SLOVENSKI STANDARD
SIST EN 2137:2018

01-marec-2018

Aeronavtika - Jeklo FE-PL75 - 1100 MPa ≤ Rm ≤ 1250 MPa - Palice - De ≤ 100 mm

Aerospace series - Steel FE-PL75 - 1 100 MPa ≤ Rm ≤ 1 250 MPa - Bars - De ≤ 100 mm

Luft- und Raumfahrt - Stahl FE-PL75 - 1 100 MPa ≤ Rm ≤ 1 250 MPa - Stangen - De ≤ 100 mm

Série aérospatiale - Acier FE-PL75 - 1 100 MPa ≤ Rm ≤ 1 250 MPa - Barres - De ≤ 100 mm

Ta slovenski standard je istoveten z: EN 2137:2017

ICS:

49.025.10 Jekla Steels

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EUROPEAN STANDARD

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English Version

Aerospace series - Steel FE-PL75 - 1 100 MPa ≤ Rm ≤ 1 250 MPa - Bars - De ≤ 100 mm

Série aérospatiale - Acier FE-PL75 - 1 100 MPa ≤ Rm ≤ 1 250 MPa - Barres - De ≤ 100 mm

Luft- und Raumfahrt - Stahl FE-PL75 - 1 100 MPa ≤ Rm ≤ 1 250 MPa - Stangen - De ≤ 100 mm

This European Standard was approved by CEN on 11 September 2017.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 2137:2017) 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of an identical text or by endorsement, at the latest by June 2018 and conflicting national standards shall be withdrawn at the latest by June 2018.

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Introduction

This European 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 European Standard has been prepared in accordance with EN 4500-005.

1 Scope

This European Standard specifies the requirements relating to:

Steel FE-PL75
1 100 MPa ≤ R_m ≤ 1 250 MPa
Bars
D_e ≤ 100 mm

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 2034, *Round steel bars drawn and/or descaled — Dimensions — Tolerance h 11 — Aerospace series* [1)]

EN 2035, *Round steel bars — Drawn — Dimensions — Tolerance h 9 — Aerospace series* [1)]

EN 2036, *Round steel bars — Ground — Dimensions — Tolerance h 8 — Aerospace series* [1)]

EN 2037, *Hexagonal steel bars — Drawn — Dimensions — Tolerances h 11 and h 12 — Aerospace series* [1)]

EN 2038, *Hexagonal steel bars — Drawn — Dimensions — Tolerance h 9 — Aerospace series* [1)]

EN 2039, *Rectangular steel bars — Drawn — Dimensions — Tolerances h 11 / h 12 — Aerospace series* [1)]

EN 2040, *Rectangular steel bars — Rolled — Dimensions — Tolerance js 16 — Aerospace series* [1)]

EN 2041, *Square steel bars — Drawn — Dimensions — Tolerances h 11 / h 12 — Aerospace series* [1)]

EN 2042, *Square steel bars — Rolled — Dimensions — Tolerance js 16 — Aerospace series* [1)]

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

EN 4500-005, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 005: Specific rules for steels*

EN 4700-002, *Aerospace series — Steel and heat resisting alloys — Wrought products — Technical specification — Part 002: Bar and section*

3 Requirements

See Table 1.

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1) Published as ASD-STAN Standard at the date of publication of this standard by AeroSpace and Defence industries Association of Europe - Standardization (ASD-STAN) (www.asd-stan.org)

Table 1 — Requirements for steel FE-PL75

1	Material designation		Steel FE-PL75							
2	Chemical Composition %	Element	C	Si	Mn	P	S	Cr	Mo	Ni
		min.	0,26	0,10	0,20	–	–	1,20	0,30	3,30
		max.	0,33	0,40	0,60	0,025	0,020	1,50	0,60	4,30
3	Method of melting		Air melted							
4.1	Form		Bars							
4.2	Method of production		–							
4.3	Limit dimension(s)	mm	$D_e \leq 100$							
5	Technical specification		EN 4700-002 EN 2034 to EN 2042							

6.1	Delivery condition	Annealed	Hardened and tempered
	Heat treatment	–	840 °C ≤ θ ≤ 860 °C/OQ + temper θ ≥ 540 °C
6.2	Delivery condition code	–	
7	Use condition	Hardened and tempered	Hardened and tempered
	Heat treatment	Delivery condition + 840 °C ≤ θ ≤ 860 °C/OQ + temper θ ≥ 540 °C	Delivery condition

					Characteristics		
8.1	Test sample(s)				–	–	Bars: D = 16 mm
8.2	Test piece(s)				–	–	Reference [a] (see line 29)
8.3	Heat treatment				Annealed	Hardened and tempered	–
9	Dimensions concerned			mm	≤ 100		
10	Thickness of cladding on each face			%	–		
11	Direction of test piece				–		
12	T	Temperature	θ	°C	Ambient temperature		
13	T	Proof stress	$R_{p0,2}$	MPa*	–	≥ 900	≥ 880
14	T	Strength	R_m	MPa*	–	1 100 ≤ R_m ≤ 1 250	1 080 ≤ R_m ≤ 1 230
15	T	Elongation	A	%	–	≥ 10	≥ 10
16	T	Reduction of area	Z	%	–	–	–
17	Hardness				HB ≤ 269 HV ≤ 284 [b]	331 ≤ HB ≤ 375 350 ≤ HV ≤ 396 [b]	321 ≤ HB ≤ 363
18	Shear strength		R_c	MPa*	–		
19	Bending		k	–	–		
20	Impact strength				–	≥ 35	≥ 35
21	C	Temperature	θ	°C	–		
22	C	Time		h	–		
23	C	Stress	σ_a	MPa*	–		
24	C	Elongation	a	%	–		
25	C	Rupture stress	σ_R	MPa*	–		
26	C	Elongation at rupture	A	%	–		
27	Notes (see line 98)				*, a, b		

28	–	–	–
29	Reference heat treatment	–	Hardened and tempered 850 °C ± 10 °C/OQ + temper 585 °C ± 5 °C
95	Marking inspection	–	–
96	Dimensional inspection	–	–
98	Notes	–	* 1 MPa = 1 N/mm^2. a Optional test. b HV for $D_e \leq 5$ mm.
99	Typical use	–	Low alloy general purpose steel.