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(JWES)

**Specification and approval of
welding procedures for metallic
materials—Welding procedure
specification for arc welding**

ICS 25.160.10

Reference number : JIS Z 3421-1 : 2003 (E)

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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), with a draft of Industrial Standard based on the provision of Article 12 Clause 1 of the Industrial Standardization Law.

This Standard has been made based on **ISO/DIS 15609-1 : 2000** *Specification and approval of welding procedures for metallic materials—Welding procedure specification—Part 1 : Arc welding* 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.

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

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Specification and approval of welding procedures for metallic materials— Welding procedure specification for arc welding

Introduction This Japanese Industrial Standard has been prepared based on **ISO/DIS 15609-1 : 2000** *Specification and approval of welding procedures for metallic materials—Welding procedure specification—Part 1 : Arc welding* with some modifications of the technical contents.

Portions underlined with dots are the matters in which the contents of original International Standard have been modified. The table of modifications is shown as Annex 1 (informative) with the explanations.

1 Scope This Standard specifies requirements for the content of welding procedure specifications for arc welding processes. This Standard is part of a series of standards. Annex B gives details of this series of standards.

The variables listed in this Standard are those influencing the quality of the welded joint.

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/DIS 15609-1 : 2000 *Specification and approval of welding procedures for metallic materials—Welding procedure specification—Part 1 : Arc welding* (MOD)

2 Normative references The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. If the indication of the year of publication is given to these referred standards, only the edition of indicated year constitutes the provision of this Standard but the revision and amendment made thereafter are not applied. The normative references without the indication of the year of coming into effect apply limiting only to the most recent editions (including amendments).

JIS Z 3420 *Specification and approval of welding procedures for metallic materials—General rules*

Remarks : **ISO/DIS 15607 : 2000** *Specification and approval of welding procedures for metallic materials—General rules* is equivalent to the said standard.

JIS Z 3001 *Welding terms*

3 Definitions For the purposes of this Standard, the definitions given in **JIS Z 3420** apply.

4 Technical content of welding procedure specification (WPS)

4.1 General A Welding Procedure Specification shall provide all the necessary information required to make a weld. Welding procedure specifications cover a certain range of material thickness and also cover a range of parent materials and even welding consumables. Some manufacturers prefer additionally to prepare work instructions for each specific job as part of detailed production planning.

For general arc welding, the information given in subclauses **4.2** to **4.5** suffices requirements for welding procedure specifications. For some applications it may be necessary to supplement or reduce the list. Ranges and tolerances, according to **JIS Z 3420**, the relevant standard of the series and to the manufacturer's experience, shall be specified where appropriate.

An example of the WPS-format is shown in Annex A.

4.2 Related to the manufacturer

- Identification of the manufacturer;
- Identification of the WPS;
- Reference to the Welding Procedure Approval Record (WPAR) or other documents as required.

4.3 Related to the parent material

4.3.1 Parent material type

- Designation of the material(s), and reference standard(s);
- Number(s) of the group(s).

Remarks : A WPS may cover a group of materials.

4.3.2 Material dimensions

- Thickness ranges of the joint;
- Outside diameter ranges for pipes.

4.4 Common to all welding procedures

4.4.1 Welding process Welding process(es) used in accordance with **JIS Z 3001**.

4.4.2 Joint design

- A sketch of the joint design/configuration and dimensions or reference to standards which provide such information;
- Weld run sequence given on the sketch if essential for the properties of the weld.