



SLOVENSKI STANDARD
SIST EN 4372:2009

01-maj-2009

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Ta slovenski standard je istoveten z: **EN 4372:2009**

ICS:

49.025.15 Neželezove zlitine na Non-ferrous alloys in general
splošno

SIST EN 4372:2009 **en**

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EUROPEAN STANDARD

EN 4372

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2009

ICS 49.025.15

English Version

Aerospace series - Heat resisting nickel alloy with copper Ni-PD9001 (NiCu31) - Wire for solid rivets - $D \leq 10$ mm

Série aérospatiale - Alliage de nickel corroyé au cuivre résistant à chaud Ni-PD9001 (NiCu31) - Fil pour rivets - $D \leq 10$ mm

Luft- und Raumfahrt - Hochwarmfeste Nickellegierung mit Kupfer Ni-PD9001 (NiCu31) - Nietdrähte - $D \leq 10$ mm

This European Standard was approved by CEN on 11 July 2008.

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 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 Management Centre has the same status as the official versions.

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

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

EN 4372:2009 (E)**Foreword**

This document (EN 4372:2009) 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 August 2009, and conflicting national standards shall be withdrawn at the latest by August 2009.

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, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, 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 4500-3.

1 Scope

This standard specifies the requirements relating to:

Heat resisting nickel alloy with copper NI-PD9001 (NiCu31)
Wire for solid rivets
 $D \leq 10$ mm

for aerospace applications.

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 2002-001, *Aerospace series — Metallic materials — Test methods — Part 001: Tensile testing at ambient temperature*

EN 2032-2, *Aerospace series — Metallic materials — Part 2: Coding of metallurgical condition in delivery condition*

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

EN 4500-3, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 3: Specific rules for heat resisting alloys*¹⁾

EN 4700-4, *Aerospace series — Steel and heat resisting alloys — Wrought products — Technical specification — Part 4: Wire*¹⁾

ASTM B565, *Standard test method for shear testing of aluminum and aluminum-alloy rivets and cold-heading wire and rods*²⁾

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

2) Published by: American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, USA.

EN 4372:2009 (E)

1	Material designation		Nickel alloy with copper NI-PD9001 (NiCu31)										
2	Chemical composition %	Element	Ni+Co ^a	Al	C	Cu	Fe	Mn	S	Si	Others		Ni
											Each	Total	
		min.	63	–	–	28	1	0,3	–	–	–	–	Base
max.	–	0,5	0,15	34	2,5	2,0	0,024	0,5	–	0,60 ^b			
3	Method of melting		–										
4.1	Form		Wire										
4.2	Method of production		Cold drawn										
4.3	Limit dimension(s)	mm	$D \leq 10$ mm										
5	Technical specification		EN 4700-4										

6.1	Delivery condition		Recrystallized annealed 4 h, 780 °C, furnace cool combined with gas quench to 50 °C, subsequent air cool ^c									
	Heat treatment		–									
6.2	Delivery condition code		U ^d									
7	Use condition		Delivery condition									
	Heat treatment		–									

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Characteristics
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8.1	Test sample(s)		EN 2002-001									
8.2	Test piece(s)		EN 2002-001 https://standards.iteh.ai/catalog/standards/sist/2438ba77-5a4e-4acb-aa48-03282eb2e7fb/sist-en-4372-2009									
8.3	Heat treatment		–									
9	Dimensions concerned	mm	$D \leq 10$ mm									
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	–								
14	T Strength	R_m	MPa	$530 \leq R_m \leq 620$								
15	Elongation	A	%	$A_{50\text{ mm}} \geq 25$								
16	Reduction of area	Z	%	–								
17	Hardness		–									
18	Shear strength	R_c	MPa	$340 \leq R_c^e$								
19	Bending	k	–	–								
20	Impact strength		–									
21	Temperature	θ	°C	–								
22	Time		h	–								
23	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, e									

36	Reverse torsion test for wires	–	See EN 4700-4.
		7	$D \leq 8$ mm; 10 turns in each way
43	Wrapping test for wires	–	See EN 4700-4.
44	External defects	–	See EN 4700-4.
		1	Only visual is required
		7	No cracks, laps, folds
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95	Marking inspection	–	See EN 4700-4.
96	Dimensional inspection	–	See EN 4700-4.
98	Notes	–	<p>a Mass content of max. 1,0 % Co is allowed.</p> <p>b Σ (Zn, Sn, Pb), Ti \leq 0,6 where Σ (Zn, Sn, Pb) \leq 0,3 Ti \leq 0,3.</p> <p>c Tolerance according to EN 4700-4.</p> <p>d See EN 2032-2.</p> <p>e Testing of shear strength according to ASTM B565.</p>
99	Typical use	–	–

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