BRITISH STANDARD

BS EN
3638:2007

Aerospace series — Heat resisting alloy FE-PA2601 (X6NiCrTiMoV26-15) — Consumable electrode remelted — Solution and precipitation treated — Sheet, strip and plate — 0,5 mm ≤ a ≤ 10 mm

The European Standard EN 3638:2007 has the status of a British Standard

ICS 49.025.10

BSI
British Standards

National foreword

This British Standard was published by BSI. It is the UK implementation of EN 3638:2007. It supersedes BS HR 251:1974 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee ACE/61, Metallic materials for aerospace purposes, to Panel ACE/61/-/48, Heat resisting alloys.

A list of organizations represented on ACE/61/-/48 can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 April 2007

ISBN 978 0 580 50527 0

Amendments issued since publication

Amd. No.	Date	Comments

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 3638

March 2007

ICS 49.025.10

English Version

Aerospace series - Heat resisting alloy FE-PA2601 (X6NiCrTiMoV26-15) - Consumable electrode remelted - Solution and precipitation treated - Sheet, strip and plate - 0,5 mm ≤ a ≤ 10 mm

Série aérospatiale - Alliage résistant à chaud FE-PA2601 (X6NiCrTiMoV26-15) - Élaboré par électrode consommable - Mis en solution et précipité - Tôles, bandes et plaques - 0,5 mm ≤ a ≤ 10 mm

Luft- und Raumfahrt - Hochwarmfeste Legierung FE-PA2601 (X6NiCrTiMoV26-15) - Mit selbstverzehrender Elektrode umgeschmolzen - Lösungsgeglüht und ausgelagert - Bleche, Bänder und Platten - 0,5 mm ≤ a ≤ 10 mm

This European Standard was approved by CEN on 5 October 2006.

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 3638:2007) 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 September 2007, and conflicting national standards shall be withdrawn at the latest by September 2007.

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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 4500-3.

1 Scope

This standard specifies the requirements relating to:

Heat resisting alloy FE-PA2601 (X6NiCrTiMoV26-15)
Consumable electrode remelted
Solution and precipitation treated
Sheet, strip and plate
0,5 mm ≤ a ≤ 10 mm

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 4050-4, *Aerospace series — Test method for metallic materials — Ultrasonic inspection of bars, plates, forging stock and forgings — Part 4: Acceptance criteria.* 1)

EN 4500-3, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 3: Specific rules for heat resisting alloys.* 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		Heat resisting alloy FE-PA2601 (X6NiCrTiMoV26-15)													
2	Chemical composition %	Element	C	Si	Mn	P	S	Al	B	Cr	Mo	Ni	Ti	V	Pb	Fe
		min.	–	–	1,00	–	–	–	30 [a]	13,5	1,00	24,0	1,90	0,10	–	Base
		max.	0,080	1,00	2,00	0,020	0,015	0,35	100 [a]	16,0	1,50	27,0	2,30	0,50	20 [a]	
3	Method of melting		Consumable electrode remelted													
4.1	Form		Sheet, strip and plate													
4.2	Method of production		Rolled													
4.3	Limit dimension(s)	mm	$0,5 \leq a \leq 10$													
5	Technical specification		EN 4700-1													

6.1	Delivery condition	Solution treated and descaled
	Heat treatment	980 °C ± 10 °C / t ≥ 15 min / AQ
6.2	Delivery condition code	W
7	Use condition	Solution and precipitation treated
	Heat treatment	Delivery condition + 720 °C ± 10 °C / t = 16 h / AC

Characteristics

8.1	Test sample(s)			Cut from sheet, strip or plate			
8.2	Test piece(s)			See EN 4700-1.			
8.3	Heat treatment			Delivery condition		Use condition	
9	Dimensions concerned		mm	$0,5 \leq a \leq 5$	$5 < a \leq 10$	$0,5 \leq a \leq 10$	
10	Thickness of cladding on each face		%	–	–	–	
11	Direction of test piece			See EN 4700-1.	See EN 4700-1.	See EN 4700-1.	
12	T	Temperature	θ	°C	Ambient	Ambient	Ambient
13	T	Proof stress	$R_{p0,2}$	MPa	$200 \leq R_{p0,2} \leq 390$	$200 \leq R_{p0,2} \leq 390$	≥ 655
14	T	Strength	R_m	MPa	≤ 665	≤ 665	≥ 965
15	T	Elongation	A	%	≥ 35	≥ 35	≥ 15
16	T	Reduction of area	Z	%	–	–	–
17	Hardness				HV ≤ 195	HB ≤ 190	HB ≥ 255 or HV ≥ 860
18	Shear strength		R_c	MPa	–	–	–
19	Bending		k	–	0,5; $\alpha = 180°$	–	–
20	Impact strength				–		
21	C	Temperature	θ	°C	–		650 [b]
22	C	Time		h	–		$t_R \geq 23$
23	C	Stress	σ_a	MPa	–		–
24	C	Elongation	a	%	–		–
25	C	Rupture stress	σ_R	MPa	–		450
26	C	Elongation at rupture	A	%	–		≥ 2
27	Notes (see line 98)				a, b		

34	Grain size	–	See EN 4700-1.	
		6	$0,5 \leq a \leq 3$	$3 < a \leq 10$
		7	$G \geq 5$	$G \geq 3$
44	External defects	–	See EN 4700-1.	
61	Internal defects	–	See EN 4700-1.	
		1	EN 4050-4	
		7	Class 4	
95	Marking inspection	–	See EN 4700-1.	
96	Dimensional inspection	–	See EN 4700-1.	
98	Notes	–	[a] p.p.m. [b] Proportional test piece.	
99	Typical use	–	–	

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

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