1 220 MPa**

Série aérospatiale - Acier X5CrNiCu15 5 (1.4545) -  
Refondu à l'électrode consommable - Mis en solution et  
vieilli - Plaques - 6 mm < a ≤ 20 mm - 1 070 MPa ≤ Rm  
≤ 1 220 MPa

Luft- und Raumfahrt - Stahl X5CrNiCu15 5 (1.4545) -  
Mit selbstverzehrender Elektrode umgeschmolzen -  
Lösungsgeglüht und ausscheidungsgehärtet - Platten -  
6 mm < a ≤ 20 mm - 1 070 MPa ≤ Rm ≤ 1 220 MPa

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee ASD-STAN.

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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.

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

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 3479:2021) 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 3479:2007.

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**prEN 3479:2021 (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.

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 X5CrNiCu15-5 (1.4545)  
Consumable electrode remelted  
Solution treated and precipitation treated  
Plates  
 $6 \text{ mm} < a \leq 20 \text{ mm}$   
 $1\ 070 \text{ MPa} \leq R_m \leq 1\ 220 \text{ MPa}$

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 2043, *Aerospace series - Metallic materials - General requirements for semi-finished product qualification (excluding forgings and castings)*

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

EN 4050-4, *Aerospace series - Test method for metallic materials - Ultrasonic inspection of bars, plates, forging stock and forgings - Part 4: Acceptance criteria*

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

## 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.

Table 1 — Requirements for SteelX5CrNiCu15-5 (1.4545) — Plates

1		SteelX5CrNiCu15-5 (WL 1.4545)											
2	Chemical composition %	Element	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	Nb + Ta	Fe
		min.	—	—	—	—	—	14,0	—	3,5	2,5	5 × C	Base
		max.	0,07	1,00	1,00	0,030	0,005	15,5	0,50	5,5	4,5	0,45	
3		Method of melting											
4.1		Form											
4.2		Method of production											
4.3		Limit dimension(s) mm											
5		Technical specification											
		Consumable electrode remelted											
		Plates											
		—											
		$6 < a \leq 20$											
		EN 4700-001											
6.1	Delivery condition		Solution treated					Solution treated and precipitation treated					
	Heat treatment		$1\ 025\ ^\circ\text{C} \leq \theta \leq 1\ 055\ ^\circ\text{C} / t \geq 30\ \text{min} / \text{AC}$ or faster + cool to $\theta \leq 30\ ^\circ\text{C}$					$1\ 025\ ^\circ\text{C} \leq \theta \leq 1\ 055\ ^\circ\text{C} / t \geq 30\ \text{min} / \text{AC}$ or faster + cool to $\theta \leq 30\ ^\circ\text{C}$ + $535\ ^\circ\text{C} \leq \theta \leq 565\ ^\circ\text{C} / t \geq 4\ \text{h} / \text{AC}$					
6.2	Delivery condition code		W					U					
7	Use condition		Solution treated and precipitation treated					Delivery condition					
	Heat treatment		Delivery condition + $535\ ^\circ\text{C} \leq \theta \leq 565\ ^\circ\text{C} / t \geq 4\ \text{h} / \text{AC}$					—					

		Characteristics															
8.1		Test sample(s)															
8.2		Test piece(s)															
8.3		Heat treatment					Solution treated					Use condition					
9		Dimensions concerned		mm	$6 < a \leq 20$					$6 < a \leq 20$							
10		Thickness of cladding on each face		%	—					—							
11		Direction of test piece		—					L					T			
12		Temperature	$\theta$	$^\circ\text{C}$	—					Ambient					Ambient		
13		Proof stress	$R_{p0,2}$	MPa	—					$\geq 1\ 000$					$\geq 1\ 000$		
14		T	Strength	$R_m$	MPa	—					$1\ 070 \leq R_m \leq 1\ 220$					$1\ 070 \leq R_m \leq 1\ 220$	
15			Elongation	A	%	—					$\geq 11$					$\geq 7$	
16			Reduction of area	Z	%	—					$\geq 45$					$\geq 27$	
17			Hardness		HB $\leq 363$					$321 \leq \text{HB} \leq 375$					$321 \leq \text{HB} \leq 375$		
18		Strength	$R_c$	MPa	—					—					—		
19		Bending	k	—	—					—					—		
20		Impact strength		Impact strength + KV $\geq 25\ \text{J}$					KV $\geq 80\ \text{J}$ ; Notch direction T + KV $\geq 35\ \text{J}$ , at $-30\ ^\circ\text{C}$ ; Notch direction T					KV $\geq 55\ \text{J}$ ; Notch direction L + KV $\geq 25\ \text{J}$ , at $-30\ ^\circ\text{C}$ ; Notch direction L			
21		Temperature	$\theta$	$^\circ\text{C}$	—												
22		Time		h	—												
23		Stress	$\sigma_a$	MPa	—												
24		C	Elongation	a	%	—											
25			Rupture stress	$\sigma_R$	MPa	—											
26			Elongation at rupture	A	%	—											
27		Notes (see line 98)		—													



30	Microstructure	—	See EN 4700-001.
		7	The $\delta$ ferrite content shall not exceed 2 %
34	Grain size	—	See EN 4700-001.
		7	$G \geq 5$
44	External imperfections (visual testing - VT)	—	See EN 4700-001.
		1	Visual
50	Inclusion content	—	See EN 4700-001.
			EN 2951
			Category 4
61	Internal imperfections (ultrasonic testing - UT)	—	See EN 4700-001.
		1	EN 4050-4
		7	Class 3
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95	Marking inspection	—	See EN 4700-001.
96	Dimensional inspection	—	See EN 4700-001.
98	Notes	—	—
99	Typical use	—	—

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100	—	Product qualification	—	See EN 2043.
				Qualification programme to be agreed between manufacturer and purchaser.
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