



**SLOVENSKI STANDARD**  
**SIST EN 4204:2005**

**01-december-2005**

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**Aerospace series - Aluminium alloy AL-P8090 - T841 - Sheet - 0,6 mm <or= a <or= 6 mm**

Aerospace series - Aluminium alloy AL-P8090 - T841 - Sheet - 0,6 mm <or= a <or= 6 mm

Luft- und Raumfahrt - Aluminiumlegierung AL-P8090 - T841 - Bleche - 0,6 mm <or= a <or= 6 mm

Série aérospatiale - Alliage d'aluminium AL-P8090 - T841 - Tôles - 0,6 mm <or= a <or= 6 mm

*SIST EN 4204:2005*  
*https://standards.iteh.ai/catalog/standards/sist/e679c051-0d7f-415c-870f-2eb7329e6d53/sist-en-4204-2005*

**Ta slovenski standard je istoveten z: EN 4204:2005**

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**ICS:**

49.025.20      Aluminij                                      Aluminium

**SIST EN 4204:2005**                                      **en**

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EUROPEAN STANDARD

EN 4204

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2005

ICS 49.025.20

English Version

**Aerospace series - Aluminium alloy AL-P8090 - T841 - Sheet -  
0,6 mm ≤ a ≤ 6 mm**Série aérospatiale - Alliage d'aluminium AL-P8090 - T841 -  
Tôles - 0,6 mm ≤ a ≤ 6 mmLuft- und Raumfahrt - Aluminiumlegierung AL-P8090 - T841  
- Bleche - 0,6 mm ≤ a ≤ 6 mm

This European Standard was approved by CEN on 22 April 2005.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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## Foreword

This document (EN 4204:2005) 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 February 2006, and conflicting national standards shall be withdrawn at the latest by February 2006.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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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-P8090-  
T841  
Sheet  
 $0,6 \text{ mm} \leq a \leq 6 \text{ mm}$

for aerospace applications.

## 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. [SIST EN 4204:2005](https://standards.iteh.ai/catalog/standards/sist/e679c051-0d7f-413c-870f-2001529c05381-014204-2005)

<https://standards.iteh.ai/catalog/standards/sist/e679c051-0d7f-413c-870f-2001529c05381-014204-2005>  
EN 4258, *Aerospace series — Metallic materials — General organization of standardization — Links between types of EN standards and their use.*

EN 4400-2, *Aerospace series — Aluminium and aluminium alloy wrought products — Technical specification — Part 2: Sheet and strip.* <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 AECMA Prestandard at the date of publication of this standard.

1	Material designation		Aluminium alloy AL-P8090-												
2	Chemical composition %	Element	Si	Fe	Cu	Mn	Mg	Cr	Zn	Li	Zr	Ti	Others		Al
													Each	Total	
		min.	–	–	1,0	–	0,6	–	–	–	2,2	0,04	–	–	–
max.	0,20	0,30	1,6	0,10	1,3	0,10	0,25	2,7	0,16	0,10	0,05 <sup>a</sup>	0,15			
3	Method of melting		–												
4.1	Form		Sheet												
4.2	Method of production		Rolled												
4.3	Limit dimension(s)	mm	0,6 ≤ a ≤ 6												
5	Technical specification		EN 4400-2												

6.1	Delivery condition	T451	T841
	Heat treatment	525 °C ≤ θ ≤ 535 °C / WQ θ ≤ 40 °C + 1,75 % ≤ controlled stretched ≤ 2,25 % + θ = ambient / t ≥ 5 d	525 °C ≤ θ ≤ 535 °C / WQ θ ≤ 40 °C + 1,75 % ≤ controlled stretched ≤ 2,25 % + 142 °C ≤ θ ≤ 148 °C / 23 h ≤ t ≤ 25 h
6.2	Delivery condition code	K	U
7	Use condition	T841	T841
	Heat treatment	Delivery condition + 142 °C ≤ θ ≤ 148 °C / 23 h ≤ t ≤ 25 h	Delivery condition

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Characteristics

8.1	Test sample(s)		See EN 4400-2.													
8.2	Test piece(s)		See EN 4400-2. <a href="https://standards.iteh.ai/catalog/standards/sist/e679c051-0d7f-413c-870f-2eb7329e6d53/sist-en-4204-2005">https://standards.iteh.ai/catalog/standards/sist/e679c051-0d7f-413c-870f-2eb7329e6d53/sist-en-4204-2005</a>													
8.3	Heat treatment		Use condition.													
9	Dimensions concerned	mm	0,6 ≤ a ≤ 6													
10	Thickness of cladding on each face	%	–													
11	Direction of test piece		LT													
12	Temperature	θ	°C	Ambient												
13	Proof stress	R <sub>p0.2</sub>	MPa	≥ 270												
14	T	Strength	R <sub>m</sub>	MPa	≥ 405											
15	Elongation	A	%	A <sub>50 mm</sub> ≥ 8												
16	Reduction of area	Z	%	–												
17	Hardness		–													
18	Shear strength	R <sub>c</sub>	MPa	–												
19	Bending	k	–	–												
20	Impact strength		–													
21	Temperature	θ	°C	–												
22	Time		h	–												
23	C	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)		a													

## EN 4204:2005 (E)

30	Microstructure	–	See EN 4400-2.				
		3	$a \leq 4 \text{ mm}$		$4 \text{ mm} < a \leq 6 \text{ mm}$		
		7	Microstructure shall be fully recrystallized		The degree of recrystallization shall be subject to agreement between the manufacturer and purchaser		
40	Fracture toughness ( $K_{IC}$ )	–	See EN 4400-2.				
		3	T-L				
		7	$\geq 100 \text{ MPa} \sqrt{\text{m}}$				
44	External defects	–	See EN 4400-2.				
49	Exfoliation corrosion	–	See EN 4400-2.				
		6	$t = 48 \text{ h}$				
		7	Exfoliation corrosion shall not be greater than that of grade EB				
68	Density	–	See EN 4400-2.				
		7	$\rho \leq 2,56 \text{ kg dm}^{-3}$				
82	Batch uniformity	–	See EN 4400-2.				
		5	–		T451	T841	
		7	Electrical conductivity	$\gamma$	MS/m	8,5 (Typical value)	10,5 (Typical value)
			or				
				–		95 (Typical value)	115 (Typical value)
			Hardness	$\delta$	HB	$\leq 20$ per product	$\leq 20$ per product
	$\Delta$		$\leq 30$ per batch	$\leq 30$ per batch			
<p>SIST EN 4204:2005</p> <p><a href="https://standards.iteh.ai/catalog/standards/sist/e679c051-0d7f-413c-870f-2eb7329e6d53/sist-en-4204-2005">https://standards.iteh.ai/catalog/standards/sist/e679c051-0d7f-413c-870f-2eb7329e6d53/sist-en-4204-2005</a></p>							
95	Marking inspection	–	See EN 4400-2.				
96	Dimensional inspection	–	See EN 4400-2.				
98	Notes	–	<sup>a</sup> Na $\leq 10$ p.p.m., Ca $\leq 120$ p.p.m.				
99	Typical use	–	–				