
Aeronavtika - Toplotno odporna zlitina X6NiCrTiMoV26-15 (1.4980) - Popuščana in hladno obdelana - Žice za kovane vezne elemente - $D \leq 15 \text{ mm}$ - $900 \text{ MPa} \leq R_m \leq 1100 \text{ MPa}$

Aerospace series - Heat resisting alloy X6NiCrTiMoV26-15 (1.4980) - Softened and cold worked - Wires for forged fasteners - $D \leq 15 \text{ mm}$ - $900 \text{ MPa} \leq R_m \leq 1100 \text{ MPa}$

Luft- und Raumfahrt - Hochwarmfeste Legierung FE-PA2601, weichgeglÄ¼ht und kaltverfestigt; Draht zum Stauchen fÄ¼r Verbindungselemente $D < \text{kleiner} \Rightarrow 15 \text{ mm}$, $900 \text{ MPa} < \text{kleiner} \Rightarrow R < (\text{Index})_m > < \text{kleiner} \Rightarrow 1100 \text{ MPa}$

Série aérospatiale - Alliage résistant à chaud FE-PA2601 - Adouci et écroui - Fils pour éléments de fixation forgés - $D \leq 15 \text{ mm}$ - $900 \text{ MPa} \leq R_m \leq 1100 \text{ MPa}$

Ta slovenski standard je istoveten z: EN 3639:2021

ICS:

49.025.05 Železove zlitine na splošno Ferrous alloys in general

SIST EN 3639:2021

en,fr,de

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EUROPEAN STANDARD

EN 3639

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2021

ICS 49.025.05

English Version

**Aerospace series - Heat resisting alloy X6NiCrTiMoV26-15
(1.4980) - Softened and cold worked - Wires for forged
fasteners - $D \leq 15$ mm - $900 \text{ MPa} \leq R_m \leq 1\,100 \text{ MPa}$**

Série aérospatiale - Alliage résistant à chaud
X6NiCrTiMoV26-15 (1.4980) - Adouci et écroui - Fils
pour éléments de fixation forgés - $D \leq 15$ mm - 900
MPa $\leq R_m \leq 1\,100$ MPa

Luft- und Raumfahrt - Hochwarmfeste Legierung
X6NiCrTiMoV26-15 (1.4980) - Weichgegluht und
kaltverfestigt - Drähte zum Stauchen für
Verbindungselemente - $D \leq 15$ mm - $900 \text{ MPa} \leq R_m \leq 1\,100$ MPa

This European Standard was approved by CEN on 17 February 2020.

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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 3639:2021) 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 document 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 document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2021, and conflicting national standards shall be withdrawn at the latest by September 2021.

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 document: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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EN 3639:2021 (E)

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.

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1 Scope

This document specifies the requirements relating to:

Heat-resisting alloy X6NiCrTiMoV26-15 (1.4980)
Softened and cold worked
Wires for forged fasteners
 $D \leq 15$ mm
 $900 \text{ MPa} \leq R_m \leq 1\,100 \text{ MPa}$

for aerospace applications.

W.nr: 1.4980.

ASD-STAN designation: FE-PA2601.

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 4700-004, *Aerospace series — Steel and heat resisting alloys — Wrought products — Technical specification — Part 004: Wire*

3 Terms and definitions (standards.iteh.ai)

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.

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Table 1 — Requirements for heat-resisting alloy X6NiCrTiMoV26-15 (1.4980)

1	Material designation	Heat-resisting alloy X6NiCrTiMoV26-15 (1.4980)															
2	Chemical composition %	Element	C	Si	Mn	P	S	Al	B	Cr	Mo	Ni	Pb	Ti	V	Fe	
		min.	—	—	—	—	—	—	—	30*	13,5	1,0	24,0	—	1,9	0,10	Base
		max.	0,08	1,0	2,0	0,020	0,015	0,35	100*	16,0	1,5	27,0	50*	2,3	0,50		
3	Method of melting	Air melted or vacuum induction melted and consumable electrode remelted (vacuum or slag)															
4.1	Form	Wires for forged fasteners															
4.2	Method of production	Cold worked															
4.3	Limit dimension(s)	mm	$D \leq 15$														
5	Technical specification	See EN 4700-004.															

6.1	Delivery condition	Softened and cold worked														
	Heat treatment	900 °C/t = 1 h/AC or faster +15 % ≤ cold worked ≤ 25 % at $\theta \leq 870$ °C														
6.2	Delivery condition code	U														
7	Use condition	Delivery condition														
	Heat treatment	—														

Characteristics

8.1	Test sample(s)	Cut from bar					Cut from bar											
8.2	Test piece(s)	—																
8.3	Heat treatment	Delivery condition										See line 29						
9	Dimensions concerned	mm	$D \leq 15$										$D \leq 15$					
10	Thickness of cladding on each face	%	—										—					
11	Direction of test piece	—										—						
12	Temperature	θ	°C	—										Ambient				
13	Proof stress	$R_{p0,2}$	MPa	—										≥ 590				
14	T Strength	R_m	MPa	—										$900 \leq R_m \leq 1\ 100$				
15	Elongation	A	%	—										≥ 13				
16	Reduction of area	Z	%	—										≥ 20				
17	Hardness	HB	≤ 277										$248 \leq HB \leq 341$					
18	Shear strength	R_c	MPa	—										—				
19	Bending	k	—	—										—				
20	Impact strength	—																
21	Temperature	θ	°C	—										650				
22	Time	h		—										≥ 23				
23	Stress	σ_a	MPa	—										-				
24	C Elongation	a	%	—										-				
25	Rupture stress	σ_R	MPa	—										480 ^{a, b}				
26	Elongation at rupture	A	%	—										≥ 4				
27	Notes (see line 98)	*, a, b																

29	Reference heat treatment	—	Solution treated and precipitation treated Delivery condition +980 °C/t = 1 h/OQ or faster +720 °C/t = 16 h/AC
34	Grain size	—	See EN 4700-004.
		2	1 per batch
		3	<i>L</i> and <i>LT</i>
		7	5 or finer – No duplex structure
44	External imperfections (visual testing – VT)	—	See EN 4700-004.
		1	Visual testing (VT)
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97	Designation	—	—
98	Notes	—	* ppm a Proportional round test piece b Stress may be increased after 48 h to promote rupture
99	Typical use	—	—

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