



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS Z 3224 : 2010

(JWES/JSA)

Nickel and Nickel-alloy covered electrodes

ICS 25.160.20

Reference number : JIS Z 3224 : 2010 (E)

PROTECTED BY COPYRIGHT

Z 3224 : 2010

Date of Establishment: 1976-03-01

Data of Revision: 2010-02-22

Date of Public Notice in Official Gazette: 2010-02-22

Investigated by: Japanese Industrial Standards Committee
Standards Board
Technical Committee on Welding

JIS Z 3224 : 2010, First English edition published in 2011-05

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

© JSA 2011

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

Printed in Japan

KA/SW

PROTECTED BY COPYRIGHT

Contents

Page

Introduction	1
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Classification	3
5 Quality	3
5.1 Dimensions, tolerances and product conditions of electrode	3
5.2 Chemical composition of deposited metal	3
5.3 Mechanical properties of deposited metal	9
6 Test methods	10
6.1 Determination method of lot	10
6.2 General	10
6.3 Chemical analysis test of deposited metal	11
6.4 Tensile test of deposited metal	11
7 Inspection	11
8 Designation of product	12
9 Marking	12
9.1 Marking on product	12
9.2 Marking on packaging	12
10 Packaging	12
11 Inspection certification	12
Annex JA (informative) Comparison table between JIS and corresponding International Standard	13

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by the Japan Welding Engineering Society (JWES)/ Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently **JIS Z 3224 : 2007** is replaced with this Standard.

This **JIS** document is protected by the Copyright Law.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

Nickel and Nickel-alloy covered electrodes

Introduction

This Japanese Industrial Standard has been prepared based on the second edition of ISO 14172 published in 2008 with some modification of the technical contents.

The portions given dotted underlines are the matters in which the contents of the original International Standard have been modified. A list of modifications with the explanations is given in Annex JA.

1 Scope

This Standard specifies the nickel and nickel-alloy covered electrodes (hereafter referred to as "electrode") to produce the deposited metal in which the content of nickel exceeds that of any other element.

NOTE: The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows.

ISO 14172:2008 *Welding consumables—Covered electrodes for manual metal arc welding of nickel and nickel alloys—Classification (MOD)*

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standard and JIS are IDT (identical), MOD (modified), and NEQ (not equivalent) according to ISO/IEC Guide 21-1.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS G 0320 Standard test method for heat analysis of steel products

JIS G 1201 Iron and steel—General rules for analytical methods

JIS G 1281 Methods for chemical analysis of nickel-chromium-iron alloys

JIS G 3101 Rolled steels for general structure

JIS G 3106 Rolled steels for welded structure

JIS G 4902 Corrosion-resisting and heat-resisting superalloy plates and sheets

JIS H 4551 Nickel and nickel alloy plate, sheet and strip

JIS Z 2611 General rules for photoelectric emission spectrochemical analysis of metal materials

JIS Z 2615 General rules for determination of carbon in metallic materials

JIS Z 3001-1 *Welding and allied processes—Vocabulary—Part 1: General*

JIS Z 3001-2 *Welding and allied processes—Vocabulary—Part 2: Welding processes*

JIS Z 3111 *Methods of tension and impact tests for deposited metal*

NOTE : Corresponding International Standard : ISO 15792-1 *Welding consumables—Test methods—Part 1: Test methods for all-weld metal test specimens in steel, nickel and nickel alloys* (MOD)

JIS Z 3184 *Method of preparing deposited metal pad and samples for chemical analysis*

NOTE : Corresponding International Standard : ISO 6847 *Welding consumables—Deposition of a weld metal pad for chemical analysis* (MOD)

JIS Z 3200 *Welding consumables—Technical delivery conditions for welding filler materials—Type of product, dimensions, tolerances and markings*

NOTE : Corresponding International Standard : ISO 544 *Welding consumables—Technical delivery conditions for welding filler materials—Type of product, dimensions, tolerances and markings* (MOD)

JIS Z 3423 *Procurement guidelines for welding consumables*

NOTE : Corresponding International Standard : ISO 14344 *Welding and allied processes—Flux and gas shielded electrical welding processes—Procurement guidelines for consumables* (MOD)

3. Terms and definitions

For the purposes of this Standard, the terms and definitions given in JIS Z 3001-1 and JIS Z 3001-2 shall apply.