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Quality requirements for fusion welding of metallic materials —

Part 4: Elementary quality requirements

Exigences de qualité en soudage par fusion des matériaux métalliques —

Partie 4: Exigences de qualité élémentaire

Reference number
ISO 3834-4:2005(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 3834-4 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 10, *Unification of requirements in the field of metal welding*.

This second edition cancels and replaces the first edition (ISO 3834-4:1984), which has been technically revised.

ISO 3834 consists of the following parts, under the general title *Quality requirements for fusion welding of metallic materials*:

— *Part 1: Criteria for the selection of the appropriate level of quality requirements*

— *Part 2: Comprehensive quality requirements*

— *Part 3: Standard quality requirements*

— *Part 4: Elementary quality requirements*

— *Part 5: Documents with which it is necessary to conform to claim conformity to the quality requirements of ISO 3834-2, ISO 3834-3 or ISO 3834-4*

NOTE A Technical Report ISO/TR 3834-6, *Quality requirements for fusion welding of metallic materials — Part 6: Guidance on implementing ISO 3834* is being prepared.

Requests for official interpretations of any aspect of this part of ISO 3834 should be directed to the Secretariat of ISO/TC 44/SC 10 via your national standards body, a complete listing which can be found at http://www.iso.org.

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Quality requirements for fusion welding of metallic materials —

Part 4: Elementary quality requirements

1 Scope

This part of ISO 3834 defines elementary quality requirements for fusion welding of metallic materials both in workshops and at field installation sites.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3834-1, *Quality requirements for fusion welding of metallic materials — Part 1: Guidelines for the selection of the appropriate level of quality requirements*

ISO 3834-5:2005, *Quality requirements for fusion welding of metallic materials — Part 5: Documents with which it is necessary to conform to claim conformity to the quality requirements of ISO 3834-2, ISO 3834-3 or ISO 3834-4*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 3834-1 apply.

4 Use of this part of ISO 3834

For general information on the use of this part of ISO 3834, ISO 3834-1 shall be used.

In order to fulfil the quality requirements given in this part of ISO 3834, the conformity to relevant documents given in ISO 3834-5 shall be verified.

The requirements contained within this part of ISO 3834 shall be adopted in full.

5 Review of requirements and technical review

The manufacturer shall review the contractual requirements and any other requirements, together with any technical data provided by the purchaser or in-house data when the construction is designed by the manufacturer. The manufacturer shall establish that all information necessary to carry out the manufacturing operations is complete and available prior to the commencement of the work. The manufacturer shall affirm its capability to meet all requirements and shall ensure adequate planning of all quality-related activities.

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The review of requirements is carried out by the manufacturer to verify that the work content is within its capability to perform, that sufficient resources are available to achieve delivery schedules and that documentation is clear and unambiguous. The manufacturer shall ensure that any variations between the contract and any previous quotation are identified and the purchaser notified of any programme, cost or engineering changes that may result.

6 Sub-contracting

When a manufacturer intends to use sub-contracted services or activities (e.g. welding, inspection, non-destructive testing), information necessary to meet applicable requirements shall be supplied by the manufacturer to the sub-contractor. The sub-contractor shall provide such records and documentation of his work as may be specified by the manufacturer.

A sub-contractor shall work under the order and responsibility of the manufacturer and shall fully comply with the relevant requirements of this part of ISO 3834. The manufacturer shall ensure that the sub-contractor can comply with the quality requirements as specified.

7 Welding personnel

7.1 General

The manufacturer shall provide sufficient supervision of the welding production in order to assure that the welding is carried out in a manner compatible with good workmanship.

7.2 Welders and welding operators

Welders and welding operators shall be qualified by an appropriate test.

The ISO documents to which it is required to conform to fulfil the quality requirements are specified in ISO 3834-5:2005, Table 1, for arc welding, electron beam welding, laser beam welding and gas welding, and in ISO 3834-5:2005, Table 10, for other fusion welding processes.

8 Inspection and testing personnel

8.1 General

The manufacturer shall carry out all inspection and testing as specified.

8.2 Non-destructive testing personnel

The non-destructive testing personnel shall be qualified. For visual testing, a qualification test may not be required. When a qualification test is not required, competence shall be verified by the manufacturer.

The ISO documents to which it is required to conform to fulfil the quality requirements are specified in ISO 3834-5:2005, Table 3, for arc welding, electron beam welding, laser beam welding and gas welding, and in ISO 3834-5:2005, Table 10, for other fusion welding processes.

9 Equipment

Welding equipment shall be available and maintained in proper working order.

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10 Welding and related activities

Welding shall be performed in accordance with an appropriate welding technique.

11 Welding consumables

The manufacturer shall ensure that appropriate welding consumables are stored and used in accordance with the supplier's recommendations.

12 Inspection and testing

The manufacturer shall carry out all inspection and testing as specified.

13 Non-conformance and corrective actions

Measures shall be implemented to control items or activities which do not conform to specified requirements in order to prevent their inadvertent acceptance. Measures shall also be implemented to ensure that conditions adverse to quality of the welded construction are promptly identified and corrected.

14 Quality records

Quality records shall be retained for a minimum period of five years in the absence of any other specified requirements.

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