



SLOVENSKI STANDARD
SIST EN 4628:2008
01-marec-2008

Aeronavtika - Jeklo FE-PM 3504 (X4CrNiMo16-5-1) - Taljeno - Utrjeno in mehko
žarjeno - Palica - De =< 150 mm - 1 100 MPa =< Rm =< 1 300 MPa

Če je potrebno, se lahko uporabijo dodatni pogoji, ki so določeni v dodatnih standardih, ki se uporabljajo v skladu s SIST EN 4628:2008.

Številni dodatni pogoji, ki so določeni v dodatnih standardih, ki se uporabljajo v skladu s SIST EN 4628:2008.

ITeH STANDARD PREVIEW

Uvodna besedila, ki so določena v dodatnih standardih, ki se uporabljajo v skladu s SIST EN 4628:2008.

SIST EN 4628:2008

<https://standards.iteh.ai/catalog/standards/sist/1dc02cb0-ac0f-402e-ba31-5da5d6933963/sist-en-4628-2008>

Ta slovenski standard je istoveten z: EN 4628:2007

ICS:

49.025.10

SIST EN 4628:2008

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 4628:2008

<https://standards.iteh.ai/catalog/standards/sist/1dc02cb0-ac0f-402e-ba31-3da3d8333963/sist-en-4628-2008>

ICS 49.025.10

English Version

**Aerospace series - Steel FE-PM 3504 (X4CrNiMo16-5-1) - Air
melted - Hardened and tempered - Bar - $D_e \leq 150$ mm - $1\ 100$
MPa $\leq R_m \leq 1\ 300$ MPa**

Série aérospatiale - Acier FE-PM 3504 (X4CrNiMo16-5-1) -
Élaboré à l'air - Trempé et revenu - Barres - $D_e \leq 150$ mm -
 $1\ 100$ MPa $\leq R_m \leq 1\ 300$ MPa

Luft- und Raumfahrt - Stahl FE-PM 3504 (X4CrNiMo16-5-1)
- Lufterschmolzen - Gehärtet- und angelassen - Stangen -
 $D_e \leq 150$ mm - $1\ 100$ MPa $\leq R_m \leq 1\ 300$ MPa

This European Standard was approved by CEN on 25 July 2007.

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.

CEN members are the national standards bodies of 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 United Kingdom.

<https://standards.iteh.ai/catalog/standards/sist/16c02cb0-ac0f-402e-ba31-3da3d8333963/sist-en-4628-2008>



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Foreword

This document (EN 4628:2007) 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 June 2008, and conflicting national standards shall be withdrawn at the latest by June 2008.

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.

ITEH STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 4628:2008

<https://standards.iteh.ai/catalog/standards/sist/1dc02cb0-ac0f-402e-ba31-3da3d8333963/sist-en-4628-2008>

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-PM 3504 (X4CrNiMo16-5-1)
Air melted
Hardened and tempered
Bar
 $D_e \leq 150$ mm
 $1\ 100\ \text{MPa} \leq R_m \leq 1\ 300\ \text{MPa}$

for aerospace applications.

STANDARD PREVIEW
(standards.iteh.ai)

2 Normative references

SIST EN 4628:2008

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 4050-2, *Aerospace series — Test method for metallic materials — Ultrasonic inspection of bars, plates, forging stock and forgings — Part 2: Performance of test*. 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 4700-2, *Aerospace series — Steel and heat resisting alloys — Wrought products — Technical specification — Part 2: Bar and section*. ¹⁾

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

EN 4628:2007 (E)

1	Material designation		Steel FE-PM 3504 (X4CrNiMo16-5-1)									
2	Chemical composition %	Element	C	Si	Mn	p ^b	s ^b	N	Cr	Mo	Ni	Fe
		min.	–	–	–	–	–	≥ 0,020	15,00	0,80	4,00	Base
		max.	0,06	0,70	1,50	0,030	0,005		17,00	1,50	6,00	
3	Method of melting		Air melted									
4.1	Form		Bar									
4.2	Method of production		–									
4.3	Limit dimension(s)	mm	$D_e \leq 150$ mm									
5	Technical specification		EN 4700-2									

6.1	Delivery condition		Annealed				Hardened and tempered				
	Heat treatment		–				1 010 °C ≤ θ ≤ 1 060 °C / OQ or WQ ^b + Tempered 375 °C ≤ θ ≤ 405 °C				
6.2	Delivery condition code		W				U				
7	Use condition		Hardened and tempered				Hardened and tempered				
	Heat treatment		1 010 °C ≤ θ ≤ 1 060 °C / OQ or WQ ^b + Tempered 375 °C ≤ θ ≤ 405 °C				Delivery condition				

Characteristics

iTeh STANDARD PREVIEW
(standards.iteh.ai)

8.1	Test sample(s)		–				–				
8.2	Test piece(s)		–				–				
8.3	Heat treatment		Annealed				Delivery condition				
9	Dimensions concerned	mm	$D_e \leq 150$				$D_e \leq 75$		$75 \leq D_e \leq 150$		
10	Thickness of cladding on each face	%	–				–		–		
11	Direction of test piece		–				L		LT		
12	Temperature	θ	°C		Ambient				Ambient		Ambient
13	Proof stress	R _{p0,2}	MPa		–				≥ 900		≥ 900
14	T Strength	R _m	MPa		–				1 100 / 1 300		1 100 / 1 300
15	Elongation	A	%		–				≥ 14		≥ 8
16	Reduction of area	Z	%		–				–		–
17	Hardness		≤ 293 HB				341 ≤ HB ≤ 401		341 ≤ HB ≤ 401		
18	Shear strength	R _c	MPa		–				–		–
19	Bending	k	–		–				–		–
20	Impact strength	KV	J	–				≥ 100 J at 20 °C Notch direction T		≥ 50 J at 20 °C Notch direction L	
				–				≥ 50 J at – 40 °C Notch direction T		≥ 20 J at – 40 °C Notch direction L	
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)		a, b								

30	Microstructure	–	See EN 4700-2.
		7	The δ ferrite content shall not exceed 5 %
34	Grain size	–	See EN 4700-2.
		7	G = 5 or finer
44	External defects	–	See EN 4700-2.
50	Cleanliness/inclusion content (micro cleanness)	–	See EN 4700-2.
		7	EN 2951 category 2.
61	Internal defects	–	See EN 4700-2.
		7	EN 4050-2
<p>iTeh STANDARD PREVIEW (standards.iteh.ai)</p> <p>SIST EN 4628:2008 https://standards.iteh.ai/catalog/standards/sist/1dc02cb0-ac0f-402e-ba31-3da3d8333963/sist-en-4628-2008</p>			
95	Marking inspection	–	See EN 4700-2.
96	Dimensional inspection	–	See EN 4700-2.
98	Notes	–	<p>^a For specific welding applications (e.g. high power beam), and after agreement between manufacturer and purchaser, S+P should be inferior or equal to 0,023 %.</p> <p>^b Air quenching may be used for $D_e \leq 20$ mm.</p>
99	Typical use	–	–

100	-	Product qualification	-	See EN 2043.
				Qualification programme to be agreed between manufacturer and purchaser.
<p>iTeh STANDARD PREVIEW (standards.iteh.ai)</p> <p>SIST EN 4628:2008 https://standards.iteh.ai/catalog/standards/sist/1dc02cb0-ac0f-402e-ba31-3da3d8333963/sist-en-4628-2008</p>				