



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS Z 3313 : 2009

(JWES/JSA)

**Flux cored wires for gas shielded
and self-shielded metal arc welding
of mild steel, high strength steel
and low temperature service steel**

ICS 25.160.20

Reference number : JIS Z 3313 : 2009 (E)

Date of Establishment: 1982-07-01

Date of Revision: 2009-02-20

Date of Public Notice in Official Gazette: 2009-02-20

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

JIS Z 3313:2009, First English edition published in 2010-02

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 2010

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/AT

Contents

	Page
Introduction.....	1
1 Scope.....	1
2 Normative references	1
3 Terms and definitions	3
4 Classification, symbol indication method and combination thereof	3
4.1 Classification and symbol indication method	3
4.2 Combination of classification symbol	3
5 Quality	6
5.1 Dimensions, tolerances and product conditions of wire	6
5.2 Mechanical properties of deposited metal or welded joint	6
5.3 Chemical composition of deposited metal	8
5.4 Applicable welding position of wire	10
5.5 Hydrogen content of deposited metal	11
6 Test methods	11
6.1 Determination method of lot and sampling method	11
6.2 Tensile test and impact test of deposited metal in multi-run welding	11
6.3 Tensile test of welded joint in single-run welding	14
6.4 Chemical analysis test of deposited metal	14
6.5 Fillet weld test	14
6.6 Hydrogen content test in deposited metal	15
7 Inspection method	15
8 Designation of product	15
9 Marking	16
9.1 Marking on product	16
9.2 Marking on packaging	16
10 Packaging	16
11 Inspection certification	16
Annex A (informative) ISO 17632 System A	17
Annex B (informative) ISO 18276 System A	26
Annex JA (informative) Comparison table between JIS and corresponding International Standards	34

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 3313 : 2006** 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.

Flux cored wires for gas shielded and self-shielded metal arc welding of mild steel, high strength steel and low temperature service steel

Introduction

This Japanese Industrial Standard has been prepared based on the first edition of **ISO 17632** published in 2004 and the first edition of **ISO 18276** published in 2005 with some modifications of the technical contents. **ISO 17632** is a combined standard of **EN 758** and the standard used around the Pacific Rim, and **ISO 18276** is a combined standard of **EN 12535** and the standard used around the Pacific Rim. Either of corresponding Standards permit that either or both of the combined standards may be applied to the specific global markets. According to this, this Standard gives requirements corresponding to the standards used in Pacific Rim (**ISO 17632** System B and **ISO 18276** System B) except the flux core wires for metal arc welding of atmospheric corrosion resistance in the text, those corresponding to **EN 758** and **EN 12535**, and **ISO 17632** System A in Annex A, and those corresponding to **ISO 18276** System A in Annex B.

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

1 Scope

This Standard specifies the flux cored wires (hereafter referred to as “the wire”) for gas shielded and self-shielded metal arc welding of mild steel, high strength steel of 490 MPa Class to 830 MPa Class, and low temperature service steel.

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

ISO 17632:2004 *Welding consumables—Tubular cored electrodes for gas shielded and non-gas shielded metal arc welding of non-alloy and fine grain steels—Classification*

ISO 18276:2005 *Welding consumables—Tubular cored electrodes for gas-shielded and non-gas-shielded metal arc welding of high-strength steels—Classification* (Overall evaluation: MOD)

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

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.