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ICS:

Descriptors:

ENGLISH VERSION

**Aerospace series
Heat resisting alloy NI-PH2601 (NiCr19Fe19Nb5Mo3)
Solution treated and precipitation treated
Bar and section
 $D_e \leq 200$ mm**

**Série aérospatiale
Alliage résistant à chaud NI-PH2601
(NiCr19Fe19Nb5Mo3)
Mis en solution et précipité
Barres et profilés
 $D_e \leq 200$ mm**

**Luft- und Raumfahrt
Hochwarmfeste Legierung NI-PH2601
(NiCr19Fe19Nb5Mo3)
Lösungsgeglüht und ausgehärtet
Stangen und Profile
 $D_e \leq 200$ mm**

This "Aerospace Series" Prestandard has been drawn up under the responsibility of AECMA (The European Association of Aerospace Industries). It is published on green paper for the needs of AECMA-Members. It has been technically approved by the experts of the concerned Technical Committee following comment by the Member countries.

Subsequent to the publication of this Prestandard, the technical content shall not be changed to an extent that interchangeability is affected, physically or functionally, without re-identification of the standard.

After examination and signature of the AECMA Standard Checking Centre (NPS) and formal agreement of the Official Services of the Member countries it will be submitted as a draft European Standard to CEN (European Committee for Standardization) for formal vote.

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after the date of publication to

AECMA
Gulledelle 94
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C5 Chairman

Mr Evetts

0 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-PH2601 (NiCr19Fe19Nb5Mo3)
Solution treated and precipitation treated
Bar and section
 $D_e \leq 200$ mm

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 3235-3 | Aerospace series - Heat resisting alloys - Wrought products - Technical specification - Part 3: Bar and section ¹⁾ |
| EN 4258 | Aerospace series - Metallic materials - General organization of standardization - Links between types of EN standards and their use ¹⁾ |
| EN 4500-3 | Aerospace series - Metallic materials - Rules for drafting and presentation of material standards - Part 3 : Specific rules for heat resisting alloys ¹⁾ |

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

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1	Material designation	Heat resisting alloy NI-PH2601 (NiCr19Fe19Nb5Mo3)										
2	Chemical composition %	Element	C	Si	Mn	P	S	Al	B	Co	Cr	Cu
		min.	0,02	-	-	-	-	0,20	20 *)	-	17,0	-
		max.	0,80	0,35	0,35	0,015	0,015	0,80	60 *)	1,00	21,0	0,30
		Element	Fe	Mg	Mo	Nb+Ta	Ti	Ag	Bi	Ca	Pb	Ni
		min.	16,5	-	2,80	4,80	0,70	-	-	-	-	Base
		max.	20,5	0,010	3,30	5,50	1,15	5 *)	1 *)	0,010	5 *)	
3	Method of melting	Consumable electrode remelted										
4.1	Form	Bar and section										
4.2	Method of production	Wrought										
4.3	Limit dimension(s)	mm	$D_e \leq 200$									
5	Technical specification	EN 3235-3										

6.1	Delivery condition	Solution treated	Solution treated and precipitation treated
	Heat treatment	940 °C ≤ θ ≤ 980 °C/t = 1 h/AC or faster	940 °C ≤ θ ≤ 980 °C/t = 1 h/AC or faster + θ = 720 °C ± 10 °C/t = 8 h/FC at 50 °C per h ≤ θ ≤ 60 °C per h ¹⁾ to θ = 620 °C ± 10 °C/t = 8 h/AC
6.2	Delivery condition code	W	U
7	Use condition	Solution treated and precipitation treated	Delivery condition
	Heat treatment	Delivery condition + θ = 720 °C ± 10 °C/t = 8 h/FC at 50 °C per h ≤ θ ≤ 60 °C per h ¹⁾ to θ = 620 °C ± 10 °C/t = 8 h/AC	-

Characteristics

8.1	Test sample(s)	See EN 3235-3										
8.2	Test piece(s)	See EN 3235-3										
8.3	Heat treatment	Use condition										
9	Dimensions concerned	mm	$D_e \leq 200$									
10	Thickness of cladding on each face	%	-									
11	Direction of test piece	L ²⁾					LT ²⁾					
12	Temperature	θ	°C	Ambient	650	Ambient	650					
13	Proof stress	R _{p0.2}	MPa	1 035	860	1 035	860					
14	Strength	R _m	MPa	1 270	1 000	1 240	960					
15	Elongation	A	%	≥ 10	≥ 9	≥ 10	≥ 9					
16	Reduction of area	Z	%	≥ 15	≥ 15	≥ 8	≥ 8					
17	Hardness	≥ 331 HB										
18	Shear strength	R _C	MPa	-								
19	Bending	k	-	-								
20	Impact strength	-										
21	Temperature	θ	°C	650 ³⁾								
22	Time		h	t _R ≥ 23								
23	Stress	σ _a	MPa	-								
24	Elongation	a	%	-								
25	Rupture stress	σ _R	MPa	690								
26	Elongation at rupture	A	%	≥ 5								
27	Notes (see line 98)	*) 1) 2) 3)										