



**SLOVENSKI STANDARD**  
**SIST EN 4725:2015**

**01-februar-2015**

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**Aeronavtika - Aluminijeva zlitina AL-P2024- Al Cu4Mg1 - T351 - Plošče - 6 mm < a ≤ 150 mm**

Aerospace series - Aluminium alloy AL-P2024- Al Cu4Mg1 - T351 - Plate - 6 mm < a ≤ 150 mm

Luft- und Raumfahrt - Aluminiumlegierung AL-P2024- Al Cu4Mg1 - T351 - Platten - 6 mm < a ≤ 150 mm

Série aérospatiale - Alliage d'aluminium AL-P2024- Al Cu4Mg1 - T351 - Tôles épaisses - 6 mm < a ≤ 150 mm

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**Ta slovenski standard je istoveten z: EN 4725:2014**

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**ICS:**

49.025.20      Aluminij

Aluminium

**SIST EN 4725:2015**

**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 4725**

November 2014

ICS 49.025.20

English Version

**Aerospace series - Aluminium alloy AL-P2024- Al Cu4Mg1 -  
T351 - Plate - 6 mm < a ≤ 150 mm**

Série aérospatiale - Alliage d'aluminium AL-P2024- Al  
Cu4Mg1 - T351 - Tôles épaisses - 6 mm < a ≤ 150 mm

Luft- und Raumfahrt - Aluminiumlegierung AL-P2024- Al  
Cu4Mg1 - T351 - Platten - 6 mm < a ≤ 150 mm

This European Standard was approved by CEN on 28 June 2014.

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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## Foreword

This document (EN 4725:2014) 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 2015, and conflicting national standards shall be withdrawn at the latest by May 2015.

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 4725:2014 (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 European Standard specifies the requirements relating to:

Aluminium alloy AL-P2024- Al Cu4Mg1  
T351  
Plate  
 $6 \text{ mm} < a \leq 150 \text{ mm}$

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 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 4400-1, *Aerospace series — Aluminium and aluminium alloy wrought products — Technical specification — Part 1: Plate*<sup>1)</sup>

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*<sup>1)</sup>

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<sup>1)</sup> Published as ASD-STAN Prestandard at the date of publication of this standard. (<http://www.asd-stan.org/>)

## EN 4725:2014 (E)

1	Material designation		Aluminium alloy AL-P2024- Al Cu4Mg1 – T351										
2	Chemical composition %	Element	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others		Al
											Each	Total	
		min.	–	–	3,8	0,30	1,2	–	–	–	–	–	–
max.	0,50	0,50	4,9	0,9	1,8	0,10	0,25	0,15	0,05	0,15			
3	Method of melting		–										
4.1	Form		Plate										
4.2	Method of production		Rolled										
4.3	Limit dimension(s)	mm	6 < a ≤ 150										
5	Technical specification		EN 4400-1										

6.1	Delivery condition		T351									
	Heat treatment		490 °C ≤ θ ≤ 500 °C / WQ θ ≤ 40 °C + 1,5 % ≤ controlled stretched ≤ 3 % + age at room temperature t ≥ 5 days									
6.2	Delivery condition code		U									
7	Use condition		T351									
	Heat treatment		Delivery condition									

Characteristics												
8.1	Test sample(s)		See EN 4400-1.									
8.2	Test piece(s)		See EN 4400-1.									
8.3	Heat treatment		Use condition									

9	Dimensions concerned	mm	6 < a ≤ 10			10 < a ≤ 25			25 < a ≤ 40			40 < a ≤ 60		
10	Thickness of cladding on each face	%	–			–			–			–		
11	Direction of test piece		L	LT	L	LT	L	LT	ST	L	LT	ST		
12	Temperature	θ °C	Ambient			Ambient			Ambient			Ambient		
13	Proof stress	R <sub>p0,2</sub> MPa	≥ 325	≥ 290	≥ 325	≥ 290	≥ 325	≥ 300	≥ 260	≥ 325	≥ 300	≥ 270		
14	Strength	R <sub>m</sub> MPa	≥ 450	≥ 440	≥ 430	≥ 430	≥ 430	≥ 430	≥ 380	≥ 430	≥ 420	≥ 380		
15	Elongation	A %	≥ 12	≥ 12	≥ 12	≥ 12	≥ 12	≥ 10	≥ 4	≥ 10	≥ 8	≥ 4		
16	Reduction of area	Z %	–											

continued

9	Dimensions concerned	mm	60 < a ≤ 80			80 < a ≤ 100			100 < a ≤ 120			120 < a ≤ 150		
10	Thickness of cladding on each face	%	–			–			–			–		
11	Direction of test piece		L	LT	ST	L	LT	ST	L	LT	ST	LT		
12	Temperature	θ °C	Ambient			Ambient			Ambient			Ambient		
13	Proof stress	R <sub>p0,2</sub> MPa	≥ 325	≥ 300	≥ 260	≥ 310	≥ 280	≥ 260	≥ 300	≥ 270	≥ 245	≥ 262		
14	Strength	R <sub>m</sub> MPa	≥ 425	≥ 415	≥ 360	≥ 420	≥ 400	≥ 360	≥ 380	≥ 380	≥ 350	≥ 379		
15	Elongation	A %	≥ 10	≥ 7	≥ 4	≥ 9	≥ 7	≥ 3,5	≥ 8	≥ 7	≥ 3	≥ 4		
16	Reduction of area	Z %	–											

17	Hardness	HBW	120 for information only									
18	Shear strength	R <sub>c</sub> MPa	–									
19	Bending	k	–									
20	Impact strength		–									
21	Temperature	θ °C	–									
22	Time	h	–									
23	Stress	σ <sub>a</sub> MPa	–									
24	Elongation	a %	–									
25	Rupture stress	σ <sub>R</sub> MPa	–									
26	Elongation at rupture	A %	–									
27	Notes (see line 98)		–									

32	Electrical conductivity	–	See EN 4400-1.	
		7	$\gamma \leq 19,5 \text{ MS/m}$	Acceptable
44	External defects	–	See EN 4400-1.	
61	Internal defects	–	See EN 4400-1.	
		7	EN 4050-4 – Class 3 for $12 \text{ mm} \leq a \leq 80 \text{ mm}$ and Class 2 for $a > 80 \text{ mm}$	
82	Batch uniformity (Material verification)	–	See EN 4400-1.	
		1	Electrical conductivity	
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95	Marking inspection	–	See EN 4400-1.	
96	Dimensional inspection	–	See EN 4400-1.	
98	Notes	–	–	
99	Typical use	–	–	