



SLOVENSKI STANDARD
oSIST prEN 2087:2023

01-september-2023

Aeronavtika - Aluminijeva zlitina AL-P2014A - T6 ali T62 - Pločevine in trakovi, platirani - $0,4 \text{ mm} \leq a \leq 6 \text{ mm}$

Aerospace series - Aluminium alloy AL-P2014A - T6 or T62 - Clad sheet and strip - $0,4 \text{ mm} \leq a \leq 6 \text{ mm}$

Luft- und Raumfahrt - Aluminiumlegierung AL-P2014A - T6 oder T62 - Bleche und Bänder, plattiert - $0,4 \text{ mm} \leq a \leq 6 \text{ mm}$

Série aérospatiale - Alliage d'aluminium AL-P2014A - T6 ou T62 - Tôles et bandes plaquées - $0,4 \text{ mm} \leq a \leq 6 \text{ mm}$

Ta slovenski standard je istoveten z: prEN 2087

ICS:

49.025.20 Aluminij Aluminium

oSIST prEN 2087:2023 **en,fr,de**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 2087

June 2023

ICS 49.025.20

Will supersede EN 2087:2005

English Version

Aerospace series - Aluminium alloy AL-P2014A - T6 or T62 - Clad sheet and strip - $0,4 \text{ mm} \leq a \leq 6 \text{ mm}$

Série aérospatiale - Alliage d'aluminium AL-P2014A -
T6 ou T62 - Tôles et bandes plaquées - $0,4 \text{ mm} \leq a \leq 6$
mm

Luft- und Raumfahrt - Aluminiumlegierung AL-P2014A
- T6 oder T62 - Bleche und Bänder, plattiert - $0,4 \text{ mm} \leq$
 $a \leq 6 \text{ mm}$

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee ASD-STAN.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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

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European foreword

This document (prEN 2087:2023) 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-STAN, prior to its presentation to CEN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 2087:2005.

The main changes with respect to the previous edition are as follows:

- EN 2087 (P2), 10/2005 — Editorial improvements and update of Clause 2 “Normative references”.
- Correction of a typo in Table 1, line 2, as the max. value for Zr + Ti is meant to be 0,20 rather than 0,02.
- Addition of Annex A “Standard evolution form”. Addition of a bibliography.

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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 4500-2.

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1 Scope

This document specifies the requirements relating to:

Aluminium alloy AL-P2014A
T6 or T62
Clad sheet and strip
 $0,4 \text{ mm} \leq a \leq 6 \text{ mm}$

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 4400-2, *Aerospace series - Aluminium and aluminium- and magnesium- alloys - Technical specification - Part 2: Aluminium and aluminium alloy sheet and strip*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

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

4 Requirements

See Table 1.

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Table 1 — Requirements for aluminium alloy AL-P2014A

1	Material designation		Aluminium alloy AL-P2014A												
2	Chemical composition %	Element	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Zr + Ti	Others		Al
		min.	0,50	—	3,9	0,40	0,20	—	—	—	—	—	—	—	Base
		max.	0,90	0,50	5,0	1,20	0,80	0,10	0,10	0,25	0,15	0,20	0,05	0,15	
3	Method of melting		—												
4.1	Form		Clad sheet and strip												
4.2	Method of production		Rolled												
4.3	Limit dimension(s)	mm	$0,4 \leq a \leq 6$												
5	Technical specification		EN 4400-2												

6.1	Delivery condition	F			T4			T6		
	Heat treatment	—			500 °C ≤ θ ≤ 510 °C/WQ θ ≤ 40 °C + θ = ambient/t ≥ 5 d			500 °C ≤ θ ≤ 510 °C/WQ θ ≤ 40 °C +157 °C ≤ θ ≤ 163 °C/18 h ≤ t ≤ 22 h or +170 °C ≤ θ ≤ 180 °C/7 h ≤ t ≤ 12 h		
6.2	Delivery condition code	F			K			U		
7	Use condition	T62			T6			T6		
	Heat treatment	Delivery condition +500 °C ≤ θ ≤ 510 °C/WQ θ ≤ 40 °C +157 °C ≤ θ ≤ 163 °C/18 h ≤ t ≤ 22 h or +170 °C ≤ θ ≤ 180 °C/7 h ≤ t ≤ 12 h			Delivery condition +157 °C ≤ θ ≤ 163 °C/18 h ≤ t ≤ 22 h or +170 °C ≤ θ ≤ 180 °C/7 h ≤ t ≤ 12 h			Delivery condition		

Characteristics

8.1	Test sample(s)		According to EN 4400-2.											
8.2	Test piece(s)		According to EN 4400-2.											
8.3	Heat treatment		Delivery condition: T4						Use condition: T6 or T62					
9	Dimensions concerned	mm	$0,4 \leq a \leq 1,6$	$1,6 \leq a \leq 3,2$	$3,2 < a \leq 6$	$0,4 \leq a \leq 0,8$	$0,8 < a \leq 1,6$	$1,6 < a \leq 6$						
10	Thickness of cladding on each face	%	≥ 4	≥ 2	≥ 2	≥ 4	≥ 4	≥ 2						
11	Direction of test piece		—	—	—	LT	LT	LT						
12	Temperature	θ	°C	—	—	—	Ambient	Ambient	Ambient					
13	Proof stress	$R_{p0,2}$	MPa	—	—	—	≥ 345	≥ 345	≥ 355					
14	Strength	R_m	MPa	—	—	—	≥ 415	≥ 420	≥ 420					
15	Elongation	A	%	—	—	—	A50 mm ≥ 7	A50 mm ≥ 7	A50 mm ≥ 8					
16	Reduction of area	Z	%	—										
17	Hardness		—											
18	Shear strength	R_c	MPa	—										
19	Bending	k	—	1,5 ; $\alpha = 180^\circ$	1,5 ; $\alpha = 180^\circ$	2 ; $\alpha = 180^\circ$	—							
20	Impact strength		—											
21	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)		—											

44	External imperfections	—	According to EN 4400-2.									
62	Diffusion in the cladding	—	According to EN 4400-2.									
72	Cladding chemical composition %	Material designation	Aluminium AL-P1050A									
		Element	Si	Fe	Cu	Mn	Mg	Zn	Ti	Others		Al
										Each	Total	
		min.	—	—	—	—	—	—	—	—	—	99,50
		max.	0,25	0,40	0,05	0,05	0,05	0,07	0,05	0,03	—	—
		or as an alternative, if agreed between manufacturer and purchaser										
		Material designation	Aluminium AL-P1145									
		Element	Si + Fe	Cu	Mn	Mg	Zn	V	Ti	Others		Al
										Each	Total	
		min.	—	—	—	—	—	—	—	—	—	99,45
max.	0,55	0,05	0,05	0,05	0,05	0,05	0,03	0,03	—	—		
82	Batch uniformity	—	According to EN 4400-2.									
		5	—			T4			T6			
		7	Electrical conductivity			According to EN 4400-2.			According to EN 4400-2.			
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95	Marking inspection	—	According to EN 4400-2.									
96	Dimensional inspection	—	According to EN 4400-2.									
98	Notes	—	—									
99	Typical use	—	—									

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100	-	Product qualification	—	According to EN 4400-2. The qualification programme shall be agreed between manufacturer and purchaser.
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