SLOVENSKI STANDARD
SIST EN 2470:2019

01-junij-2019

Aeronavtika - Jeklo FE-PA11 - Utrjeno, mehko žarjeno in hladno vlečeno - Žice za kovice - 1 mm ≤ D ≤ 10 mm

Aerospace series - Steel FE-PA11 - Softened and cold drawn - Wires for rivets - 1 mm ≤ D ≤ 10 mm

Luft- und Raumfahrt - Stahl FE-PA11 - Abgeschreckt und Gezogen - Nietdrähte - 1 mm ≤ D ≤ 10 mm

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Série aérospatiale - Acier FE-PA11 - Trempé et étiré - Fils à rivets - 1 mm ≤ D ≤ 10 mm

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Ta slovenski standard je istoveten z: **EN 2470:2019**

ICS:

49.025.10	Jekla	Steels
49.030.60	Kovice	Rivets
77.140.65	Jeklene žice, jeklene vrvi in verige	Steel wire, wire ropes and link chains

SIST EN 2470:2019 **en,fr,de**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 2470

April 2019

ICS 49.025.10

English Version

Aerospace series - Steel FE-PA11 - Softened and cold drawn - Wires for rivets - 1 mm ≤ D ≤ 10 mm

Série aérospatiale - Acier FE-PA11 - Trempé et étiré - Fils à rivets - 1 mm ≤ D ≤ 10 mm

Luft- und Raumfahrt - Stahl FE-PA11 - Abgeschreckt und Gezogen - Nietdrähte - 1 mm ≤ D ≤ 10 mm

This European Standard was approved by CEN on 20 August 2018.

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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-CENELEC 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

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European foreword

This document (EN 2470:2019) 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 October 2019, and conflicting national standards shall be withdrawn at the latest by October 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN 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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Introduction

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

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1 Scope

This document specifies the requirements relating to:

Steel FE-PA11
Softened and cold drawn
Wires for rivets
1 mm ≤ *D* ≤ 10 mm

for aerospace applications.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 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 4700-004, *Aerospace series — Steel and heat resisting alloys — Wrought products — Technical specification — Part 004: Wire*

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3 Terms and definitions

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No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

4 Requirements

Table 1 shows the requirements for Steel FE-PA11 — Softened and cold drawn — Wires for rivets — 1 mm ≤ *D* ≤ 10 mm.

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Table 1 — Requirements for Steel FE-PA11 — Softened and cold drawn — Wires for rivets — 1 mm ≤ *D* ≤ 10 mm

1	Material designation		Steel FE-PA11							
2	Chemical composition %	Element	C	Si	Mn	P	S	Cr	Mo	Ni
		min.	–	–	–	–	–	17,0	–	9,0
		max.	0,030	1,00	2,00	0,035	0,025	19,0	–	12,0
3	Method of melting		Air melted							
4.1	Form		Wires for rivets							
4.2	Method of production		–							
4.3	Limit dimension(s)	mm	1 mm ≤ *D* ≤ 10 mm							
5	Technical specification		EN 4700-004							

6.1	Delivery condition	Softened and cold drawn
	Heat treatment	1 000 °C ≤ θ ≤ 1 050 °C/AQ or WQ
6.2	Delivery condition code	–
7	Use condition	Softened and cold drawn
	Heat treatment	Delivery condition

					Characteristics	
8.1	Test sample(s)				–	Bar: *D* = 16 mm
8.2	Test piece(s)				–	Reference [a] (see line 29)
8.3	Heat treatment				Softened and cold drawn	–
9	Dimensions concerned			mm	1 ≤ *D* ≤ 10	
10	Thickness of cladding on each face			%	–	
11	Direction of test piece				–	
12	T	Temperature	θ	°C	Ambient	
13	T	Proof stress	$R_{p0,2}$	MPa*	≥ 180	≥ 180
14	T	Strength	R_m	MPa*	≤ 680	450 ≤ R_m ≤ 650
15	T	Elongation	A	%	≥ 55	≥ 45
16	T	Reduction of area	Z	%	–	–
17	Hardness				HB ≤ 187 HV ≤ 196 [b]	HB ≤ 187
18	Shear strength		R_c	MPa*	–	
19	Bending		k	–	–	
20	Impact strength				–	≥ 60
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	

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29	Reference heat treatment	–	Softened 1 040 °C ± 10 °C/WQ
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	–	Austenitic corrosion resisting steel.

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