SLOVENSKI STANDARD
SIST EN 3460:2019

01-september-2019

Aeronavtika - Titan TI-P99002 - Žarjen - Palice za obdelavo - a ali D ≤ 150 mm - Rm ≥ 390 MPa

Aerospace series - Titanium TI-P99002 - Annealed - Bar for machining - a or D ≤ 150 mm - Rm ≥ 390 MPa

Luft- und Raumfahrt - Titan TI-P99002 - Geglüht - Stangen zum Zerspanen - a oder D ≤ 150 mm - Rm ≥ 390 MPa

Série aérospatiale - Titane TI-P99002 - Recuit - Barres pour usinage - a ou D ≤ 150 mm - Rm ≥ 390 MPa

Ta slovenski standard je istoveten z: **EN 3460:2019**

ICS:

49.025.30	Titan	Titanium

SIST EN 3460:2019	**en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 3460

June 2019

ICS 49.025.30

English Version

Aerospace series - Titanium TI-P99002 - Annealed - Bar for machining - a or D ≤ 150 mm - Rm ≥ 390 MPa

Série aérospatiale - Titane TI-P99002 - Recuit - Barres pour usinage - a ou D ≤ 150 mm - Rm ≥ 390 MPa

Luft- und Raumfahrt - Titan TI-P99002 - Geglüht - Stangen zum Zerspanen - a oder D ≤ 150 mm - Rm ≥ 390 MPa

This European Standard was approved by CEN on 26 June 2017.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN 3460:2019 E

Contents

Page

European foreword 3
Introduction 4
1 Scope 5
2 Normative references 5
3 Terms and definitions 5
4 Requirements 5

European foreword

This document (EN 3460:2019) 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 December 2019, and conflicting national standards shall be withdrawn at the latest by December 2019.

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

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 4500-004.

1 Scope

This document specifies the requirements relating to:

Titanium TI-P99002
Annealed
Bar for machining
a or $D \leq 150$ mm
$R_m \geq 390$ MPa

for aerospace applications.

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 4258, *Aerospace series — Metallic materials — General organization of standardization — Links between types of EN standards and their use*

EN 4500-004, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 004: Specific rules for titanium and titanium alloys*

EN 4800-002, *Aerospace series — Titanium and titanium alloys — Technical specification — Part 002: Bar and section*

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:

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

4 Requirements

Table 1 shows the requirements for titanium TI-P99002 — Annealed — Bar for machining.

Table 1 — Requirements for titanium TI-P99002 — Annealed — Bar for machining

-	Material designation			Titanium TI-P99002							
2	Chemical composition %	Element		O_2	N_2	H_2	Fe	C	Others [a]		Ti
									Each	Total	
		min.		–	–	–	–	–	–	–	Base
		max.		0,25	0,05	0,0125	0,25	0,08	0,10	0,60	
3	Method of melting			See EN 4800-002.							
4.1	Form			Bar for machining							
4.2	Method of production			–							
4.3	Limit dimension(s)		mm	a or $D \leq 150$							
5	Technical specification			EN 4800-002							

6.1	Delivery condition	Annealed
	Heat treatment	600 °C ≤ θ ≤ 800 °C / t ≥ 30 min / AC or cooled in inert atmosphere
6.2	Delivery condition code	U
7	Use condition	Delivery condition
	Heat treatment	–

Characteristics

8.1	Test sample(s)				See EN 4800-002.
8.2	Test piece(s)				See EN 4800-002.
8.3	Heat treatment				Use condition
9	Dimensions concerned			mm	–
10	Thickness of cladding on each face			%	–
11	Direction of test piece				See EN 4800-002.
12	T	Temperature	θ	°C	Ambient
13		Proof stress	$R_{p0,2}$	MPa	≥ 290
14		Strength	R_m	MPa	≥ 390
15		Elongation	A	%	≥ 20
16		Reduction of area	Z	%	≥ 30
17	Hardness				–
18	Shear strength		R_c	MPa	–
19	Bending		k	–	–
20	Impact strength				–
21	C	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

44	External discontinuities	–	See EN 4800-002.	
		1	Visual testing	
61	Internal defects	–	See EN 4800-002.	
		7	a or $D \leq 100$ mm	100 mm < a or $D \leq 150$ mm
		–	Class 5	Class 4
95	Marking inspection	–	See EN 4800-002.	
96	Dimensional inspection	–	See EN 4800-002.	
98	Notes	–	[a] Determination not required for routine acceptance.	
	Typical use	–	–	