SLOVENSKI STANDARD
SIST EN 3333:2005

01-november-2005

Aerospace series - Aluminium alloy AL-P7475-T762 - Sheet and strip - 0,6 mm <a <6 mm

Aerospace series - Aluminium alloy AL-P7475-T762 - Sheet and strip - 0,6 mm <a <6 mm

Luft- und Raumfahrt - Aluminiumlegierung AL-P7475-T762 - Bleche und Bänder - 0,6 mm <a <6 mm

Série aérospatiale - Alliage d'aluminium AL-P7475-T762 - Tôles et bandes - 0,6 mm <a <6 mm

Ta slovenski standard je istoveten z: **EN 3333:2005**

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49.025.20	Aluminij	Aluminium

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EUROPEAN STANDARD

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English version

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

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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 3333:2005) 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of an identical text or by endorsement, at the latest by December 2005, and conflicting national standards shall be withdrawn at the latest by December 2005.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-P7475-
T762
Sheet and strip
0,6 mm ≤ *a* ≤ 6 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 4400-2, *Aerospace series — Aluminium and aluminium alloy wrought products — Technical specification — Part 2: Sheet and strip.* [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.

1	Material designation		Aluminium alloy AL-P7475-										
2	Chemical composition %	Element	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others		Al
											Each	Total	
		min.	–	–	1,2	–	1,9	0,18	5,2	–	–	–	Base
		max.	0,10	0,12	1,9	0,06	2,6	0,25	6,2	0,06	0,05	0,15	
3	Method of melting		–										
4.1	Form		Sheet and strip										
4.2	Method of production		Rolled										
4.3	Limit dimension(s)	mm	$0,6 \le a \le 6$										
5	Technical specification		EN 4400-2										

6.1	Delivery condition	F	O	T761
	Heat treatment	–	–	+ 460 °C ≤ θ ≤ 485 °C [a] / WQ θ ≤ 40 °C + 115 °C ≤ θ ≤ 125 °C / 3 h ≤ t ≤ 6 h + 158 °C ≤ θ ≤ 178 °C / 14 h ≤ t ≤ 70 h
6.2	Delivery condition code	F	A	P
7	Use condition	T762		
	Heat treatment	Delivery condition + 460 °C ≤ θ ≤ 485 °C [b] / WQ θ ≤ 40 °C + 115 °C ≤ θ ≤ 125 °C / 3 h ≤ t ≤ 6 h + 158 °C ≤ θ ≤ 178 °C / 14 h ≤ t ≤ 70 h		

Characteristics

8.1	Test sample(s)			See EN 4400-2.						
8.2	Test piece(s)			See EN 4400-2.						
8.3	Heat treatment			Delivery condition: O				Use condition: T762 [c]		
9	Dimensions concerned		mm	$0,6 \le a \le 1,6$	$1,6 < a \le 2,3$	$2,3 < a \le 3,2$	$3,2 < a \le 6$	$0,6 \le a \le 1,0$	$1,0 < a \le 6$	
10	Thickness of cladding on each face		%	–				–		
11	Direction of test piece			LT				LT		
12	T	Temperature	θ °C	Ambient				Ambient		
13		Proof stress	$R_{p0,2}$ MPa	≤ 137	≤ 137		≤ 144	≥ 410		
14		Strength	R_m MPa	≤ 248	≤ 262		≤ 268	≥ 490		
15		Elongation	A %	$A_{50\ mm} \ge 10$				$A_{50\ mm} \ge 7$	$A_{50\ mm} \ge 9$	
16		Reduction of area	Z %	–				–		
17	Hardness			–				–		
19	Bending		k –	1: $\alpha = 180°$	1,5: $\alpha = 180°$	2: $\alpha = 180°$	2,5: $\alpha = 180°$	–		
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, c						

32	Electrical conductivity	–	See EN 4400-2.	
		7	$\gamma \geq 22{,}7$ MS/m	Acceptable
			22,0 MS/m $\leq \gamma <$ 22,7 MS/m	Acceptable if $R_{p0,2} \leq 470$ MPa and/or if exfoliation corrosion tests meet the acceptance criteria: see line 49.
			$\gamma <$ 22,0 MS/m	Not acceptable
40	Fracture toughness (K_c)	–	See EN 4400-2.	
		5	T762 [c]	
		7	Dimensions (mm)	T-L MPa $\sqrt{m}$
			$1{,}0 \leq a \leq 3{,}2$	≥ 95
			$3{,}2 < a \leq 6$	≥ 85
44	External defects	–	See EN 4400-2.	
47	Notch/yield ratio ($R_e/R_{p0,2}$)	–	See EN 4400-2.	
49	Exfoliation corrosion	–	See EN 4400-2.	
		2	The "capability clause" shall apply unless testing is required to determine acceptance: see line 32. In that case, frequency of testing shall be agreed between the manufacturer and purchaser.	
		7	Exfoliation corrosion shall not be greater than that of grade EB.	
95	Marking inspection	–	See EN 4400-2.	
96	Dimensional inspection	–	See EN 4400-2.	
98	Notes	–	[a] This temperature range may be extended to 525 °C (particularly to facilitate the use of a continuous solution heat treatment furnace) with the proviso that appropriate prior homogenisation heat treatments are applied to the rolling ingot and/or sheet/strip to avoid incipient melting (overheating). [b] It is recommended that material in the O delivery condition shall not be formed, stretched and/or straightened in excess of approximately 3 % before solution heat treatment, in order to avoid the development of coarse grain. [c] Due to possible problems of test piece distortion after solution heat treatment and quenching by the purchaser, fracture toughness tests may be carried out on material in the T761 condition, in which case tensile tests shall be carried out in both T761 and T762 tempers. However, although T761 and T762 properties should be similar, it should be recognised that the latter may be affected by the purchaser's processing and practices and, accordingly, T762 properties cannot be guaranteed by the manufacturer.	
99	Typical use	–	–	

100	–	Product qualification	–	See EN 4400-2.
				Qualification programme to be agreed between manufacturer and purchaser.