SLOVENSKI STANDARD
SIST EN 2460:2009

01-maj-2009

Aeronavtika - Jeklo FE-PM1901 (X12Cr13) - 600 MPa ÒRm Ò800 MPa - Palice - De Ò70 mm

Aerospace series - Steel FE-PM1901 (X12Cr13) - 600 MPa ÒRm Ò800 MPa - Bars - De Ò70 mm

Luft- und Raumfahrt - Stahl FE-PM1901 (X12Cr13) - 600 MPa ÒRm Ò800 MPa - Stangen - De Ò70 mm

S®rie a®rospatiale - Acier FE-PM1901 (X12Cr13) - 600 MPa ÒRm Ò800 MPa - Barres - De Ò70 mm

Ta slovenski standard je istoveten z: **EN 2460:2009**

ICS:

49.025.10	Jekla	Steels

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EUROPEAN STANDARD

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English Version

Aerospace series - Steel FE-PM1901 (X12CrNi13) - 600 MPa ≤ Rm ≤ 800 MPa - Bars - De ≤ 70 mm

Série aérospatiale - Acier FE-PM1901 (X12CrNi13) - 600 MPa ≤ Rm ≤ 800 MPa - Barres - De ≤ 70 mm

Luft- und Raumfahrt - Stahl FE-PM1901 (X12CrNi13) - 600 MPa ≤ Rm ≤ 800 MPa - Stangen - De ≤ 70 mm

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

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Foreword

This document (EN 2460:2009) 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of an identical text or by endorsement, at the latest by August 2009, and conflicting national standards shall be withdrawn at the latest by August 2009.

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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-PM1901 (X12CrNi13)
600 MPa ≤ R_m ≤ 800 MPa
Bars
D_e ≤ 70 mm

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 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 4700-2, *Aerospace series — Steel and heat resisting alloys — Wrought products — Technical specification — Part 2: Bar and section* [1]

EN 9133, *Aerospace series — Quality management systems — Qualification procedure for aerospace standard parts*

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

1	Material designation		Steel FE-PM1901 (X12CrNi13)								
2	Chemical composition %	Element	C	Si	Mn	P	S	Cr	Mo	Ni	Fe
		min.	0,10	–	0,30	–	–	11,5	–	0,30	Base
		max.	0,15	0,80	0,60	0,030	0,025	13,0	–	0,80	
3	Method of melting		Air melted								
4.1	Form		Bars								
4.2	Method of production		–								
4.3	Limit dimension(s)	mm	$D_e \leq 70$								
5	Technical specification		EN 4700-2								

6.1	Delivery condition	Softened	Hardened and tempered
	Heat treatment	–	980 °C ≤ θ ≤ 1 000 °C / AQ or OQ + Temper θ ≥ 640 °C
6.2	Delivery condition code	A	U
7	Use condition	Hardened and tempered	Hardened and tempered
	Heat treatment	Delivery condition + 980 °C ≤ θ ≤ 1 000 °C / AQ or OQ + Temper θ ≥ 640 °C	Delivery condition

					Characteristics		
8.1	Test sample(s)				See EN 4700-2.		
8.2	Test piece(s)				See EN 4700-2.		
8.3	Heat treatment				Softened	Hardened and tempered	Reference [a] (see line 29) Bar: D = 16 mm
9	Dimensions concerned			mm	≤ 70		
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*	–	≥ 420	≥ 420
14	T	Strength	R_m	MPa*	–	600 ≤ R_m ≤ 800	600 ≤ R_m ≤ 800
15	T	Elongation	A	%	–	≥ 16	≥ 16
16	T	Reduction of area	Z	%	–	–	–
17	Hardness				HB ≤ 207 HV ≤ 218 [b]	179 ≤ HB ≤ 241 188 ≤ HV ≤ 253 [b]	179 ≤ HB ≤ 241
18	Shear strength		R_c	MPa*	–		
19	Bending		k	–	–		
20	Impact strength		KV	J	–	≥ 35	≥ 25
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		

29	Reference heat treatment	–	Hardened and tempered + (990 ± 10) °C / AQ + Temper (670 ± 5) °C
95	Marking inspection	–	See EN 4700-2.
96	Dimensional inspection	–	See EN 4700-2.
98	Notes	–	* 1 MPa = 1 N/mm^2. a Optional test. b HV for $D_e \leq 5$ mm.
99	Typical use	–	Corrosion resisting steel.

100	–	Product qualification	–	See EN 9133.
				Qualification programme to be agreed between manufacturer and purchaser.