



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS Z 3129 : 2005

(JWES/JSA)

Test method and preparation of test specimens for single-run and two-run welding technique in steel

ICS 25.160.40

Reference number : JIS Z 3129 : 2005 (E)

Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee according to the proposal of establishing a Japanese Industrial Standard from The Japan Welding Engineering Society (JWES)/Japanese Standards Association (JSA), with a draft of being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law.

This Standard has been made based on **ISO 15792-2:2000** *Welding consumables—Test methods—Part 2: Preparation of single-run and two-run technique test specimens in steel* for the purposes of making it easier to compare this Standard with International Standard; to prepare Japanese Industrial Standard conforming with International Standard; and to propose a draft of an International Standard which is based on Japanese Industrial Standard.

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.

Date of Establishment: 2005-07-20

Date of Public Notice in Official Gazette: 2005-07-20

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

JIS Z 3129:2005, First English edition published in 2006-03

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.

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Printed in Japan

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Test method and preparation of test specimens for single-run and two-run welding technique in steel

Introduction This Japanese Industrial Standard has been prepared based on the first edition of **ISO 15792-2** *Welding consumables—Test methods—Part 2: Preparation of single-run and two-run technique test specimens in steel* published in 2000 with some modifications of the technical contents.

The portions underlined with dots are the matters in which the contents of the original International Standard have been modified. A list of modifications is given in Annex (informative) with its explanations.

1 Scope This Standard specifies the test method and preparation of test specimens for single-run (1 layer 1 pass single side weld) and two-run (1 layer 1 pass double sides weld) welding technique in steel using submerged arc welding consumables and flux cored wires for gas sealed arc weld and self sealed arc weld.

This Standard does not apply to the welding using electro-slag and electro-gas arc welding consumables.

Remarks : The International Standard corresponding to this Standard is as follows.

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**.

ISO 15792-2:2000 *Welding consumables—Test methods—Part 2: Preparation of single-run and two-run technique test specimens in steel* (MOD)

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 Z 3001 *Welding terms*

JIS Z 3121 *Methods of tensile test for butt welded joints*

JIS Z 3128 *Method of impact test for welded joint*

JIS Z 3703 *Welding—Guidance on the measurement of preheating temperature, interpass temperature and preheat maintenance temperature*

Remarks : **ISO 13916:1996** *Welding—Guidance on the measurement of preheating temperature, interpass temperature and preheat maintenance temperature* is identical with the said standard.

3 Terms and definitions For the purpose of this Standard, the definitions given in **JIS Z 3001** and the following definitions apply.

- a) **test plate:** a base material used for the test before completion of welding
- b) **test specimen:** a material used after welding and before sampling the test piece
- c) **test piece:** a material cut from a test specimen and finished to the specified shape and size by machining

4 Preparation of test plate Preparation of test plate shall be as follows:

- a) Type of steel material used for test shall be in accordance with the welding consumables to be tested specified in Japanese Industrial Standard (hereafter referred to as “**JIS**”).
- b) Type, thickness and shape of test plate shall be as specified in table 1 unless otherwise specified.
- c) Considering the welding strain, test plate shall be restricted or counter-strained before the sampling and shall not be mechanically corrected.
- d) Suitable tab plate may be used for single-run or two-run welding.
- e) Suitable backing strip may be used for single-run welding.

5 Welding condition Welding condition shall be as follows:

- a) Welding consumables used for the test shall represent the product (trade name).
- b) Welding shall be flat position welding.
- c) Preheating temperature shall be the room temperature or the temperature specified in **JIS** of the welding consumables to be tested.
- d) Interpass temperature shall be the room temperature or the temperature specified in **JIS** of the welding consumables to be tested.
- e) Measuring method of preheating temperature and interpass temperature shall be in accordance with **JIS Z 3703**.
- f) Welding current, arc voltage, travel speed, bead shape and so on shall be within the recommended range by the manufacturer or the range specified in **JIS** of the welding consumables to be tested.

6 Heat treatment Heat treatment shall be as follows:

- a) Heat treatment shall be carried out on the welding-completed test plate or the test specimen cut with machining allowance, except for hydrogen removal treatment.
- b) Heat treatment condition shall be as that of specified in **JIS** of the welding consumables to be tested.
- c) Hydrogen removal treatment shall be carried out on the processed test piece or test specimen prior to processing, and shall be at a temperature not exceeding 250 °C for up to 16 hours.