



SLOVENSKI STANDARD
SIST EN 2319:2018

01-oktober-2018

Aeronavtika - Aluminijeva zlitina 2024- - T3510 - Vlečene palice - a ≤ 75 mm

Aerospace series - Aluminium alloy 2024- - T3510 - Drawn bar - a ≤ 75 mm

Luft- und Raumfahrt - Aluminiumlegierung 2024- - T3510 - Gezogene Stangen - a ≤ 75 mm

Série aérospatiale - Alliage d'aluminium 2024- - T3510 - Barres étirées - a ≤ 75 mm

STANDARD PREVIEW
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Ta slovenski standard je istoveten z: EN 2319:2018

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ICS:

49.025.20 Aluminij

Aluminium

SIST EN 2319:2018

en,fr,de

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 2319

July 2018

ICS 49.025.20

English Version

**Aerospace series - Aluminium alloy 2024- - T3510 - Drawn
bar - a ≤ 75 mm**

Série aérospatiale - Alliage d'aluminium 2024- - T3510
- Barres étirées - a ≤ 75 mm

Luft- und Raumfahrt - Aluminiumlegierung 2024- -
T3510 - Gezogene Stangen - a ≤ 75 mm

This European Standard was approved by CEN on 13 May 2018.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

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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 (EN 2319:2018) 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 Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, 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 January 2019, and conflicting national standards shall be withdrawn at the latest by January 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN 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, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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EN 2319:2018 (E)

Introduction

This European 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 European Standard has been prepared in accordance with EN 4500-2.

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1 Scope

This European Standard specifies the requirements relating to:

Aluminium alloy 2024-
T3510
Drawn bar
 $a \leq 75$ 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 2004-1, *Aerospace series — Test methods for aluminium and aluminium alloy products — Part 1: Determination of electrical conductivity of wrought aluminium alloy products*

EN 2044, *Aerospace series — Round bars, drawn in aluminium and aluminium alloys — Tolerance class h11 — Diameter $4 \text{ mm} \leq D \leq 63 \text{ mm}$ — Dimensions*

EN 2045, *Aerospace series — Square bars, drawn in aluminium and aluminium alloys — Tolerance class h11 — Thickness $6 \text{ mm} \leq a \leq 50 \text{ mm}$ — Dimensions*

EN 2046, *Aerospace series — Hexagonal bars, drawn in aluminium and aluminium alloys — Tolerance class h11 — Width across flats $7 \text{ mm} \leq a \leq 50 \text{ mm}$ — Dimensions*

EN 2070-1, *Aerospace series — Aluminium and aluminium alloy wrought products — Technical specification — Part 1: General requirements*

EN 2070-3, *Aerospace series — Aluminium and aluminium alloy wrought products — Technical specification — Part 3: Bar and section*

EN 4258, *Aerospace series — Metallic materials — General organization of standardization — Links between types of EN standards and their use*

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⁾

3 Terms and definitions

No terms and definitions are listed in this document.

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

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

4 Requirements

See Table 1.

1) Published as ASD-STAN Prestandard at the date of publication of this standard by AeroSpace and Defence industries Association of Europe - Standardization (ASD-STAN) (www.asd-stan.org)

EN 2319:2018 (E)

Table 1 — Requirements for aluminium alloy 2024-

1	Material designation		Aluminium alloy 2024-												
2	Chemical composition %	Element	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ti+Zr	Others		Al
													Each	Total	
		min.	-	-	3,8	0,30	1,2	-	-	-	-	-	-	-	-
max.	0,50	0,50	4,9	0,9	1,8	0,10	-	0,25	0,15	0,20	0,05	0,15			
3	Method of melting		-												
4.1	Form		Bar												
4.2	Method of production		Drawn												
4.3	Limit dimension(s)	mm	$a \leq 75$												
5	Technical specification		EN 2070-1 and 2070-3 EN 2044 to EN 2046												

6.1	Delivery condition	T3510													
	Heat treatment	Solution treated 495 °C ± 5 °C / Water quench $\theta \leq 40$ °C + 1,5 ≤ controlled stretched ≤ 3 % / Straightening is not authorised after controlled stretching + Naturally aged $t \geq 5$ d													
6.2	Delivery condition code	-													
7	Use condition	T3510													
	Heat treatment	Delivery condition													

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8.1	Test sample(s)		-												
8.2	Test piece(s)		https://standards.iteh.ai/catalog/standards/sist/2f50e3ce-d112-4585-87e6-20b00d629847/sist-en-2319-T3510												
8.3	Heat treatment		T3510												
9	Dimensions concerned	mm	≤ 75												
10	Thickness of cladding on each face	%	-												
11	Direction of test piece		L												
12	Temperature	θ	°C	Ambient											
13	Proof stress	$R_{p0,2}$	MPa*	≥ 315											
14	T Strength	R_m	MPa*	≥ 440											
15	Elongation	A	%	$\geq 13^a$											
16	Reduction of area	Z	%	-											
17	Hardness	HB	-	120 (for information)											
18	Shear strength	R_c	MPa*	-											
19	Bending	k	-	-											
20	Impact strength		-												
21	Temperature	θ	°C	-											
22	Time		h	-											
23	C Stress	σ_a	MPa*	-											
24	Elongation	a	%	-											
25	Rupture stress	σ_R	MPa*	-											
26	Elongation at rupture	A	%	-											
27	Notes (see line 98)		*, a												

28	-			-	-
32	Electrical conductivity	γ	Ms/m	-	EN 2004-1
					$17 \leq \gamma \leq 20$: acceptable
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95	Marking inspection			-	-
96	Dimensional inspection			-	-
98	Notes			-	* 1 MPa = 1 N/mm ² . a $A_{50\text{mm}} \geq 12\%$ for thickness $a \leq 10$ mm.
99	Typical use			-	-