
**Quality requirements for fusion
welding of metallic materials —**

**Part 4:
Elementary quality requirements**

*Exigences de qualité en soudage par fusion des matériaux
métalliques —*

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Partie 4: Exigences de qualité élémentaire
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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 10, *Quality management in the field of welding*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 121, *Welding and allied processes*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 3834-4:2005), of which it constitutes a minor revision.

The main changes compared to the previous edition are as follows:

- editorial revisions;
- in [7.2](#) and [8.2](#), update of references to the latest edition of ISO 3834-5.

A list of all parts in the ISO 3834 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Official interpretations, where they exist, are available from this page: <https://committee.iso.org/sites/tc44/home/interpretation.html>.

Quality requirements for fusion welding of metallic materials —

Part 4: Elementary quality requirements

1 Scope

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

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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: Criteria for the selection of the appropriate level of quality requirements*

ISO 3834-5:—,¹⁾ *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*

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3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Use of this document

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

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

The requirements contained within this document 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

1) Under preparation. (Stage at the time of publication: ISO/DIS 3834-5:2021).

manufacturer shall affirm its capability to meet all requirements and shall ensure adequate planning of all quality-related activities.

The review of requirements shall be 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 can 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 her or his work as can 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 document. 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

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

The documents to which it is required to conform to fulfil the quality requirements are specified in:

- ISO 3834-5:—, Table 1, for arc welding, electron-beam welding, laser-beam welding and gas welding; and
- ISO 3834-5:—, 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 is not always 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:—, Table 3, for arc welding, electron-beam welding, laser-beam welding and gas welding; and
- ISO 3834-5:—, Table 10, for other fusion welding processes.

9 Equipment

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

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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