BRITISH STANDARD AEROSPACE SERIES

BS EN
4328:2002

Steel FE-WM1601 (X18CrWNi13-3-2) — Filler metal for welding — Wire and rod

The European Standard EN 4328:2002 has the status of a British Standard

ICS 49.025.10

National foreword

This British Standard is the official English language version of EN 4328:2002.

The UK participation in its preparation was entrusted to Technical Committee ACE/15, Wrought and cast steels for aerospace, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible 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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This British Standard, having been prepared under the direction of the Engineering Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 11 February 2002

Summary of pages

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

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English version

Aerospace series - Steel FE-WM1601 (X18CrWNi13-3-2) - Filler metal for welding - Wire and rod

Série aérospatiale - Acier FE-WM1601 (X18CrWNi13-3-2) - Métal d'apport de soudage - Fil et baguette

Luft- und Raumfahrt - Stahl FE-WM1601 (X18CrWNi13-3-2) - Schweißzusatz - Draht und Stäbe

This European Standard was approved by CEN on 2 May 2001.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 4328:2002 E

Foreword

This document (EN 4328:2002) has been prepared by the European Association of Aerospace Manufacturers (AECMA).

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 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 July 2002, and conflicting national standards shall be withdrawn at the latest by July 2002.

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, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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 4500-5.

1 Scope

This standard specifies the requirements relating to:

Steel FE-WM1601 (X18CrWNi13-3-2)
Filler metal for welding
Wire and rod

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 3879 Aerospace series – Metallic materials – Filler metal for welding – Technical specification [1)]

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

EN 4500-5 Aerospace series – Metallic materials – Rules for drafting and presentation of material standards – Part 5: Specific rules for steels [1)]

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

1	Material designation		Steel FE-WM1601 (X18CrWNi13-3-2)												
2	Chemical composition %	Element	C	Si	Mn	P	S	Cr	Mo	Ni	Al	Cu	Sn	W	Fe
		min.	0,15	–	–	–	–	12,00	–	1,80	–	–	–	2,50	Base
		max.	0,20	0,50	0,50	0,040	0,030	14,00	0,50	2,20	0,15	0,50	0,05	3,50	
3	Method of melting		Air melted												
4.1	Form		Wire and rod												
4.2	Method of production		Cold drawn												
4.3	Limit dimension(s)	mm	–												
5	Technical specification		EN 3879												

6.1	Delivery condition	Cold drawn and annealed
	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)				–

44	External defects	–	See EN 3879
57	Residual stress	–	See EN 3879
61	Internal defects	–	See EN 3879
82	Batch uniformity (Material verification)	–	See EN 3879
95	Marking inspection	–	See EN 3879
96	Dimensional inspection	–	See EN 3879
98	Notes	–	–
99	Typical use	–	–

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

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