



JAPANESE  
INDUSTRIAL  
STANDARD

Translated and Published by  
Japanese Standards Association

---

---

**JIS Z 3312** : 2009

(JWES/JSA)

**Solid wires for MAG and MIG  
welding of mild steel, high strength  
steel and low temperature service  
steel**

---

ICS 25.160.20

Reference number : JIS Z 3312 : 2009 (E)

Date of Establishment: 1974-03-01

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 3312:2009, 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 .....	2
4 Classification and symbol indication method.....	2
5 Quality .....	5
5.1 Dimensions and tolerances of wire, and product condition .....	5
5.2 Chemical composition of wire .....	5
5.3 Mechanical properties of deposited metal .....	8
6 Test method.....	10
6.1 Determination method of lot and sampling method .....	10
6.2 Chemical analysis test of wire .....	10
6.3 Tensile test and impact test of deposited metal .....	10
7 Inspection method .....	12
8 Designation of product.....	13
9 Marking.....	14
9.1 Marking on product.....	14
9.2 Marking on package .....	14
10 Packaging .....	14
11 Inspection certification .....	14
Annex A (informative) ISO 14341 System A .....	15
Annex B (informative) ISO 16834 System A .....	20
Annex JA (informative) Comparison table between JIS and corresponding International Standards .....	27

## 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 3312**:2006 is replaced with this Standard. Also, **JIS Z 3325**:2008 is withdrawn and 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.

# Solid wires for MAG and MIG 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 14341** published in 2002 and the first edition of **ISO 16834** published in 2006 with some modifications of the technical contents. **ISO 14341** is a combined standard of **EN 440** and the standard used around the Pacific Rim, and **ISO 16834** is a combined standard of **EN 12534** and the standard used around the Pacific Rim. Either or both of the 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 14341 System B** and **ISO 16834 System B**) in the text, those corresponding to **EN 440** and **EN 12534**, and **ISO 14341 System A** in Annex A and those corresponding to **ISO 16834 System A** in Annex B.

The portions given sidelines or 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 solid wires (hereafter referred to as “wire”) for MAG welding and MIG welding of mild steel, high strength steel whose tensile strength is between 490 MPa grade and 830 MPa grade and low temperature service steel.

NOTE : The International Standards corresponding to this Standard are as follows.

ISO 14341:2002 *Welding consumables—Wire electrodes and deposits for gas shielded metal arc welding of non alloy and fine grain steels—Classification*

ISO 16834:2006 *Welding consumables—Wire electrodes, wires, rods and deposits for gas-shielded 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.

JIS G 0203 *Glossary of terms used in iron and steel (Products and quality)*

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

JIS G 3101 *Rolled steels for general structure*