SLOVENSKI STANDARD
SIST EN 3507:2009

01-maj-2009

Aeronavtika - Jeklo FE-PL1501 (30CrMo12) - Taljeno - Utrjeno in mehko ģarjeno - Izkovki - De Ò100 mm - 930 MPa ÒRm Ò1080 MPa

Aerospace series - Steel FE-PL1501 (30CrMo12) - Air melted - Hardened and tempered - Forgings - De Ò100 mm - 930 MPa ÒRm Ò1 080 MPa

Luft- und Raumfahrt - Stahl FE-PM1501 (30CrMo12) - Lufterschmolzen - Gehª rtet und angelassen - Gesenk- und Freiformschmiedest¿cke - De Ò100 mm - 930 MPa ÒRm Ò1 080 MPa

S®rie a®rospatiale - Acier FE-PL1501 (30CrMo12) - £labor®¨ l'air - Tremp®et revenu - Pi¯ces forg®es et pi¯ces matric®es - De Ò100 mm - 930 MPa ÒRm Ò1 080 MPa

Ta slovenski standard je istoveten z: **EN 3507:2006**

ICS:

49.025.10	Jekla	Steels

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EUROPEAN STANDARD

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EN 3507

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English Version

Aerospace series - Steel FE-PL1501 (30CrMo12) - Air melted - Hardened and tempered - Forgings - De ≤ 100 mm - 930 MPa ≤ Rm ≤ 1 080 MPa

Série aérospatiale - Acier FE-PL1501 (30CrMo12) - Élaboré à l'air - Trempé et revenu - Pièces forgées et pièces matricées - De ≤ 100 mm - 930 MPa ≤ Rm ≤ 1 080 MPa

Luft- und Raumfahrt - Stahl FE-PL1501 (30CrMo12) - Lufterschmolzen - Gehärtet und angelassen - Gesenk und Freiformschmiedestücke - De ≤ 100 mm - 930 MPa ≤ Rm ≤ 1 080 MPa

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

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Foreword

This document (EN 3507:2006) 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of an identical text or by endorsement, at the latest by June 2007, and conflicting national standards shall be withdrawn at the latest by June 2007.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 4500-5.

1 Scope

This standard specifies the requirements relating to:

Steel FE-PL1501 (30CrMo12)
Air melted
Hardened and tempered
Forgings
$D_e \leq 100$ mm
930 MPa $\leq R_m \leq$ 1 080 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 2157-3, *Aerospace series — Steel — Forging stock and forgings — Technical specification — Part 3: Pre-production and production forgings.*

EN 3476, *Aerospace series — Steel FE-PL1501 (30CrMo12) — Air melted — Softened — Forging stock — a or D ≤ 300 mm.*

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

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

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

1	Material designation		Steel FE-PL1501 (30CrMo12)								
2	Chemical composition %	Element	C	Si	Mn	P	S	Cr	Mo	Ni	Fe
		min.	0,28	0,10	0,40	–	–	2,80	0,30	–	Base
		max.	0,35	0,40	0,70	0,025	0,020	3,30	0,30	0,30	
3	Method of melting		Air melted								
4.1	Form		Forgings								
4.2	Method of production		Forged from forging stock EN 3476								
4.3	Limit dimension(s)	mm	$D_e \leq 100$								
5	Technical specification		EN 2157-3								

6.1	Delivery condition	Softened	Hardened and tempered
	Heat treatment	–	860 °C ≤ θ ≤ 920 °C / OQ + θ ≥ 600 °C / OQ or AC
6.2	Delivery condition code	A	U
7	Use condition	Hardened and tempered	Delivery condition
	Heat treatment	Delivery condition + 860 °C ≤ θ ≤ 920 °C / OQ + θ ≥ 600 °C / OQ or AC	–

Characteristics

8.1	Test sample(s)				See EN 2157-3.	
8.2	Test piece(s)				See EN 2157-3.	
8.3	Heat treatment				Softened	Use condition
9	Dimensions concerned			mm	a or $D \leq 100$	$D_e \leq 100$
10	Thickness of cladding on each face			%	–	–
11	Direction of test piece				–	–
12	T	Temperature	θ	°C	–	Ambient
13		Proof stress	$R_{p0,2}$	MPa	–	≥ 800
14		Strength	R_m	MPa	–	950 ≤ R_m ≤ 1 100
15		Elongation	A	%	–	≥ 13
16		Reduction of area	Z	%	–	–
17	Hardness				≤ 255 HB ≤ 269 HV [a]	285 ≤ HB ≤ 331 295 ≤ HV ≤ 350 [a]
18	Shear strength		R_c	MPa	–	–
19	Bending		k	–	–	–
20	Impact strength				–	KV ≥ 45J; Notch direction T; (KV ≥ 30J) [b]
21	C	Temperature	θ	°C		
22		Time		h		
23		Stress	σ_a	MPa		
24		Elongation	a	%		
25		Rupture stress	σ_R	MPa		
26		Elongation at rupture	A	%		
27	Notes (see line 98)				a, b	

34	Grain size	–	See EN 2157-3.
		7	G ≥ 6
44	External defects	–	See EN 2157-3.
61	Internal defects	–	See EN 2157-3.
82	Batch uniformity	–	See EN 2157-3.
95	Marking inspection	–	See EN 2157-3.
96	Dimensional inspection	–	See EN 2157-3.
98	Notes	–	[a] HV for a or $D \leq 5$ mm [b] Value in brackets after blank nitriding: 490 °C ≤ θ ≤ 510 °C / t = 24 h
99	Typical use	–	Nitriding steel

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