

SLOVENSKI STANDARD
SIST EN 3525:2009
01-maj-2009

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Ta slovenski standard je istoveten z: **EN 3525:2007**

ICS:

49.025.10 Jekla Steels

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EUROPEAN STANDARD

EN 3525

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2007

ICS 49.025.10

English Version

**Aerospace series - Steel FE-PL1505 (15CrMoV6) - Air melted -
Hardened and tempered - Plate - 6 mm < a ≤ 20 mm - 1 080
MPa ≤ Rm ≤ 1 280 MPa**

Série aéronautique - Acier FE-PL1505 (15CrMoV6) -
Élaboré à l'air - Trempé et revenu - Plaques - 6 mm < a ≤
20 mm - 1 080 MPa ≤ Rm ≤ 1 280 MPa

Luft- und Raumfahrt - Stahl FE-PL1505 (15CrMoV6) -
Lufterschmolzen - Gehärtet und angelassen - Platten - 6
mm < a ≤ 20 mm - 1 080 MPa ≤ Rm ≤ 1 280 MPa

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

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

EN 3525:2007 (E)**Foreword**

This document (EN 3525:2007) 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of an identical text or by endorsement, at the latest by September 2007, and conflicting national standards shall be withdrawn at the latest by September 2007.

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-PL1505 (15CrMoV6)
Air melted
Hardened and tempered
Plate
6 mm < a ≤ 20 mm
1 080 MPa ≤ R_m ≤ 1 280 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 2043, *Aerospace series — Metallic materials — General requirements for semi-finished product qualification (excluding forgings and castings)*.¹⁾

EN 2951, *Aerospace series — Metallic materials — Test method — Micrographic determination of content of non-metallic inclusions*.¹⁾

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 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⁾

EN 4700-1, *Aerospace series — Steel and heat resisting alloys — 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-PL1505 (15CrMoV6)								
2	Chemical composition %	Element	C	Si	Mn	P	S	Cr	Mo	V	Fe
		min.	0,12	–	0,80	–	–	1,25	0,80	0,20	Base
		max.	0,18	0,20	1,10	0,020	0,015	1,50	1,00	0,30	
3	Method of melting		Air melted								
4.1	Form		Plate								
4.2	Method of production		Rolled								
4.3	Limit dimension(s)	mm	$6 < a \leq 20$								
5	Technical specification		EN 4700-1								

6.1	Delivery condition		Softened			Hardened and tempered		
	Heat treatment		–			955 °C ≤ θ ≤ 995 °C / OQ or AC + 595 °C ≤ θ ≤ 645 °C / AC		
6.2	Delivery condition code		A			U		
7	Use condition		Hardened and tempered			Delivery condition		
	Heat treatment		Delivery condition + 955 °C ≤ θ ≤ 995 °C / OQ or AC + 595 °C ≤ θ ≤ 645 °C / AC			–		

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Characteristics

8.1	Test sample(s)		See EN 4700-1.								
8.2	Test piece(s)		See EN 4700-1.								
8.3	Heat treatment		Softened			Use condition					
9	Dimensions concerned	mm	$6 < a \leq 12$		$12 < a \leq 20$		$6 < a \leq 20$				
10	Thickness of cladding on each face	%	–		–		–				
11	Direction of test piece		–		–		LT				
12	Temperature	θ	°C		–		Ambient				
13	Proof stress	R _{p0,2}	MPa		–		≥ 930				
14	T Strength	R _m	MPa		–		1 080 ≤ R _m ≤ 1 280				
15	Elongation	A	%		–		≥ 10				
16	Reduction of area	Z	%		–		–				
17	Hardness		HB ≤ 197 or HV ≤ 197		HB ≤ 197 or HV ≤ 197		335 ≤ HV ≤ 382 or 321 ≤ HB ≤ 380				
18	Shear strength	R _c	MPa		–		–				
19	Bending	k	–		0,5; α = 90°		–				
20	Impact strength		–								
21	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)		–								

44	External defects	–	See EN 4700-1.
		1	Visual
50	Cleanliness/inclusion content (micro-cleanness)	–	See EN 4700-1.
		1	EN 2951
		7	Category 1
59	Decarburization	–	See EN 4700-1.
61	Internal defects	–	See EN 4700-1.
		1	EN 4050-4
		7	Class 2
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95	Marking inspection	–	See EN 4700-1.
96	Dimensional inspection	–	See EN 4700-1.
98	Notes	–	–
99	Typical use	–	–

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