INTERNATIONAL STANDARD

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Quality requirements for welding — Resistance welding of metallic materials —

Part 2: Elementary quality requirements

Exigences de qualité en soudage — Soudage par résistance des matériaux métalliques —

Partie 2: Exigences de qualité élémentaire

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Foreword

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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 14554-2 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 14554-2:2000 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of an identical text or by endorsement, at the latest by October 2000, and conflicting national standards shall be withdrawn at the latest by October 2000.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 manufacturers 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 manufacturers 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

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 and where the documented welding control has a minor importance to the overall integrity of the final construction.

– Case 2

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

– Case 3

To provide specific requirements for references in application standards which use resistance welding as part of their requirements or in a contract between relevant parties.

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 requirements are specified. Annex A in this standard applies for resistance welding.

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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 revisons 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).

EN 729-1
Quality requirements for welding – Fusion welding of metallic materials – Part 1: Guidelines for selection and use

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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)

3 Terms and definitions

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

4 Contract and design review

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.

5 Sub-contracting

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.

6 Welding personnel

6.1 General

The manufacturer shall have at his disposal sufficient and competent personnel for the planning, performing and supervising of the welding production according to specified requirements.

6.2 Operators

All operators of resistance welding equipment shall be given introduction courses and task-orientated training.

6.3 Resistance weld setter

The resistance welder (weld setter and programmer) is the person who is competent for setting up resistance welding equipment according to specified welding procedures. He has the required knowledge and skill for carrying out the work for quality assurance in the field of resistance welding.

The required competence may be proved by sufficient experience, in-house training, or by a certificate of successful participation in a course for resistance welders (weld setter or programmer).

7 Equipment

The welding equipment shall be maintained in proper working order.

8 Welding activities

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

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9 Welding electrodes and auxiliaries

The manufacturer shall ensure that appropriate welding electrodes and auxiliaries are used.

10 Weld related inspection and testing

10.1 General

The manufacturer shall carry out any inspection and testing as specified in the contract.

10.2 Personnel inspection and testing

The manufacturer shall have at his disposal sufficient and competent personnel for planning and performing any inspection and testing, where appropriate.

11 Storage of parent material

Storage shall be such that the material will not be adversely affected. Marking shall be maintained during storage.

12 Non-conformance and corrective action

Measures shall be implemented to control items which do not conform to specified requirements in order to prevent their inadvertent use. When repair and/or rectification is undertaken by the manufacturer, appropriate procedures shall be available at all workstations where repair or rectification is performed. When repair or rectification is carried out, the items shall be re-inspected, tested and examined in accordance with the original requirements, where appropriate.

13 Quality records

Any quality records specified in a contract shall be retained for a minimum period of 5 years unless otherwise specified.

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Annex A
(informative)

Summary comparison of welding quality requirements with regard to EN ISO 14554-1 and EN ISO 14554-2

Table A.1 - Summary comparison

Elements	EN ISO 14554-1 (comprehensive quality requirements)	EN ISO 14554-2 (elementary quality requirements)
contract review	full documented review	establish that capability and information is available
design review	design for welding to be confirmed	
sub-contractor	treat like a main manufacturer	shall comply to standard
resistance weld setter	proved by sufficient experience, inhouse training record or according to EN 1418	proved by sufficient experience or inhouse training record
welding coordination	welding coordination personnel with appropriate technical knowledge according to EN 719, or persons with similar knowledge	see 6.1
inspection personnel	sufficient and competent personnel to be available	sufficient and competent personnel at disposal
production equipment	required to prepare, cut, weld, transport, to lift, together with safety equipment and protective clothes	
equipment maintenance	has to be carried out, maintenance plan necessary	shall be adequate
production plan	necessary	shall be adequate
welding procedure specification (WPS)	instructions to be available to welder	shall be adequate
welding procedure approval	to prEN ISO 15614 series, approved as application standards or contract demands	shall be adequate
work instructions	welding specification or dedicated instructions to be available (WPS)	shall be adequate
documentation	necessary	as required
batch testing of welding electrodes and auxiliaries	if specified	not mandatory
storage of parent materials	protection required from influence by the environment	
heat treatment	specification necessary	
inspection before, during, after welding	as required for specified operations	responsibilities as specified in contract

(continued)

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Table A.1 (concluded)

Elements	EN ISO 14554-1 (comprehensive quality requirements)	EN ISO 14554-2 (elementary quality requirements)
non-conformances	procedures shall be available	
calibration	procedures shall be in operation	necessary, if quality records are specified
identification and traceability	required	as required by contract
quality records	shall be available to meet the rules for product liability	as required by contract
	retained for five years minimum	

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