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**Ta slovenski standard je istoveten z: EN 4528:2009**

## **ICS:**

49.025.10 Jekla

Steels

**SIST EN 4528:2009**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 4528**

February 2009

ICS 49.025.10

English Version

**Aerospace series - Steel FE-PA3903 (X10CrNi18-8) - Cold  
rolled - Strip for springs -  $a \leq 3 \text{ mm}$  -  $1\,250 \text{ MPa} \leq R_m \leq 1\,640 \text{ MPa}$**

Série aérospatiale - Acier FE-PA3903 (X10CrNi18-8) -  
Laminé à froid - Bandes pour ressort -  $a \leq 3 \text{ mm}$  -  $1\,250 \text{ MPa} \leq R_m \leq 1\,640 \text{ MPa}$

Luft- und Raumfahrt - Stahl FE-PA3903 (X10CrNi18-8) -  
Kaltgewalzt - Bänder für Federn -  $a \leq 3 \text{ mm}$  -  $1\,250 \text{ MPa} \leq R_m \leq 1\,640 \text{ MPa}$

This European Standard was approved by CEN on 11 July 2008.

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: Avenue Marnix 17, B-1000 Brussels**

## Foreword

This document (EN 4528:2009) 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of an identical text or by endorsement, at the latest by August 2009, and conflicting national standards shall be withdrawn at the latest by August 2009.

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-PA3903 (X10CrNi18-8)  
Cold rolled  
Strip for springs  
 $a \leq 3 \text{ mm}$   
 $1\,250 \text{ MPa} \leq R_m \leq 1\,640 \text{ MPa}$

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

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*. <sup>1)</sup>

EN 4700-1, *Aerospace series — Steel and heat resisting alloy — Wrought products — Technical specification — Part 1: Plate, sheet and strip*. <sup>1)</sup>

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<sup>1)</sup> Published as ASD Prestandard at the date of publication of this standard.

## EN 4528:2009 (E)

1	Material designation		Steel FE-PA3903 (X10CrNi18-8)										
2	Chemical composition %	Element	C	Si	Mn	P	S	Cr	Mo	Ni	Cu	N	Fe
		min.	0,05	–	–	–	–	16,00	–	6,00	–	–	Base
		max.	0,15	2,00	2,00	0,035	0,015	19,00	0,80	9,50	0,50	0,11	
3	Method of melting		Air melted										
4.1	Form		Strip										
4.2	Method of production		Cold rolled										
4.3	Limit dimension(s)	mm	$a \leq 3$										
5	Technical specification		EN 4700-1										

6.1	Delivery condition		Temper rolled										
	Heat treatment		–										
6.2	Delivery condition code		U										
7	Use condition		Delivery condition										
	Heat treatment		–										

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8.1	Test sample(s)			See EN 4700-1.
8.2	Test piece(s)			SIST EN 4528:2009 See EN 4700-1.
8.3	Heat treatment			Use condition
9	Dimensions concerned	mm	$a \leq 3$	
10	Thickness of cladding on each face	%	—	
11	Direction of test piece			L
12	Temperature	$\theta$	°C	Ambient
13	Proof stress	R <sub>p0,2</sub>	MPa	$\geq 950$
14	T Strength	R <sub>m</sub>	MPa	$1\,250 \leq R_m \leq 1\,640$
15	Elongation	A	%	$\geq 4$
16	Reduction of area	Z	%	—
17	Hardness			$380 \leq HV \leq 480$
18	Shear strength	R <sub>c</sub>	MPa	—
19	Bending	k	—	—
20	Impact strength			—
21	Temperature	$\theta$	°C	—
22	Time		h	—
23	Stress	$\sigma_a$	MPa	—
24	Elongation	a	%	—
25	Rupture stress	$\sigma_R$	MPa	—
26	Elongation at rupture	A	%	—
27	Notes (see line 98)			—

44	External defects	–	See EN 4700-1.
50	Cleanliness/Inclusion content (micro-cleanness)	1	EN 2951
		7	Category 2

**EN 4528:2009 (E)**

100	–	Product qualification	–	See EN 4700-1.
				Qualification programme to be agreed between manufacturer and purchaser.

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