
Aeronavtika - Aluminijeva zlitina 2014A- - T6 - Cevi za konstrukcije - $0,6 \text{ mm} \leq a \leq 12,5 \text{ mm}$

Aerospace series - Aluminium alloy 2014A- - T6 - Tubes for structures - $0,6 \text{ mm} \leq a \leq 12,5 \text{ mm}$

Luft- und Raumfahrt - Aluminiumlegierung 2014A- - T6 - Konstruktionsrohre - $0,6 \text{ mm} \leq a \leq 12,5 \text{ mm}$

Série aérospatiale - Alliage d'aluminium 2014A- - T6 - Tubes pour structures - $0,6 \text{ mm} \leq a \leq 12,5 \text{ mm}$

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Ta slovenski standard je istoveten z: EN 2387:2018

ICS:

49.025.20	Aluminij	Aluminium
49.045	Konstrukcija in konstrukcijski elementi	Structure and structure elements

SIST EN 2387:2018

en,fr,de

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EUROPEAN STANDARD

EN 2387

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2018

ICS 49.025.20

English Version

Aerospace series - Aluminium alloy 2014A- - T6 - Tubes for structures - $0,6 \text{ mm} \leq a \leq 12,5 \text{ mm}$

Série aérospatiale - Alliage d'aluminium 2014A- - T6 -
Tubes pour structures - $0,6 \text{ mm} \leq a \leq 12,5 \text{ mm}$

Luft- und Raumfahrt - Aluminiumlegierung 2014A- -
T6 - Konstruktionsrohre - $0,6 \text{ mm} \leq a \leq 12,5 \text{ mm}$

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 2387:2018) 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 the United Kingdom.

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EN 2387:2018 (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 2014A-
T6
Tubes for structures
 $0,6 \text{ mm} \leq a \leq 12,5 \text{ mm}$

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 2002-10, *Aerospace series — Metallic materials — Test methods — Part 10: Tube flattening test* ¹⁾

EN 2004-6, *Aerospace series — Test methods for aluminium and aluminium alloy products — Part 6: Residual stress testing in aluminium alloys tubes* ²⁾

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

EN 2070-4, *Aerospace series — Aluminium and aluminium alloy wrought products — Technical specification — Part 4: Tube for structures*

EN 2257, *Aerospace series — Circular tubes for structures in aluminium and aluminium alloys — Diameter $6 \text{ mm} \leq D \leq 100 \text{ mm}$ — Thickness $1 \text{ mm} \leq a \leq 6 \text{ mm}$ — Dimensions*

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)

2) In preparation at the date of publication of this standard.

EN 2387:2018 (E)

Table 1 — Requirements for Aluminium alloy 2014A-

1	Material designation	Aluminium alloy 2014 A-																								
2	Chemical composition %	Element	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ti+Zr	Others		Al											
			Each	Total																						
			min.	0,50	-	3,9	0,40	0,20	-	-	-	-	-	-	-	-	-	Rem.								
max.	0,9	0,50	5,0	1,2	0,8	0,10	0,10	0,25	0,15	0,20	0,05	0,15														
3	Method of melting	-																								
4.1	Form	Drawn tube																								
4.2	Method of production	-																								
4.3	Limit dimension(s)	mm	Wall thickness: $0,6 \text{ mm} \leq a \leq 12,5 \text{ mm}$																							
5	Technical specification	EN 2070-1 and EN 2070-4 EN 2257																								

6.1	Delivery condition	T6													
	Heat treatment	Solution treated $505 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$ / WQ $\theta \leq 40 \text{ }^\circ\text{C}$ + artificially aged $160 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$ / $12 \text{ h} \leq t \leq 20 \text{ h}$ or $175 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$ / $5 \text{ h} \leq t \leq 12 \text{ h}$ or $185 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$ / $3 \text{ h} \leq t \leq 6 \text{ h}$													
6.2	Delivery condition code	-													
7	Use condition	T6													
	Heat treatment	Delivery condition													

iTech STANDARD PREVIEW

Characteristics

8.1	Test sample(s)	(standards.itech.ai)																
8.2	Test piece(s)	-																
8.3	Heat treatment	https://standards.itech.ai/catalog/standards/sist/07e355af-4407-4870-9104-f219307a9a/sist-en-2387-2018																
9	Dimensions concerned	mm	$0,6 \leq a \leq 1,2$				$1,2 < a \leq 0,6$				$6 < a \leq 12,5$							
10	Thickness of cladding on each face	%	-															
11	Direction of test piece	L				L				L								
12	Temperature	θ	$^\circ\text{C}$		Ambient													
13	Proof stress	$R_{p0,2}$	MPa		≥ 370				≥ 370				≥ 370					
14	Strength	R_m	MPa		≥ 450				≥ 450				≥ 450					
15	Elongation	A	%		$A_{50\text{mm}} \geq 7^a$ $A_{50\text{mm}} \geq 6^b$				$A_{50\text{mm}} \geq 8^a$ $A_{50\text{mm}} \geq 7^b$				$A_{50\text{mm}} \geq 9^a$ $A_{50\text{mm}} \geq 8^b$					
16	Reduction of area	Z	%		-													
17	Hardness	145 (for information)																
18	Shear strength	R_c	MPa		-													
19	Bending	k	-		-													
20	Impact strength	-																
21	Temperature	θ	$^\circ\text{C}$		-													
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																

28	-	-	-
33	Flattening of tubes	-	EN 2002-10 $Z \leq 3 a$ (if required by order)
46	Fatigue	-	EN 2004-6 ^c
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95	Marking inspection	-	-
96	Dimensional inspection	-	-
98	Notes	-	^a Full section. ^b Cut-out section. ^c In preparation.
99	Typical use	-	-