SLOVENSKI STANDARD
SIST EN 4264:2020

01-maj-2020

Aeronavtika - Toplotno odporna zlitina X4NiCrMoTi43-13 - Toplotno neobdelana (nekovana) - Kovni material - a ali D ≤ 200 mm

Aerospace series - Heat resisting alloy X4NiCrMoTi43-13 - As forged - Forging stock - a or D ≤ 200 mm

Luft- und Raumfahrt - Hochwarmfeste Legierung X4NiCrMoTi43-13 - Nicht wärmebehandelt - Schmiedevormaterial - a oder D ≤ 200 mm

Série aérospatiale - Alliage résistant à chaud X4NiCrMoTi43-13 - Brut de forge - Produits destinés à la forge - a ou D ≤ 200 mm

Ta slovenski standard je istoveten z: **EN 4264:2020**

ICS:

49.025.05	Železove zlitine na splošno	Ferrous alloys in general

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EUROPEAN STANDARD

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English Version

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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 4264:2020) 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of an identical text or by endorsement, at the latest by August 2020, and conflicting national standards shall be withdrawn at the latest by August 2020.

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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 4500-003.

1 Scope

This document specifies the requirements relating to:

Heat resisting alloy X4NiCrMoTi43-13
As forged
Forging stock
a or *D* ≤ 200 mm

for aerospace applications.

ASD-STAN designation: FE-PA2501.

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 2043, *Aerospace series — Metallic materials — General requirements for semi-finished product qualification (excluding forgings and castings)*

EN 2860-2, *Aerospace series — Heat resisting alloys — Forging stock and forgings — Technical specification — Part 2: Forging stock* [1)]

EN 2957, *Aerospace series — Method of preparation of forged samples* [1)]

3 Terms and definitions

No terms and definitions are listed in this document.

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

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

4 Requirements

See Table 1.

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

Table 1 — Heat resisting alloy X4NiCrMoTi43-13

1	Material designation		Heat resisting alloy X4NiCrMoTi43-13																
2	Chemical composition %	Element	C	Si	Mn	P	S	Al	B	Co	Cr	Cu	Mo	Ti	Ag	Bi	Pb	Ni + Co	Fe
		min.	0,020	—	—	—	—	—	0,010	—	11,0	—	5,00	2,80	—	—	—	40,0	Base
		max.	0,060	0,40	0,50	0,020	0,020	0,35	0,020	1,00	14,0	0,20	6,50	3,10	5*	1*	10*	45,0	
3	Method of melting		Consumable electrode remelted																
4.1	Form		Forging stock																
4.2	Method of production		—																
4.3	Limit dimension(s)	mm	a or $D \leq 200$																
5	Technical specification		See EN 2860-2.																

6.1	Delivery condition	As forged
	Heat treatment	—
6.2	Delivery condition code	*U*
7	Use condition	Delivery condition
	Heat treatment	—

Characteristics

8.1	Test sample(s)				Prepared in accordance with EN 2957
8.2	Test piece(s)				—
8.3	Heat treatment				See line 29.
9	Dimensions concerned			mm	a or $D \leq 200$
10	Thickness of cladding on each face			%	—
11	Direction of test piece				See EN 2860-2.
12	T	Temperature	θ	°C	Ambient
13	T	Proof stress	$R_{p0,2}$	MPa	≥ 820
14	T	Strength	R_m	MPa	≥ 1 140
15	T	Elongation	A	%	≥ 10
16	T	Reduction of area	Z	%	≥ 15
17	Hardness		HB		≥ 341
18	Shear strength		R_c	MPa	—
19	Bending		k	—	—
20	Impact strength				—
21	C	Temperature	θ	°C	650 [a]
22	C	Time		h	$t_R \geq 23$
23	C	Stress	σ_a	MPa	—
24	C	Elongation	a	%	—
25	C	Rupture stress	σ_R	MPa	≥ 620
26	C	Elongation at rupture	A	%	≥ 4
27	Notes (see line 98)				*, a

29	Reference heat treatment	—	Solution and precipitation treated θ = 1 090 °C ± 15 °C/t ≥ 2 h/AC or faster + θ = 770 °C ± 10 °C / 2 h ≤ t ≤ 4 h/AC + θ = 720 °C ± 10 °C/t = 24 h/AC
44	External imperfections visual testing (VT)	—	See EN 2860-2.
51	Macrostructure	—	See EN 2860-2.
		7	To be defined on the order
61	Internal imperfections ultrasonic testing (UT)	—	See EN 2860-2.
		7	Single discontinuity 2 mm, multiple discontinuity 2 mm.
95	Marking inspection	—	See EN 2860-2.
96	Dimensional inspection	—	See EN 2860-2.
98	Notes	—	* p.p.m a Proportional round test pieces
99	Typical use	—	—

100	—	Product qualification	—	See EN 2043.
				Qualification programme to be agreed between manufacturer and purchaser.