SLOVENSKI STANDARD
SIST EN 2633:2001

01-januar-2001

Aerospace series - Aluminium alloy AL-P2024-T3511 - Extruded bars and sections 1,2 mm <= a or D <= 150 mm with peripheral coarse grain control

Aerospace series - Aluminium alloy AL-P2024-T3511 - Extruded bars and sections 1,2 mm <= a or D <= 150 mm with peripheral coarse grain control

Luft- und Raumfahrt - Aluminiumlegierung AL-P2024-T3511 - Stranggepreßte Stangen und Profile 1,2 mm <= a oder D <= 150 mm mit Kontrolle der Grobkornrandzone

Série aérospatiale - Alliage d'aluminium AL-P2024-T3511 - Barres et profilés filés 1,2 mm <= a ou D <= 150 mm avec contrôle de la zone périphérique a gros grains

Ta slovenski standard je istoveten z: **EN 2633:1993**

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English version

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Série aérospatiale - Alliage d'aluminium AL-P2024-T3511 - Barres et profilés filés 1,2 mm ⩽ a ou D ⩽ 150 mm avec contrôle de la zone périphérique à gros grains

Luft- und Raumfahrt - Aluminiumlegierung AL-P2024-T3511 - Stranggepreßte Stangen und Profile 1,2 mm ⩽ a oder D ⩽ 150 mm mit Kontrolle der Grobkornrandzone

This European Standard was approved by CEN on 1993-12-06. 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.

The European Standards exist 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.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart,36 B-1050 Brussels

Foreword

This European Standard has been prepared by the European Association of Aerospace Manufacturers (AECMA).

After inquiries and votes carried out in accordance with the rules of this Association, this Standard has successively received the approval of the National Associations and the Official Services of the member countries of AECMA, prior to its presentation to CEN.

This standard was submitted for Formal Vote, and the result was positive.

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 June 1994, and conflicting national standards shall be withdrawn at the latest by June 1994.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

0 Introduction

For the use of this standard, see EN 2500-2.

1 Scope

This standard specifies the requirements relating to extruded bars and sections in aluminium alloy, AL-P2024-, for use in the T3511 condition, 1,2 mm ≤ a or D ≤ 150 mm, with peripheral coarse grain control, for aerospace applications.

This standard may also be used to supply material in the T3510 condition, if the purchaser specifies this conditions on the order. In this case the designation of line 97 shall not be used.

2 Normative References

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 2047	Beaded L- section aluminium alloy extrusions - Dimensions - Aerospace series [1]
EN 2048	L- section aluminium alloy extrusions - Dimensions - Aerospace series [1]
EN 2049	Channel section aluminium alloy extrusions - Dimensions -Aerospace series [1]
EN 2050	T- section aluminium alloy extrusions - Dimensions - Aerospace series [1]
EN 2070-3	Aerospace series - Aluminium and aluminium alloy wrought products - Technical specification - Part 3: Bar and section
EN 2134	Round aluminium alloy bars - Extruded - Dimensions - Aerospace series [1]
EN 2341	Aluminium and aluminium alloy square and rectangular extruded bars - Dimensions - Aerospace series [1]
EN 2500-2	Aerospace series - Instructions for the drafting and use of metallic material standards - Part 2: Specific requirements for aluminium, aluminium alloys and magnesium alloys [2]
EN 2600	Aerospace series - Designation of metallic semi-finished products - Rules [2]

1) Published as AECMA Standard at the date of publication of this standard
2) Published as AECMA Prestandard at the date of publication of this standard

1	Material designation		Aluminium alloy AL-P2024-										
2	Chemical composition %	Element	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti+Zr	Ti	Others	Al
												Each / Total	
		min.	-	-	3,8	0,30	1,2	-	-	-	-	- / -	Base
		max.	0,50	0,50	4,9	0,9	1,8	0,10	0,25	0,20	0,15	0,05 / 0,15	
3	Method of melting		-										
4	Form Method of production Limit dimensions (mm)		Bars and sections Extruded 1,2 ≤ a or D ≤ 150										
5	5.1 Technical specification		EN 2070-3										
	5.2 Dimensional standards		EN 2047, EN 2048, EN 2049, EN 2050, EN 2134, EN 2341										

6	6.1 Delivery condition and heat treatment	T3511 490°C ≤ θ ≤ 500°C / WQ θ ≤ 40°C + 1 % ≤ stretched ≤ 3 % and minor straightening allowable + θ = ambient / t ≥ 5 d
	6.2 Delivery condition code	U
7	Use condition and heat treatment	T3511 Delivery condition

					Characteristics					
8	Sample Test piece Heat treatment				-					
					Use condition: T3511					
9	Dimensions concerned			mm	1,2 ≤ a ≤ 2,0	2,0 < a ≤ 10	10 < a or D ≤ 25	25 < a or D ≤ 75	75 < a or D ≤ 100	100 < a or D ≤ 150 [1]
10	Thickness of cladding on each face			%	-					
11	Direction of test piece				L					
12	T	Temperature	θ	°C	Ambient					
13		Proof stress	$R_{p0,2}$	MPa	≥ 330	≥ 340	≥ 340	≥ 350	≥ 345	≥ 325
14		Strength	R_m	MPa	≥ 440	≥ 460	≥ 460	≥ 480	≥ 470	≥ 450
15		Elongation	A	%	≥ 12 [2]	≥ 11 [3]	≥ 10	≥ 10	≥ 10	≥ 8
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)				1), 2), 3)					

44	External defects	-	See EN 2070-3		
51	Macrostructure	7	Back end defects: see EN 2070-3 Peripheral coarse grain: level A		
61	Internal defects	-	See EN 2070-3		
82	Batch uniformity	-	See EN 2070-3		
		7	Electrical conductivity	γ = 18 MS/m (typical value)	
		or			
		7	Hardness	120 HB (typical value)	
				$\delta \leq 16$ HB per product	$\Delta \leq 24$ HB per batch
97	Designation	-	For extruded bars, see EN 2600. For extruded sections, see relevant drawing.		
98	Notes	-	1) Bar only 2) or $A_{50\ mm} \geq 11$ % 3) or $A_{50\ mm} \geq 10$ %		
99	Typical use	-	-		