International Standard

ISO 14732

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 document 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).

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This document was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 11, *Qualification requirements for welding and allied processes personnel*, 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 14732:2013), which has been technically revised.

The main changes are as follows:

— introduction has been revised to exclude reference to application standards;

— scope clarifies that the standard does not apply to personnel who do not control or adjust welding parameters; or are not involved in the setup of welding equipment;

— scope is now limited to metallic materials per the title;

— scope references ISO 25239-3 and ISO 18785-3, respectively for friction stir and friction stir spot welding;

— normative references in Clause 2 have been updated;

— terms and definitions in Clause 3 have been updated and re-ordered

— Clause 4 has been significantly revised and variables and range of qualification are now in a new Clause 5;

— Clause 6 (previously Clause 5) has been revised

— Annexes A and B have been updated

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 of ISO/TC 44 documents, where they exist, are available from this page: https://committee.iso.org/sites/tc44/home/interpretation.html.

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Introduction

This document 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.

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 should be in accordance with this document 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 can be revalidated in accordance with this document. The new range of qualification will be interpreted in accordance with the requirements of this document.

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

1 Scope

This document specifies requirements for qualification of welding operators and weld setters for mechanized and automatic welding of metallic materials.

This document does not apply to personnel who:

— do not control or adjust welding parameters;

— are not involved in the setup of welding equipment.

Qualification of welding operators and weld setters for friction stir welding and friction stir spot welding are covered by ISO 25239-3 and ISO 18785-3, respectively.

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 3834-2, *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 4063:2023, *Welding, brazing, soldering and cutting — 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 15609-2, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 2: Gas welding*

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

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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 15609-6, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 6: Laser-arc hybrid 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 15614-12, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 12: Spot, seam and projection 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*

ISO 25901 (all parts), *Welding and allied processes — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in the ISO 25901 series and the following apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
mechanized welding
welding where the required welding parameters are maintained by mechanical or electronic means

Note 1 to entry: Manual adjustment of welding parameters by the *welding operator* (3.3) during welding is possible.

[SOURCE: ISO/TR 25901-1:2016, 2.1.1.10, modified — the alternative preferred term, *fully mechanized welding,* has not been included.]

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