



BSI Standards Publication

**Aerospace series — Heat
resisting alloy FE-PA4901
(X12CrNiCoMoW21-20) — As
forged — Forging stock — a or
 $D \leq 200$ mm — $690 \text{ MPa} \leq R_m$
 $\leq 880 \text{ MPa}$**

National foreword

This British Standard is the UK implementation of EN 4262:2013.

The UK participation in its preparation was entrusted to Technical Committee ACE/61/-/48, Heat Resisting Alloys for Aerospace Purposes.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Date	Text affected
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EUROPEAN STANDARD

EN 4262

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2013

ICS 49.025.01

English Version

**Aerospace series - Heat resisting alloy FE-PA4901
(X12CrNiCoMoW21-20) - As forged - Forging stock - a or D ≤
200 mm - 690 MPa ≤ Rm ≤ 880MPa**

Serie spatiale - Alliage résistant à chaud FE-PA4901
(X12CrNiCoMoW21-20) - Non traité - Produits destinés à la
forge - a ou D ≤ 200mm - 690 MPa ≤ Rm ≤ 880 MPa

Luft- und Raumfahrt - Hochwärmefeste Legierung FE-
PA4901 (X12CrNiCoMoW21-20) - Nicht wärmebehandelt -
Schmiedevormaterial - a oder D ≤ 200mm - 690 MPa ≤ Rm
≤ 880 MPa

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Foreword

This document (EN 4262:2013) 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of an identical text or by endorsement, at the latest by January 2014, and conflicting national standards shall be withdrawn at the latest by January 2014.

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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 4500-003.

1 Scope

This European Standard specifies the requirements relating to:

Heat resisting alloy FE-PA4901 (X12CrNiCoMoW21-20)
As forged
Forging stock
 a or D 200 mm
 $690 \text{ MPa} < R_m < 880 \text{ MPa}$

for aerospace applications.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 2860-2, *Aerospace series — Heat resisting alloys — Forging stock and forgings — Technical specification — Part 2: Forging stock*¹⁾

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

EN 4500-003, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 003: Specific rules for heat resisting alloys*

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

1	Material designation	Heat resisting alloy FE-PA4901 (X12CrNiCoMoW21-20)														
2	Chemical Composition %	Element	C	Si	Mn	P	S	Co	Cr	Cu	Mo	Nb	Ni	N ₂	W	Fe
		min.	0,080	—	1,00	—	—	18,5	20,0	—	2,50	0,75	19,0	0,10	2,00	Base
		max.	0,16	1,00	2,00	0,040	0,030	21,0	22,5	0,50	3,50	1,25	21,0	0,20	3,00	
3	Method of melting	Air melted														
4.1	Form	Forging stock														
4.2	Method of production	—														
4.3	Limit dimension(s)	mm	<i>a</i> or <i>D</i> ≤ 200													
5	Technical specification	EN 2860-2														

6.1	Delivery condition	As forged														
	Heat treatment	—														
6.2	Delivery condition code	U														
7	Use condition	Delivery condition														
	Heat treatment	—														

Characteristics

8.1	Sample(s)	Cut from forging stock														
8.2	Test piece(s)	—														
8.3	Heat treatment	See line 29														
9	Dimensions concerned	mm	<i>a</i> or <i>D</i> ≤ 200													
10	Thickness of cladding on each face	%	—													
11	Direction of test piece	See EN 2860-2														
12	T	Temperature	θ	°C	Ambient											
13		Proof stress	$R_{p0.2}$	MPa	≥ 305											
14		Strength	R_m	MPa	$690 \leq R_m \leq 880$											
15		Elongation	A	%	≥ 35											
16		Reduction of area	Z	%	—											
17	Hardness	≤ 229 HB														
18	Shear strength	R_c	MPa	—												
19	Bending	k	-	—												
20	Impact strength	—														
21	C	Temperature	θ	°C	815 ^{a)}											
22		Time		h	$t_R \geq 30$											
23		Stress	σ_a	MPa	—											
24		Elongation	<i>a</i>	%	—											
25		Rupture stress	σ_R	MPa	125											
26		Elongation at rupture	A	%	≥ 10											
27	Notes (see line 98)	a)														

29	Reference heat treatment	—	Solution treated Nominal temperature according to the manufacturing shedule ± 15 °C/t = 1 h/WQ
44	External defects	—	See EN 2860-2
51	Macrostructure	—	See EN 2860-2
		7	To be defined on the order
61	Internal defects	—	See EN 2860-2
		7	Class 3
95	Marking inspection	—	See EN 2860-2
96	Dimensional inspection	—	See EN 2860-2
98	Notes	—	a) Proportional round test pieces.
99	Typical use	—	—

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

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