BRITISH STANDARD AEROSPACE SERIES

BS EN
4105:1998

Nickel base alloy NI-B40002 (NiSi4B2) — Filler metal for brazing — Tape

The European Standard EN 4105:1998 has the status of a British Standard

ICS 49.025.99

National foreword

This British Standard is the English language version of EN 4105:1998.

The UK participation in its preparation was entrusted to Technical Committee ACE/61, Inspection and testing requirements for aerospace metallic materials, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

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

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled "International Standards Correspondence Index", or by using the "Find" facility of the BSI Standards Electronic Catalogue.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 6 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Amendments issued since publication

Amd. No.	Date	Comments

This British Standard, having been prepared under the direction of the Engineering Sector Board, was published under the authority of the Standards Board and comes into effect on 15 July 1998

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 4105

April 1998

ICS 49.025; 49.025.99

Descriptors: Aircraft industry, filler metals, brazing, nickel alloys, powdery materials, strips, designation, chemical compostion, delivery condition, characteristics, specifications

English version

Aerospace series — Nickel base alloy NI-B40002 (NiSi4B2) — Filler metal for brazing — Tape

Série aérospatiale — Alliage base nickel NI-B40002 (NiSi4B2) — Métal d'apport de brasage — Feuillard de poudre agglomérée

Luft- und Raumfahrt — Nickelbasislegierung NI-B40002 (NiSi4B2) — Hartlot in Form von Band

This European Standard was approved by CEN on 17 December 1997.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Ref. No. EN 4105:1998 E

Foreword

This European Standard has been prepared by the European Association of Aerospace Manufacturers (AECMA).

After inquiries and votes carried out in accordance with the rules of this Association, this Standard has successively 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 October 1998, and conflicting national standards shall be withdrawn at the latest by October 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Contents

0 Introduction

This standard is part of the series of EN metallic material standards for aerospace applications. The general organisation of this series is described in EN 4258.

This standard has been prepared in accordance with EN 4500-6.

1 Scope

This standard specifies the requirements relating to:

Nickel base alloy NI-B40002 (NiSi4B2)

Filler metal for brazing

Tape

for aerospace applications.

2 Normative references

This European Standard incorporates by dated or undated reference provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

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

EN 3875, *Aerospace series — Metallic materials — Filler metal for brazing — Technical specification*[1)].

EN 4104, *Aerospace series — Nickel base alloy NI-B40002 (NiSi4B2) — Filler metal for brazing — Powder or paste*[1)].

EN 4258, *Aerospace series — Metallic materials — General organization of standardization — Links between types of EN standards and their use*[1)].

EN 4500-6, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 6: Specific rules for filler metals for brazing*[1)].

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

1	Material designation		Nickel base braze alloy NI-B40002 (NiSi4B2)												
2	Chemical composition[1)] %	Element	C	Si	P	S	B	Al	Co	Fe	Se	Ti	Zr	Others Total	Ni
		min.	—	3,0	—	—	1,50	—	—	—	—	—	—	—	Base
		max.	0,06	4,0	0,02	0,02	2,20	0,05	0,10	1,5	50 *)	0,05	0,05	0,05	
3	Method of melting		Air or inert gas or vacuum melted												
4.1	Form		Tape												
4.2	Method of production		Produced from powder EN 4104												
4.3	Limit dimension(s)	mm	—												
5	Technical specification		EN 3875												

6.1	Delivery condition	As manufactured
	Heat treatment	—
6.2	Delivery condition code	U
7	Use condition	Delivery condition
	Heat treatment	—

Characteristics

8.1	Test sample(s)				—
8.2	Test piece(s)				—
8.3	Heat treatment				—
9	Dimensions concerned			mm	—
10	Thickness of cladding on each face			%	—
11	Direction of test piece				—
12	T	Temperature	θ	°C	—
13	T	Proof stress	$R_{p0,2}$	MPa	—
14	T	Strength	R_m	MPa	—
15	T	Elongation	A	%	—
16	T	Reduction of area	Z	%	—
17	Hardness				—
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)				*)1)

44	External defects	—	See EN 3875
53	Thermal analysis (Differential thermal analysis)	—	See EN 3875
		7	Liquidus: 1 065 °C Solidus: 980 °C
76	Wettability (Fusion test)	—	See EN 3875
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78	Metallic alloy content	—	See EN 3875
		7	≥ 91 %
82	Batch uniformity (Material verification)	—	See EN 3875
95	Marking inspection	—	See EN 3875
96	Dimensional inspection	—	See EN 3875
98	Notes	—	*) p.p.m. 1) The chemical composition refers to the metallic alloy content.
99	Typical use	—	Joining nickel and cobalt base heat resisting alloys.

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

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