BRITISH STANDARD

BS EN
4373:2007

Aerospace series — Heat resisting alloy NI-PD9001 (NiCu31) — Annealed, seamless tube D ≤ 75 mm, a ≤ 3 mm

ICS 49.025.15

BSI
British Standards

National foreword

This British Standard is the UK implementation of EN 4373:2007.

The UK participation in its preparation was entrusted by Technical Committee ACE/61, Metallic materials for aerospace purposes, to Panel ACE/61/-/48, Heat resisting alloys.

A list of organizations represented on this committee can be obtained on request to its secretary.

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EN 4373

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English Version

Aerospace series - Heat resisting alloy NI-PD9001 (NiCu31) - Annealed, seamless tube D ≤ 75 mm, a ≤ 3 mm

Série aérospatiale - Alliage résistant à chaud NI-PD9001 (NiCu31) - Recuit, tubes sans soudure D ≤ 75 mm, a ≤ 3 mm

Luft- und Raumfahrt - Hochwarmfeste Legierung NI-PD9001 (NiCu31) - Geglüht, nahtlose Rohre D ≤ 75 mm, a ≤ 3 mm

This European Standard was approved by CEN on 15 March 2007.

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

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Foreword

This document (EN 4373:2007) 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of an identical text or by endorsement, at the latest by February 2008, and conflicting national standards shall be withdrawn at the latest by February 2008.

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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 alloy NI-PD9001 (NiCu31) — Annealed, seamless tube $D \leq 75$ mm, $a \leq 3$ 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 2043, *Aerospace series — Metallic materials — General requirements for semi-finished product qualification (excluding forgings and castings)*[1)]

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

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

EN 4700-3, *Aerospace series — Steel and heat resisting alloys — Wrought products — Technical specification — Part 3: Tube*[1)]

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

1	Material designation		Heat resisting alloy NI-PD9001 (NiCu31)							
2	Chemical composition %	Element	C	Si	Mn	S	Al	Cu	Fe	Ni
		min.	0,080	–	–	–	–	28,0	–	Base
		max.	0,16	0,50	2,00	0,024	0,50	34,0	2,50	
3	Method of melting		Air melted							
4.1	Form		Seamless tube							
4.2	Method of production		Cold drawn							
4.3	Limit dimension(s)	mm	$D \leq 75$, $a \leq 3$							
5	Technical specification		EN 4700-3							

6.1	Delivery condition	Annealed
	Heat treatment	θ = 870 °C ± 10 °C / 5 min ≤ t ≤ 10 min / Inert atmosphere
6.2	Delivery condition code	U
7	Use condition	Delivery condition
	Heat treatment	–

Characteristics

8.1	Test sample(s)				Cut from tube
8.2	Test piece(s)				See EN 4700-3
8.3	Heat treatment				Delivery condition
9	Dimensions concerned			mm	$D \leq 75$, $a \leq 3$
10	Thickness of cladding on each face			%	–
11	Direction of test piece				L
12	T	Temperature	θ	°C	Ambient
13	T	Proof stress	$R_{p0,2}$	MPa	$170 \leq R_{p0,2} \leq 310$
14	T	Strength	R_m	MPa	$490 \leq R_m \leq 590$
15	T	Elongation	A	%	≥ 32
16	T	Reduction of area	Z	%	–
17	Hardness				≤ 180 HV
18	Shear strength		R_c	MPa	–
19	Bending		k	–	–
20	Impact strength				–
21	C	Temperature	θ	°C	–
22	C	Time		h	–
23	C	Stress	σ_a	MPa	–
24	C	Elongation	a	%	–
25	C	Rupture stress	σ_R	MPa	–
26	C	Elongation at rupture	A	%	–
27	Notes (see line 98)				–

33	Flattening of tubes	–	See EN 4700-3
41	Grain size	–	See EN 4700-3
44	External defects	–	See EN 4700-3
55	Deformation under pressure of tubes	–	See EN 4700-3
95	Marking inspection	–	See EN 4700-3
96	Dimensional inspection	–	See EN 4700-3
98	Notes	–	–
99	Typical use	–	–

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

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