SLOVENSKI STANDARD
SIST EN 3671:2009

01-maj-2009

Aeronavtika - Zlitina NI-PH3601 (NiCr22Mo9Nb), odporna proti vroḷ ini - Toplotno neobdelana - Material za kovanje - a ali D Ò250 mm

Aerospace series - Heat resisting alloy NI-PH3601 (NiCr22Mo9Nb) - Non heat treated - Forging stock - a or D Ò250 mm

Luft- und Raumfahrt - Hochwarmfeste Legierung NI-PH3601 (NiCr22Mo9Nb) - Nicht wª rmebehandelt - Schmiedevormaterial - a oder D Ò250 mm

S®rie a®rospatiale - Alliage r®sistant ¨ chaud NI-PH3601 (NiCr22Mo9Nb) - Non trait® - Produits destin®s ¨ la forge - a ou D Ò250 mm

Ta slovenski standard je istoveten z: **EN 3671:2007**

ICS:

49.025.99	Drugi materiali	Other materials

SIST EN 3671:2009 **en,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 3671

March 2007

ICS 49.025.99

English Version

Aerospace series - Heat resisting alloy NI-PH3601 (NiCr22Mo9Nb) - Non heat treated - Forging stock - a or D ≤ 250 mm

Série aérospatiale - Alliage résistant à chaud NI-PH3601 (NiCr22Mo9Nb) - Non traité - Produits destinés à la forge - a ou D ≤ 250 mm

Luft- und Raumfahrt - Hochwarmfeste Legierung NI-PH3601 (NiCr22Mo9Nb) - Nicht wärmebehandelt - Schmiedevormaterial - a oder D ≤ 250 mm

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

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Ref. No. EN 3671:2007: E

Foreword

This document (EN 3671:2007) 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of an identical text or by endorsement, at the latest by September 2007, and conflicting national standards shall be withdrawn at the latest by September 2007.

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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-PH3601 (NiCr22Mo9Nb)
Non heat treated
Forging stock
a or *D* ≤ 250 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 2860-2, *Aerospace series — Heat resisting alloys — Forging stock and forgings — Technical specification — Part 2: Forging stock.* [1)]

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)]

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

1	Material designation		Heat resisting alloy NI-PH3601 (NiCr22Mo9Nb)							
2	Chemical composition %	Element	C	Si	Mn	P	S	Al	Co	Cr
		min.	–	–	–	–	–	–	–	20,0
		max.	0,10	0,50	0,50	0,015	0,015	0,40	1,00	23,0
		Element	Fe	Mo	Nb + Ta	Ti	Ag	Bi	Pb	Ni
		min.	–	8,00	3,15	–	–	–	–	Base
		max.	5,00	10,0	4,15	0,40	5 [a]	1 [a]	10 [a]	
3	Method of melting		Consumable electrode remelted							
4.1	Form		Forging stock							
4.2	Method of production		–							
4.3	Limit dimension(s)	mm	*a* or *D* ≤ 250							
5	Technical specification		EN 2860-2							

6.1	Delivery condition	Non heat treated
	Heat treatment	–
6.2	Delivery condition code	U
7	Use condition	Delivery condition
	Heat treatment	–

Characteristics

8.1	Test sample(s)				See EN 2860-2.
8.2	Test piece(s)				See EN 2860-2.
8.3	Heat treatment				See line 29.
9	Dimensions concerned			mm	*a* or *D* ≤ 250
10	Thickness of cladding on each face			%	–
11	Direction of test piece				T
12	T	Temperature	θ	°C	Ambient
13	T	Proof stress	$R_{p0,2}$	MPa	≥ 410
14	T	Strength	R_m	MPa	≥ 830
15	T	Elongation	A	%	≥ 30
16	T	Reduction of area	Z	%	–
17	Hardness				≤ 290 HB
18	Shear strength		R_c	MPa	–
19	Bending		k	–	–
20	Impact strength				–
21	C	Temperature	θ	°C	815 [b]
22	C	Time		h	t_R ≥ 23
23	C	Stress	σ_a	MPa	–
24	C	Elongation	a	%	–
25	C	Rupture stress	σ_R	MPa	114
26	C	Elongation at rupture	A	%	≥ 15
27	Notes (see line 98)				a, b

29	Reference heat treatment	–	Annealed θ = 920 °C ± 10 °C / t = 1 h / AC
44	External defects	–	See EN 2860-2.
51	Macrostructure	–	See EN 2860-2.
		7	No harmful defects
61	Internal defects	–	See EN 2860-2.
		7	Class 3
95	Marking inspection	–	See EN 2860-2.
96	Dimensional inspection	–	See EN 2860-2.
98	Notes	–	a p.p.m. b Combined notched-unnotched test piece. The rupture shall occur in the unnotched section.
99	Typical use	–	–

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