

**Aluminium alloy  
AL-P7050 — T74511 —  
Extruded bar and  
section —  
a or D  $\leq$  150 mm with  
peripheral coarse grain  
control**

The European Standard EN 3338:2005 has the status of a  
British Standard

ICS 49.025.20

## National foreword

This British Standard is the official English language version of EN 3338:2005.

The UK participation in its preparation was entrusted by Technical Committee ACE/61, Metallic materials for aerospace purposes, to Subcommittee ACE/61/-/24, Light alloys, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep UK interests informed;
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### Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 7 and a back cover.

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English Version

**Aerospace series - Aluminium alloy AL-P7050 - T74511 -  
Extruded bar and section - a or D ≤ 150 mm with peripheral  
coarse grain control**

Série aérospatiale - Alliage d'aluminium AL-P7050 -  
T74511 - Barres et profilés filés - a ou D ≤ 150 mm avec  
contrôle de la zone périphérique à gros grains

Luft- und Raumfahrt - Aluminiumlegierung AL-P7050 -  
T74511 - Stranggepresste Stangen und Profile - a oder D ≤  
150 mm mit Kontrolle der Grobkommandzone

This European Standard was approved by CEN on 19 September 2005.

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## Foreword

This European Standard (EN 3338:2005) 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of an identical text or by endorsement, at the latest by April 2006, and conflicting national standards shall be withdrawn at the latest by April 2006.

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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-P7050-  
T74511  
Extruded bar and section  
 $a$  or  $D \leq 150$  mm  
with peripheral coarse grain control

for aerospace applications.

This standard may also be used to supply material in the T74510 condition if specified by the purchaser on the order and the product is marked accordingly.

## 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 4400-3, *Aerospace series — Aluminium and aluminium alloy wrought products — Technical specification — Part 3: Bar and section.* <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-P7050-											
2	Chemical composition %	Element	Si	Fe	Cu	Mn	Mg	Cr	Zn	Zr	Ti	Others		Al
												Each	Total	
		min.	–	–	2,0	–	1,9	–	5,7	0,08	–	–	–	Base
max.	0,12	0,15	2,6	0,10	2,6	0,04	6,7	0,15	0,06	0,05	0,15			
3	Method of melting		–											
4.1	Form		Bar and section											
4.2	Method of production		Extruded											
4.3	Limit dimension(s)	mm	$a$ or $D \leq 150$											
5	Technical specification		EN 4400-3											

6.1	Delivery condition		T74511										
	Heat treatment		470 °C $\leq \theta \leq$ 485 °C / WQ $\theta \leq$ 40 °C + 1 % $\leq$ controlled stretched $\leq$ 3 % + 105 °C $\leq \theta \leq$ 125 °C / 6 h $\leq t \leq$ 24 h + 167 °C $\leq \theta \leq$ 180 °C / 6 h $\leq t \leq$ 16 h										
6.2	Delivery condition code		U										
7	Use condition		T74511										
	Heat treatment		Delivery condition										

## Characteristics

8.1	Test sample(s)		See EN 4400-3.												
8.2	Test piece(s)		See EN 4400-3.												
8.3	Heat treatment		Use condition												
9	Dimensions concerned	mm	$a$ or $D \leq 150$												
10	Thickness of cladding on each face	%	–												
11	Direction of test piece		L												
12	Temperature	$\theta$	°C	Ambient											
13	T	Proof stress	$R_{p0,2}$	MPa	$\geq 435$										
14		Strength	$R_m$	MPa	$\geq 505$										
15		Elongation	A	%	A or $A_{60mm} \geq 7$										
16	Reduction of area	Z	%	–											
17	Hardness		–												
18	Shear strength	$R_c$	MPa	–											
19	Bending	k	–	–											
20	Impact strength		–												
21	Temperature	$\theta$	°C	–											
22	Time		h	–											
23	C	Stress	$\sigma_b$	MPa	–										
24		Elongation	a	%	–										
25		Rupture stress	$\sigma_R$	MPa	–										
26		Elongation at rupture	A	%	–										
27	Notes (see line 98)		–												

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32	Electrical conductivity	-	See EN 4400-3.			
		7	$\gamma \geq 23,0$ MS/m		Acceptable	
			$22,0$ MS/m $\leq \gamma \leq 23,0$ MS/m		Acceptable if $R_{p0.2} L \leq 495$ MPa or if stress corrosion test results are acceptable (see line 39).	
			$\gamma < 22,0$ MS/m		Not acceptable	
39	Stress corrosion	-	See EN 4400-3.			
		6	$\sigma = 240$ MPa			
		7	$t \geq 20$ d			
40	Fracture toughness	-	See EN 4400-3.			
		7	Dimensions (mm)	L-T MPa $\sqrt{m}$	T-L MPa $\sqrt{m}$	
			$25 < a$ or $D \leq 50$	$\geq 28$	$\geq 24$	
			$50 < a$ or $D \leq 100$	$\geq 27$	$\geq 22$	
	$100 < a$ or $D \leq 150$	$\geq 26$	$\geq 21$			
44	External defects	-	See EN 4400-3.			
49	Exfoliation corrosion	-	See EN 4400-3.			
		7	Exfoliation corrosion shall not be greater than that of grade EB.			
61	Internal defects	-	See EN 4400-3.			
82	Batch uniformity	-	See EN 4400-3.			
		7	Electrical conductivity	$\gamma$	MS/m	23,5 (Typical value)
			or			
		7	Hardness	HB	145 (Typical value)	
$\delta \leq 20$ per product	$\Delta \leq 30$ per batch					
87	Extrusion back-end defect	-	See EN 4400-3.			
88	Peripheral coarse grain	-	See EN 4400-3.			
		7	Level A			
95	Marking inspection	-	See EN 4400-3.			
96	Dimensional inspection	-	See EN 4400-3.			
98	Notes	-	-			
99	Typical use	-	-			



100	-	Product qualification	-	See EN 4400-3.
				Qualification programme to be agreed between manufacturer and purchaser.

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