



SLOVENSKI STANDARD

SIST EN 4292:2005

01-november-2005

Aerospace series - Aluminium alloy AL-R39002 - Forging stock

Aerospace series - Aluminium alloy AL-R39002 - Forging stock

Luft- und Raumfahrt - Aluminiumlegierung AL-R39002 - Schmiedevormaterial

Série aérospatiale - Alliage d'aluminium AL-R39002 - Produits destinés a la forge

Ta slovenski standard je istoveten z: EN 4292:2005

SIST EN 4292:2005
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ICS:

49.025.20 Aluminij

Aluminium

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 4292

June 2005

ICS 49.025.20

English version

Aerospace series - Aluminium alloy AL-R39002 - Forging stock

Série aérospatiale - Alliage d'aluminium AL-R39002 -
Produits destinés à la forge

Luft- und Raumfahrt - Aluminiumlegierung AL-R39002 -
Schmiedevormaterial

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

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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 Central Secretariat has the same status as the official versions.

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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

Foreword

This document (EN 4292:2005) 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of an identical text or by endorsement, at the latest by December 2005, and conflicting national standards shall be withdrawn at the latest by December 2005.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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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-R39002
Forging stock

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 2043, *Aerospace series – Metallic materials – General requirements for semi-finished product qualification (excluding forgings and castings)*.¹⁾

EN 2070-7, *Aerospace series – Aluminium and aluminium alloy wrought products – Technical specification – Part 7: Wrought forging stock*.

EN 2082-2, *Aerospace series – Aluminium alloy forging stock and forgings – Technical specification – Part 2: Forging stock*.

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⁾

EN 6018, *Aerospace series – Test methods for metallic materials – Determination of density according to displacement method*.¹⁾

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

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1	Material designation		Aluminium alloy AL-R39002								
2	Chemical composition %	Element	C	Si	O	Fe	Mg	Li	Others		Al
									Each	Total	
		min.	0,25	–	0,20	–	4,0	1,2	–	–	Base
max.	0,45	0,20	0,7	0,30	5,5	1,4	0,05	0,15			
3	Method of melting		–								
4.1	Form		Billet				Bar				
4.2	Method of production		HIPped ^a mechanically alloyed powder				Extruded from HIPped ^a billet				
4.3	Limit dimension(s)	mm	a or $D \leq 600$				a or $D \leq 300$				
5	Technical specification		EN 2082-2 ^b				EN 2070-7 ^b				

6.1	Delivery condition	F	F
	Heat treatment	–	–
6.2	Delivery condition code	U	U
7	Use condition	F	F
	Heat treatment	Delivery condition	Delivery condition

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Characteristics
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8.1	Test sample(s)		See EN 2082-2 ^b .				See EN 2070-7 ^b .			
8.2	Test piece(s)		See EN 2082-2 ^b .				See EN 2070-7 ^b .			
8.3	Heat treatment		None ^e				None ^c			
9	Dimensions concerned	mm	See EN 2082-2 ^b .				a or $D \leq 300$			
10	Thickness of cladding on each face	%	–				–			
11	Direction of test piece		L				L			
12	Temperature	θ	°C				Ambient			
13	Proof stress	$R_{p0,2}$	MPa				$\geq 370^d$			
14	T Strength	R_m	MPa				$\geq 455^d$			
15	Elongation	A	%				$\geq 3^d$			
16	Reduction of area	Z	%				–			
17	Hardness		–				–			
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	C Elongation	a	%				–			
25	Rupture stress	σ_R	MPa				–			
26	Elongation at rupture	A	%				–			
27	Notes (see line 98)						a, b, c, d			

44	External defects	–	See EN 2070-7 ^b or EN 2082-2 ^b .
50	Cleanliness/inclusion content (micro-cleanness)	–	Stringer-like inclusions are not permitted.
61	Internal defects	–	See EN 2070-7 ^b or EN 2082-2 ^b .
68	Density	1	EN 6018
		2	The "capability clause" applies
		7	$\rho \leq 2,60 \text{ kg/dm}^3$
84	Cleanliness of powder	–	The powder shall be free from particles of debris originating from the mechanical alloying process.
87	Back-end defect	–	See EN 2070-7.
		5	Extruded forging stock
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95	Marking inspection	–	See EN 2070-7 ^b or EN 2082-2 ^b .
96	Dimensional inspection	–	See EN 2070-7 ^b or EN 2082-2 ^b .
98	Notes	–	<p>^a HIPped - Hot isostatically pressed.</p> <p>^b Powder metallurgy alloys are not currently included in the scope of EN 2070-7 and EN 2082-2 but the procedures and requirements described therein shall apply where possible.</p> <p>^c This is a dispersion strengthened powder metallurgy alloy and heat treatment is not required to achieve the mechanical properties stated.</p> <p>^d The "capability clause" applies.</p>
99	Typical use	–	–

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100	-	Product qualification	-	See EN 2043.
				Qualification programme to be agreed between manufacturer and purchaser.
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