
**Quality requirements for welding —
Resistance welding of metallic materials —
Part 1:
Comprehensive quality requirements**

*Exigences de qualité en soudage — Soudage par résistance
des matériaux métalliques —
Partie 1: Exigences de qualité complète*

[ISO 14554-1:2000](https://standards.iso.org/iso-14554-1-2000)

<https://standards.itech.ai/catalog/standards/sist/d4c89258-f0b8-4052-97f0-a3b828944484/iso-14554-1-2000>



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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 3.

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 member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 14554 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 14554-1 was prepared by the European Committee for Standardization (CEN) in collaboration with ISO Technical Committee TC 44, *Welding and allied processes*, Subcommittee SC 10, *Unification of requirements in the field of metal welding*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Throughout the text of this standard, read "(...this European Standard...)" to mean "...this International Standard...".

ISO 14554 consists of the following parts, under the general title *Quality requirements for welding — Resistance welding of metallic materials*:

— Part 1: *Comprehensive quality requirements*

— Part 2: *Elementary quality requirements*

Annex A of this part of ISO 14554 is for information only.

Annex ZA provides a list of corresponding International and European Standards for which equivalents are not given in the text.

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Foreword

The text of EN ISO 14554-1:2000 has been prepared by Technical Committee CEN/TC 121 "Welding", the secretariat of which is held by DS, in collaboration with Technical Committee ISO/TC 44 "Welding and allied processes".

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2000, and conflicting national standards shall be withdrawn at the latest by October 2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association. This European Standard is considered to be a supporting standard to those application and product standards which in themselves support an essential safety requirement of a New Approach Directive and which make reference to this European Standard.

Annexe A is informative.

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1 Scope

This standard has been prepared such that:

- it is independent of the type of welded construction to be manufactured;
- it defines quality requirements for welding both in production plants and on site;
- it provides guidance for describing a manufacturer's capability to produce welded constructions to meet specified requirements;
- it can also be used as a basis for assessing the manufacturer in respect to his welding capability.

This standard is appropriate when demonstration of a manufacturer's or a sub-contractor's capability to produce welded constructions, fulfilling specified quality requirements, are specified in one or more of the following:

- a contract between involved parties;
- an application standard;
- a regulatory requirement.

The requirements contained within this standard can be adopted in full or can be selectively deleted by the manufacturer if not applicable to the construction concerned. They provide a flexible framework for the control of welding in the following cases:

- Case 1

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To provide specific requirements for resistance welding in contracts which require the manufacturer or sub-contractor to have a quality system in accordance with EN ISO 9001 or EN ISO 9002.

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- Case 2

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To provide specific requirements for resistance welding in contracts which require the manufacturer or sub-contractor to have a quality system other than EN ISO 9001 or EN ISO 9002.

- Case 3

To provide specific requirements for resistance welding as guidance to a manufacturer or sub-contractor developing a quality system.

- Case 4

To provide specific requirements for references in application standards which uses resistance welding as part of its requirements or in a contract between relevant parties. It is however more appropriate for EN ISO 14554-2 to be used in such cases.

For general guidelines for selection and use see EN 729-1 with the exception of Annex B and under consideration that for resistance welding only comprehensive and elementary quality requirements are specified. Annex A in this standard applies for resistance welding.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

ISO 14554-1:2000(E)

EN 719:1994

Welding coordination – Tasks and responsibilities

EN 729-1

Quality requirements for welding – Fusion welding of metallic materials – Part 1: Guidelines for selection and use

EN 1418

Welding personnel – Approval testing of welding operators for fusion welding and resistance weld setters for fully mechanized and automatic welding of metallic materials

EN ISO 9001

Quality systems – Model for quality assurance in design, development, production, installation and servicing (ISO 9001 : 1994)

EN ISO 9002

Quality systems – Model for quality assurance in production, installation and servicing (ISO 9002:1994)

EN ISO 14554-2

Quality requirements for welding – Resistance welding of metallic materials – Part 2: Elementary quality requirements (ISO 14554-2:2000)

ISO 5182

Welding – Materials for resistance welding electrodes and ancillary equipment

ISO 5184

Straight resistance spot welding electrodes

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3 Terms and definitions

For the purposes of this standard terms and definitions listed in EN 729-1 apply

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4 Contract and design review

4.1 General

The manufacturer shall review the contractual requirements and the design data provided by the purchaser or in-house data for construction designed by the manufacturer. This is to ensure that all information necessary to carry out the fabrication operations is available prior to the commencement of the work. The manufacturer shall affirm his capability to meet all welding contract requirements and ensure adequate planning of all quality related activities.

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

The items in 4.2 are typically considered at or before the time of the contract review. The items in 4.3 usually form part of the design review and should be taken into account during the contract review if the design is not carried out by the manufacturer. It shall be ensured that all relevant information has been supplied by the purchaser.

When a contract does not exist, e.g. items made for stock, the manufacturer is required to take into consideration the requirements of 4.2 whilst carrying out his design review (see 4.3).

4.2 Application – Contract review

Contractual requirements to be considered should include:

a) the application standard to be used, together with any supplementary requirements;

- b) inspection and testing;
- c) the specification of welding procedures, destructive and non-destructive examination procedures and heat treatment procedures;
- d) the approach to be used for welding procedure approval;
- e) the approval of personnel;
- f) heat treatment (details see item 12);
- g) selection, identification and/or traceability, e.g. for materials, welding equipment, welders and welds (see clause 16);
- h) quality control arrangements, including any involvement of an independent inspection body;
- i) other welding requirements, e.g. surface condition of the sheets, coatings, fit up of the parts;
- j) environmental conditions, e.g. main voltage conditions, very high/low ambient temperatures, high humidity (see ISO 669);
- k) sub-contracting;
- l) handling of non-conformances.

4.3 Application – Design review

Design requirements to be considered should include:

- a) welding process or welding process variable;
- b) welding equipment and welding electrodes;
- c) use of special methods, e.g. welding with backing electrode, welding with shielding gas or shielding fluids, welding with intermediate electrode;
- d) location, accessibility and sequence of all welds;
- e) surface finish and the geometry of the welded joint, e.g. excessive electrode indentation or in the case of mash welding excessive thickness of the weld;
- f) parent metal(s) specification and welded joint properties;
- g) welds which are to be made in production plants or on site;
- h) initial and final dimensions of the welded component, any special surface or edge preparation;
- i) quality and acceptance requirements;
- j) other special requirements, e.g. surface finishing, heat treatment, interweld adhesives, sealants, primer.

5 Sub-contracting

When a manufacturer intends to use sub-contracted services (e.g. welding, inspection, heat treatment) all relevant specifications and 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.

Any sub-contractor shall work as instructed by, and be responsible to, the manufacturer and shall fully comply with all relevant requirements of this standard. The manufacturer shall ensure that the sub-contractor can comply with the quality requirements of the contract.