



SLOVENSKI STANDARD

SIST EN 2704:2016

01-februar-2016

Aeronavtika - Aluminijeva zlitina AL-P2024 - AlCu4Mg1 - T3511 - Vlečene palice - De ≤ 75 mm

Aerospace series - Aluminium alloy AL-P2024 - AlCu4Mg1 - T3511 - Drawn bars - De ≤ 75 mm

Luft- und Raumfahrt - Aluminiumlegierung AL-P2024 - AlCu4Mg1 - T3511 - Gezogene Stangen - De ≤ 75 mm

Série aérospatiale - Alliage d'aluminium AL-P2024 - AlCu4Mg1 - T3511 - Barres étirées - De ≤ 75 mm

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Ta slovenski standard je istoveten z: EN 2704:2015

ICS:

49.025.20 Aluminij

Aluminium

SIST EN 2704:2016

en,fr,de

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 2704

November 2015

ICS 49.025.20

English Version

**Aerospace series - Aluminium alloy AL-P2024 - AlCu4Mg1
- T3511 - Drawn bars - $De \leq 75$ mm**

Série aérospatiale - Alliage d'aluminium AL-P2024 -
AlCu4Mg1 - T3511 - Barres étirées - $De \leq 75$ mm

Luft- und Raumfahrt - Aluminiumlegierung AL-P2024 -
AlCu4Mg1 - T3511 - Gezogene Stangen - $De \leq 75$ mm

This European Standard was approved by CEN on 14 March 2013.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 2704:2015) 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 May 2016, and conflicting national standards shall be withdrawn at the latest by May 2016.

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, 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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EN 2704:2015 (E)

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 4500-2.

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1 Scope

This standard specifies the requirements relating to:

Aluminium alloy AL-P2024
AlCu4Mg1
T3511
Drawn bar
 $D_e \leq 75$ mm

for aerospace applications.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies..

EN 2004-1, *Aerospace series — Test methods for aluminium and aluminium alloy products — Part 1: Determination of electrical conductivity of wrought aluminium alloys products*

EN 4050-4, *Aerospace series — Test method for metallic materials — Ultrasonic inspection of bars, plates, forging stock and forgings — Part 4: Acceptance criteria*

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

EN 4400-3, *Aerospace series — Aluminium and aluminium alloy wrought products — Technical specification — Part 3: Bar and section*¹⁾

EN 4500-2, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 2: Specific rules for aluminium, aluminium alloys and magnesium alloys*¹⁾

¹⁾ Published as ASD-STAN Prestandard at the date of publication of this standard (www.asd-stan.org).

EN 2704:2015 (E)

1	Material designation		Aluminium alloy AL-P2024 — AlCu4Mg1 - T3511											
2	Chemical composition %	Element	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Zr + Ti	Others		Al
		min.	-	-	3,8	0,30	1,2	-	-	-	-	-	-	
		max.	0,50	0,50	4,9	0,9	1,8	0,10	0,25	0,15	0,20	0,05	0,15	
3	Method of melting		-											
4.1	Form		Bar											
4.2	Method of production		Drawn											
4.3	Limit dimension(s)	mm	$D_e \leq 75$											
5	Technical specification		EN 4400-3											

6.1	Delivery condition		T3511											
	Heat treatment		Solution treated $490\text{ °C} \leq \theta \leq 500\text{ °C}$ / WQ $\theta \leq 40\text{ °C}$ + 1,5 % \leq controlled stretched $\leq 3\%$ + minor straightening permitted + $\theta = \text{ambient}$ / $t \geq 5\text{ d}$											
6.2	Delivery condition code		U											
7	Use condition		T3511											
	Heat treatment		Delivery condition											

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Characteristics
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8.1	Test sample(s)		See EN 4400-3.											
8.2	Test piece(s)		See EN 4400-3.											
8.3	Heat treatment		T3511											
9	Dimensions concerned	mm	$D_e \leq 75$											
10	Thickness of cladding on each face	%	-											
11	Direction of test piece		L											
12	Temperature	θ	°C	Ambient										
13	Proof stress	$R_{p0,2}$	MPa	≥ 315										
14	T Strength	R_m	MPa	≥ 440										
15	Elongation	A	%	$\geq 13^a$										
16	Reduction of area	Z	%											
17	Hardness	HBW	-	120 (for information)										
18	Shear strength	R_C	MPa	-										
19	Bending	k	-	-										
20	Impact	K	J	-										
21	Temperature	θ	°C	-										
22	Time	t	h	-										
23	C Stress	σ_a	MPa	-										
24	Elongation	a	%	-										
25	Rupture stress	σ_R	MPa	-										
26	Elongation at rupture	A	%	-										
27	Notes (see line 98)		a											

32	Electrical conductivity	-	EN 4400-3
		1	See EN 2004-1.
		7	$17 \text{ MS/m} \leq \gamma \leq 20 \text{ MS/m}$
44	External defects	-	EN 4400-3
61	Internal defects	-	EN 4400-3
		1	See EN 4050-4.
		7	Class 3
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95	Marking inspection	-	EN 4400-3
96	Dimensional inspection	-	EN 4400-3
98	Notes	-	^a $A_{50 \text{ mm}} \geq 12 \%$ for thicknesses $D_e \leq 10 \text{ mm}$.
99	Typical use	-	-