
Welding personnel — Qualification testing of welding operators and weld setters for mechanized and automatic welding of metallic materials

Personnel en soudage — Épreuve de qualification des opérateurs soudeurs et des régleurs en soudage pour le soudage mécanisé et le soudage automatique des matériaux métalliques



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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. 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. 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.

The committee responsible for this document is ISO/TC 44, *Welding and allied processes*, Subcommittee SC 11, *Qualification requirements for welding and allied processes personnel*.

This second edition cancels and replaces the first edition (ISO 14732:1998), of which it constitutes a technical revision.

Requests for official interpretations of any aspect of this International Standard should be directed to the Secretariat of ISO/TC 44/SC 11 via your national standards body. A complete listing of these bodies can be found at www.iso.org.

Introduction

This International Standard is intended to provide the basis for the mutual recognition by examining bodies of qualification related to the competence of welding operators and weld setters in the various fields of application. Tests shall be carried out in accordance with this International Standard unless more severe tests are specified by the relevant application standard, when these shall be applied.

The welding operator's or weld setter's ability and job knowledge continue to be approved only if the welding operators or weld setters are working with reasonable continuity on welding work within the extent of qualification. However, a functional knowledge test is mandatory.

It is presumed that the welding operator or weld setter has received training or has industrial practice within the range of qualification.

All new qualifications are to be in accordance with this International Standard from the date of issue.

At the end of its period of validity, the existing and valid qualification testing of welding operators and weld setters in accordance with the requirements of a national standard may be revalidated in accordance with this International Standard. The new range of qualification will be interpreted in accordance with the requirements of this International Standard.

Welding personnel — Qualification testing of welding operators and weld setters for mechanized and automatic welding of metallic materials

1 Scope

This International Standard specifies requirements for qualification of welding operators and also weld setters for mechanized and automatic welding.

This International Standard does not apply to personnel exclusively performing loading or unloading of the automatic welding unit.

This International Standard is applicable when qualification testing of welding operators and weld setters is required by the contract or by the application standard.

The requirements for testing of stud welding operators and setters are given in ISO 14555. The qualification and revalidation is in accordance with this International Standard.

[Annex A](#) dealing with functional knowledge forms an integral part of this International Standard. [Annex B](#) dealing with welding technical knowledge, [Annex C](#) outlining the qualification test certificate and the Bibliography are informative.

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 3834-2, *Quality requirements for fusion welding of metallic materials — Part 2: Comprehensive quality requirements*

ISO 3834-3, *Quality requirements for fusion welding of metallic materials — Part 3: Standard quality requirements*

ISO 4063, *Welding and allied processes — Nomenclature of processes and reference numbers*

ISO 9606-1, *Qualification testing of welders — Fusion welding — Part 1: Steels*

ISO 9606-2, *Qualification test of welders — Fusion welding — Part 2: Aluminium and aluminium alloys*

ISO 9606-3, *Approval testing of welders — Fusion welding — Part 3: Copper and copper alloys*

ISO 9606-4, *Approval testing of welders — Fusion welding — Part 4: Nickel and nickel alloys*

ISO 9606-5, *Approval testing of welders — Fusion welding — Part 5: Titanium and titanium alloys, zirconium and zirconium alloys*

ISO 14555, *Welding — Arc stud welding of metallic materials*

ISO 15609-1, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 1: Arc welding*

ISO 15609-3, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 3: Electron beam welding*

ISO 15609-4, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 4: Laser beam welding*

ISO 15609-5, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 5: Resistance welding*

ISO 15613, *Specification and qualification of welding procedures for metallic materials — Qualification based on pre-production welding test*

ISO 15614-1, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys*

ISO 15614-2, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 2: Arc welding of aluminium and its alloys*

ISO 15614-5, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 5: Arc welding of titanium, zirconium and their alloys*

ISO 15614-6, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 6: Arc and gas welding of copper and its alloys*

ISO 15614-7, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 7: Overlay welding*

ISO 15614-8, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 8: Welding of tubes to tube-plate joints*

ISO 15614-11, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 11: Electron and laser beam welding*

ISO 15614-13, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 13: Upset (resistance butt) and flash welding*

ISO 15614-14, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 14: Laser-arc hybrid welding of steels, nickel and nickel alloys*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 automatic welding

welding in which all operations are performed without welding operator intervention during the process

Note 1 to entry: Manual adjustment of welding variables by the welding operator during welding is not possible.

3.2 mechanized welding

welding where the required welding conditions are maintained by mechanical or electronic means but may be manually varied during the process

3.3 pre-production welding test

welding test having the same function as a welding procedure test, but based on a non-standard test piece, representative of the production conditions

3.4 production test

welding test carried out in the production environment with the welding unit, on actual products or on simplified test pieces, before production or during an interruption in normal production

3.5 production sample testing

testing of actual welded products sampled from a continuous production