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SIST EN 3488:2007

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ICS 49.025.10

English Version

Aerospace series - Steel FE-PA3601 (X6CrNiTi18-10) - Air
melted - Softened - Sheet and strip - $a \leq 6$ mm - $500 \text{ MPa} \leq R_m$
 $\leq 700 \text{ MPa}$

Série aérospatiale - Acier FE-PA3601 (X6CrNiTi18-10) -
Élaboré à l'air - Adouci - Tôles et bandes - $a \leq 6$ mm - 500
MPa $\leq R_m \leq 700$ MPa

Luft- und Raumfahrt - Stahl FE-PA3601 (X6CrNiTi18-10) -
Lufterschmolzen - Weichgeglüht - Bleche und Bänder - $a \leq$
6 mm - $500 \text{ MPa} \leq R_m \leq 700 \text{ MPa}$

This European Standard was approved by CEN on 23 June 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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Foreword

This document (EN 3488:2007) 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of an identical text or by endorsement, at the latest by February 2008, and conflicting national standards shall be withdrawn at the latest by February 2008.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-PA3601 (X6CrNiTi18-10)
Air melted
Softened
Sheet and strip
 $a \leq 6 \text{ mm}$
 $500 \text{ MPa} \leq R_m \leq 700 \text{ MPa}$

for aerospace applications

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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 2951, *Aerospace series — Metallic materials — Test method — Micrographic determination of content of non-metallic inclusions.* 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.

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1	Material designation		Steel FE-PA3601 (X6CrNiTi18-10)								
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		Sheet and strip								
4.2	Method of production		Rolled								
4.3	Limit dimension(s)	mm	a ≤ 6								
5	Technical specification		EN 4700-1								

6.1	Delivery condition		Softened								
	Heat treatment		1 050 °C ≤ θ ≤ 1 100 °C WQ/AQ								
6.2	Delivery condition code		U								
7	Use condition		Delivery condition								
	Heat treatment		–								

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Characteristics
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8.1	Test sample(s)		See EN 4700-1.								
8.2	Test piece(s)		See EN 4700-1.								
8.3	Heat treatment		Delivery condition								
9	Dimensions concerned	mm	a ≤ 3				3 < a ≤ 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	T	Strength	R _m	MPa		500 ≤ R _m ≤ 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 ; α = 180°				–		
20	Impact strength		–								
21	Temperature	θ	°C		–						
22	Time		h		–						
23	C	Stress	σ _a	MPa		–					
24		Elongation	a	%		–					
25		Rupture stress	σ _R	MPa		–					
26		Elongation at rupture	A	%		–					
27	Notes (see line 98)		a								

30	Microstructure	–	See EN 4700-1.
		1	EN 4436
		7	The δ -ferrite content shall not exceed 8 %.
34	Grain size	–	See EN 4700-1.
		7	$G \geq 5$
44	External defects	–	See EN 4700-1.
50	Cleanliness/inclusion content (micro-cleanness)	1	EN 2951
		7	Category 2
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95	Marking inspection	–	See EN 4700-1.
96	Dimensional inspection	–	See EN 4700-1.
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 \leq 0,025 %.
99	Typical use	–	–

100	-	Product qualification	-	See EN 4700-1.
				Qualification programme to be agreed between manufacturer and purchaser.

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