



SLOVENSKI STANDARD
SIST EN 3162:2007
01-november-2007

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Aerospace series - Steel FE-PM3801 (X5CrNiCu17-4) - Air melted, solution treated and precipitation treated, sheet and strip a ≤ 6 mm, Rm ≥ 930 MPa

Luft- und Raumfahrt - Stahl FE-PM3801 (X5CrNiCu17-4) - Lufterschmolzen, lösungsgeglüht und ausgelagert, Bleche und Bänder a ≤ 6 mm, Rm ≥ 930 MPa

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Série aérospatiale - Acier FE-PM3801 (X5CrNiCu17-4) - Elaboré a l'air, mis en solution et vieilli, tôles et bandes a ≤ 6 mm, Rm ≥ 930 MPa

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Ta slovenski standard je istoveten z: EN 3162:2007

ICS:

49.025.10 Jekla

Steels

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en

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ICS 49.025.10

English Version

Aerospace series - Steel FE-PM3801 (X5CrNiCu17-4) - Air
melted, solution treated and precipitation treated, sheet and strip
 $a \leq 6$ mm, $R_m \geq 930$ MPa

Série aérospatiale - Acier FE-PM3801 (X5CrNiCu17-4) -
Élaboré à l'air, mis en solution et vieilli, tôles et bandes $a \leq$
6 mm, $R_m \geq 930$ MPa

Luft- und Raumfahrt - Stahl FE-PM3801 (X5CrNiCu17-4) -
Lufterschmolzen, lösungsgeglüht und ausgelagert, Bleche
und Bänder $a \leq 6$ mm, $R_m \geq 930$ MPa

This European Standard was approved by CEN on 24 February 2007.

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 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 Management Centre has the same status as the official versions.

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

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Foreword

This document (EN 3162:2007) 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 February 2008, and conflicting national standards shall be withdrawn at the latest by February 2008.

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 organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland 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 organization of this series is described in EN 4258.

This standard has been prepared in accordance with EN 4500-5.

1 Scope

This standard specifies the requirements relating to:

Steel FE-PM3801 (X5CrNiCu17-4) — Air melted, solution treated and precipitation treated, sheet and strip
 $a \leq 6 \text{ mm}$, $R_m \geq 930 \text{ MPa}$

for aerospace applications.

2 Normative references

The following referenced documents are indispensable for the application 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)*¹⁾

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

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

EN 4500-5, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 5: Specific rules for steels*¹⁾

EN 4700-1, *Aerospace series — Steel and heat resisting alloy — Wrought products — Technical specification — Part 1: Plate, sheet and strip*¹⁾

1) Published as ASD Prestandard at the date of publication of this standard.

1	Material designation		Steel FE-PM3801 (X5CrNiCu17-4)										
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		Sheet and strip										
4.2	Method of production		–										
4.3	Limit dimension(s)	mm	$a \leq 6$										
5	Technical specification		EN 4700-1										

6.1	Delivery condition		Solution treated					Solution treated and precipitation treated				
	Heat treatment		1 025 °C ≤ θ ≤ 1 055 °C / t ≤ 1 h / AC or OQ + cool to $\theta \leq 30$ °C					1 025 °C ≤ θ ≤ 1 055 °C / t ≤ 1 h / AC or OQ + cool to $\theta \leq 30$ °C + 600 °C ≤ θ ≤ 630 °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 + 600 °C ≤ θ ≤ 630 °C / t ≥ 4 h / AC					–				

Characteristics

8.1	Test sample(s)		See EN 4700-1.											
8.2	Test piece(s)		See EN 4700-1.											
8.3	Heat treatment		Solution treated					Use condition						
9	Dimensions concerned	mm	$a \leq 6$					$a \leq 6$						
10	Thickness of cladding on each face	%	–					–						
11	Direction of test piece		–					L						
12	Temperature	θ	°C		–					Ambient				
13	Proof stress	$R_{p0,2}$	MPa		–					≥ 725				
14	T Strength	R_m	MPa		–					$R_m \geq 930$				
15	Elongation	A	%		–					A50 mm ≥ 8				
16	Reduction of area	Z	%		–					–				
17	Hardness		≤ 370 HV					29 ≤ HRC ≤ 35 280 ≤ HV ≤ 383						
18	Shear strength	R_c	MPa		–					–				
19	Bending	k	–		–					2; $\alpha = 105^\circ$				
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)		–											

30	Microstructure	-	See EN 4700-1.
		1	EN 4436
		7	The δ -ferrite content shall not exceed 5 %
34	Grain size	-	See EN 4700-1.
		7	$G \geq 4$
44	External defects	-	See EN 4700-1.
50	Cleanliness/inclusion content (micro-cleanness)	-	See EN 4700-1.
		7	Category 2
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95	Marking inspection	-	See EN 4700-1.
96	Dimensional inspection	-	See EN 4700-1.
98	Notes	-	-
99	Typical use	-	-