



SLOVENSKI STANDARD
SIST EN 3557:2023

01-marec-2023

**Aeronavtika - Aluminijeva zlitina AL-P6061-T4 - Vlečena cev za tlačno uporabo -
0,6 mm ≤ a ≤ 3 mm**

Aerospace series - Aluminium alloy AL-P6061-T4 - Drawn tube for pressure applications
- 0,6 mm ≤ a ≤ 3 mm

Luft- und Raumfahrt - Aluminiumlegierung AL-P6061-T4 - Gezogene Druckrohre - 0,6
mm ≤ a ≤ 3 mm

Série aérospatiale - Alliage d'aluminium AL-P6061-T4 - Tubes étirés pour applications
sous pression - 0,6 mm ≤ a ≤ 3 mm

Ta slovenski standard je istoveten z: EN 3557:2022

ICS:

49.025.20	Aluminij	Aluminium
77.150.10	Aluminijski izdelki	Aluminium products

SIST EN 3557:2023

en,fr,de

EUROPEAN STANDARD

EN 3557

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2022

ICS 49.025.20

English Version

Aerospace series - Aluminium alloy AL-P6061-T4 - Drawn tube for pressure applications - $0,6 \text{ mm} \leq a \leq 3 \text{ mm}$

Série aérospatiale - Alliage d'aluminium AL-P6061-T4 - Tubes étirés pour applications sous pression - $0,6 \text{ mm} \leq a \leq 3 \text{ mm}$

Luft- und Raumfahrt - Aluminiumlegierung AL-P6061-T4 - Gezogene Druckrohre - $0,6 \text{ mm} \leq a \leq 3 \text{ mm}$

This European Standard was approved by CEN on 24 July 2022.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.

<https://standards.iteh.ai/catalog/standards/sist/50fe47d9-f3a9-4f84-bd01-cde0094ee5e8/sist-en-3557-2023>



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword	3
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Requirements	5
Bibliography	9

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 3557:2023](https://standards.iteh.ai/catalog/standards/sist/50fe47d9-f3a9-4f84-bd01-cde0094ee5e8/sist-en-3557-2023)

<https://standards.iteh.ai/catalog/standards/sist/50fe47d9-f3a9-4f84-bd01-cde0094ee5e8/sist-en-3557-2023>

European foreword

This document (EN 3557:2022) 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 document has received the approval of the National Associations and the Official Services of the member countries of ASD-STAN, 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 June 2023, and conflicting national standards shall be withdrawn at the latest by June 2023.

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.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

[SIST EN 3557:2023](https://standards.iteh.ai/catalog/standards/sist/50fe47d9-f3a9-4f84-bd01-cde0094ee5e8/sist-en-3557-2023)

<https://standards.iteh.ai/catalog/standards/sist/50fe47d9-f3a9-4f84-bd01-cde0094ee5e8/sist-en-3557-2023>

EN 3557:2022 (E)

Introduction

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

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 3557:2023](https://standards.iteh.ai/catalog/standards/sist/50fe47d9-f3a9-4f84-bd01-cde0094ee5e8/sist-en-3557-2023)

<https://standards.iteh.ai/catalog/standards/sist/50fe47d9-f3a9-4f84-bd01-cde0094ee5e8/sist-en-3557-2023>

1 Scope

This document specifies the requirements relating to:

Aluminium alloy AL-P6061-T4
Drawn tube for pressure applications
 $0,6 \text{ mm} \leq a \leq 3 \text{ mm}$

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 2043, *Aerospace series — Metallic materials — General requirements for semi-finished product qualification (excluding forgings and castings)*

EN 2070-5, *Aerospace series — Aluminium and aluminium alloy wrought products — Technical specification — Part 5: Tube used under pressure*

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:

- ISO Online browsing platform: available at <https://www.iso.org/obp>

- IEC Electropedia: available at <https://www.electropedia.org/>

4 Requirements

According to Table 1.

Table 1 — Requirements for aluminium alloy AL-P6061-T4 — Drawn tube for pressure applications — $0,6 \text{ mm} \leq a \leq 3 \text{ mm}$

1	Material designation		Aluminium alloy AL-P6061-T4											
2	Chemical composition %	Element	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Ti + Zr	Others		Al
												Each	Total	
		min.	0,40	—	0,15	—	0,8	0,04	—	—	—	—	—	—
max.	0,8	0,7	0,40	0,15	1,2	0,35	0,25	0,15	0,15	0,05	0,15			
3	Method of melting		—											
4.1	Form		Tube											
4.2	Method of production		Drawn											
4.3	Limit dimension(s)	mm	$0,6 \leq a \leq 3$											
5	Technical specification		EN 2070-5											

6.1	Delivery condition		T4										
	Heat treatment		$530 \text{ °C} \leq \theta \leq 540 \text{ °C/WQ } \theta \leq 40 \text{ °C}$ $+ \theta = \text{ambient}/t \geq 5 \text{ d}$										
6.2	Delivery condition code		U										
7	Use condition		T4										
	Heat treatment		Delivery condition										

Characteristics

8.1	Test sample(s)		According to EN 2070-5.													
8.2	Test piece(s)		According to EN 2070-5.													
8.3	Heat treatment		Use condition					Use condition								
9	Dimensions concerned	mm	$0,6 \leq a \leq 1,2$					$1,2 < a \leq 3,0$								
10	Thickness of cladding on each face	%	—					—								
11	Direction of test piece		L					L								
12	T	Temperature	θ	°C		Ambient					Ambient					
13		Proof stress	$R_{p0,2}$	MPa		≥ 110					≥ 110					
14		Strength	R_m	MPa		≥ 205					≥ 205					
15		Elongation	A	%		$\geq 16^a$		$\geq 14^b$			$\geq 18^a$		$\geq 16^b$			
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)		a, b													

33	Flattening	—	According to EN 2070-5.
		6	$Z = 2a$
34	Grain size	—	According to EN 2070-5.
		7	$G \geq 4$
41	Flarability (Drift test)	—	According to EN 2070-5.
44	External imperfections - Visual testing (VT)	—	According to EN 2070-5.
54	Tube leakage (pressure test)	—	According to EN 2070-5.
		1	Pressure test
55	Deformation under pressure of tubes	—	According to EN 2070-5.
		2	The "capability clause" applies.
60	Internal cleanliness of hydraulic tubes	—	According to EN 2070-5.
64	Surface condition roughness	—	According to EN 2070-5.
82	Batch uniformity	—	According to EN 2070-5.
<p>iTeh STANDARD PREVIEW (standards.iteh.ai)</p> <p>SIST EN 3557:2023</p> <p>https://standards.iteh.ai/catalog/standards/sist/50fe47d9-f3a9-4f84-bd01-cde0094ee5e8/sist-en-3557-2023</p>			
95	Marking inspection	—	According to EN 2070-5.
96	Dimensional inspection	—	According to EN 2070-5.
98	Notes	a	Tube test piece.
		b	Strip test piece.
99	Typical use	—	—

EN 3557:2022 (E)

100	—	Product qualification	—	According to EN 2043.
				Qualification programme shall be agreed between manufacturer and purchaser.
<p>iTeh STANDARD PREVIEW (standards.iteh.ai)</p> <p><u>SIST EN 3557:2023</u> https://standards.iteh.ai/catalog/standards/sist/50fe47d9-f3a9-4f84-bd01-cde0094ee5e8/sist-en-3557-2023</p>				