SLOVENSKI STANDARD
SIST EN 2511:2005

01-november-2005

Aerospace series - Aluminium alloy AL-P7075-T7351 - Plate -6 mm <a <100 mm

Aerospace series - Aluminium alloy AL-P7075-T7351 - Plate -6 mm <a <100 mm

Luft- und Raumfahrt - Aluminiumlegierung AL-P7075-T7351 - Platten -6 mm <a <100 mm

Série aérospatiale - Alliage d'aluminium AL-P7075-T7351 - Tôles épaisses -6 mm <a <100 mm

Ta slovenski standard je istoveten z: **EN 2511:2005**

ICS:

49.025.20	Aluminij	Aluminium

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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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Foreword

This document (EN 2511:2005) has been prepared by the European Association of Aerospace Manufacturers - Standardization (AECMA-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 AECMA, 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of an identical text or by endorsement, at the latest by December 2005, and conflicting national standards shall be withdrawn at the latest by December 2005.

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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.

1 Scope

This standard specifies the requirements relating to:

Aluminium alloy AL-P7075-
T7351
Plate
6 mm < *a* ≤ 100 mm

for aerospace application.

2 Normative references

The following referenced documents are indispensable for the application 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 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.* [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 AECMA Prestandard at the date of publication of this standard.

EN 2511:2005 (E)

1	Material designation		Aluminium alloy AL-P7075-										
2	Chemical composition %	Element	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others		Al
											Each	Total	
		min.	–	–	1,2	–	2,1	0,18	5,1	–	–	–	Base
		max.	0,40	0,50	2,0	0,30	2,9	0,28	6,1	0,20	0,05	0,15	
3	Method of melting		–										
4.1	Form		Plate										
4.2	Method of production		Rolled										
4.3	Limit dimension(s)	mm	$6 < a \leq 100$										
5	Technical specification		EN 4400-1										

6.1	Delivery condition	W51	T7351
	Heat treatment	460 °C ≤ θ ≤ 500 °C / WQ θ ≤ 40 °C + 1,5 % ≤ controlled stretched ≤ 3 %	460 °C ≤ θ ≤ 500 °C / WQ θ ≤ 40 °C + 1,5 % ≤ controlled stretched ≤ 3 % + 100 °C ≤ θ ≤ 135 °C / 3 h ≤ t ≤ 24 h [a] + 155 °C ≤ θ ≤ 175 °C / 8 h ≤ t ≤ 30 h [a]
6.2	Delivery condition code	W	U
7	Use condition	T7351	T7351
	Heat treatment	Delivery condition + 100 °C ≤ θ ≤ 135 °C / 3 h ≤ t ≤ 24 h [a] + 155 °C ≤ θ ≤ 175 °C / 8 h ≤ t ≤ 30 h [a]	Delivery condition

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	$6 < a \leq 12,5$			$12,5 < a \leq 25$			$25 < a \leq 40$			
10	Thickness of cladding on each face		%	–			–			–			
11	Direction of test piece			L	LT		L	LT		L	LT	ST	
12	T	Temperature	θ	°C	Ambient			Ambient			Ambient		
13		Proof stress	$R_{p0,2}$	MPa	≥ 390	≥ 390		≥ 390	≥ 390		≥ 390	≥ 390	≥ 360
14		Strength	R_m	MPa	≥ 480	≥ 480		≥ 480	≥ 480		≥ 470	≥ 470	≥ 440
15		Elongation	A	%	$A_{50\ mm}$ ≥ 7	$A_{50\ mm}$ ≥ 7		≥ 7	≥ 7		≥ 6	≥ 6	≥ 3,5 [b]
16		Reduction of area	Z	%	–								

continued

9	Dimensions concerned		mm	$40 < a \leq 60$			$60 < a \leq 80$			$80 < a \leq 100$			
10	Thickness of cladding on each face		%	–			–			–			
11	Direction of test piece			L	LT	ST	L	LT	ST	L	LT	ST	
12	T	Temperature	θ	°C	Ambient			Ambient			Ambient		
13		Proof stress	$R_{p0,2}$	MPa	≥ 370	≥ 370	≥ 340	≥ 350	≥ 350	≥ 330	≥ 340	≥ 340	≥ 320
14		Strength	R_m	MPa	≥ 460	≥ 460	≥ 430	≥ 440	≥ 440	≥ 420	≥ 430	≥ 430	≥ 410
15		Elongation	A	%	≥ 6	≥ 6	≥ 3,5 [b]	≥ 6	≥ 6	≥ 3,5 [b]	≥ 6	≥ 6	≥ 3,5 [b]
16		Reduction of area	Z	%	–								
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, b]								

32	Electrical conductivity	–	See EN 4400-1.	
		7	$\gamma \geq 23{,}0$ MS/m	Acceptable
			22,0 MS/m $\leq \gamma <$ 23,0 MS/m	Acceptable if $R_{p0,2}$ LT $\leq R_{p0,2}$ min. LT + 85 MPa (see line 13) or if stress corrosion test results (see line 39) are acceptable.
			$\gamma <$ 22,0 MS/m	Not acceptable
39	Stress corrosion	–	See EN 4400-1.	
		6	$\sigma = 75$ % $R_{p0,2}$ min. LT	
		7	t ≥ 20 d	
44	External defects	–	See EN 4400-1.	
61	Internal defects	–	See EN 4400-1.	
82	Batch uniformity	–	See EN 4400-1.	
95	Marking inspection	–	See EN 4400-1.	
96	Dimensional inspection	–	See EN 4400-1.	
98	Notes	–	[a] Artificial ageing may be carried out using the following alternative single stage method: heating to a temperature of 155 °C $\leq \theta \leq$ 175 °C at a rate not exceeding 20 °C / h and soaking at this temperature for 8 h $\leq t \leq$ 30 h. [b] Or $A_{4D} \geq 4$ if required by the purchaser.	
99	Typical use	–	–	

100	–	Product qualification	–	See EN 4400-1.
				Qualification programme to be agreed between manufacturer and purchaser.