

Australian/New Zealand Standard™

**Qualification testing of welders—
Fusion welding**

Part 1: Steels



AS/NZS ISO 9606.1:2017

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- Australian Chamber of Commerce and Industry
- Australian Industry Group
- Australian Steel Association
- Australian Steel Institute
- Austrroads
- Bureau of Steel Manufacturers of Australia
- Energy Networks Australia
- New Zealand Heavy Engineering Research Association
- New Zealand Non-Destructive Testing Association
- Steel Reinforcement Institute of Australia
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Part 1: Steels

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Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee WD-003, Welding of Structures.

The objective of this Standard is to specify the requirements for qualification testing of welders for fusion welding of steels. This Standard provides a set of technical rules for a systematic qualification test of the welder, and enables such qualifications to be uniformly accepted independently of the type of product, location and examiner or examining body.

This Standard is identical with, and has been reproduced from, ISO 9606-1:2012, *Qualification testing of welders — Fusion welding, Part 1: Steels* and its Technical Corrigendum 1:2012.

As this document has been reproduced from an International Standard, the following applies:

- (a) In the source text 'this part of ISO 9606' should read 'this Australian/New Zealand Standard';
- (b) A full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms 'normative' and 'informative' are used in Standards to define the application of the appendices or annexes to which they apply. A 'normative' appendix or annex is an integral part of a Standard, whereas an 'informative' appendix or annex is only for information and guidance.

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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 2.

The main task of technical committees is to prepare International Standards. 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 the member bodies casting a vote.

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.

ISO 9606-1 was prepared by Technical Committee 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 9606-1:1994), which has been technically revised. It also incorporates the Amendment ISO 9606-1:1994/Amd.1:1998.

ISO 9606 consists of the following parts, under the general title *Qualification testing of welders — Fusion welding*:

- *Part 1: Steels*
- *Part 2: Aluminium and aluminium alloys*
- *Part 3: Copper and copper alloys*
- *Part 4: Nickel and nickel alloys*
- *Part 5: Titanium and titanium alloys, zirconium and zirconium alloys*

Requests for official interpretations of any aspect of this part of ISO 9606 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

The ability of a welder to follow verbal or written instructions and verification of a person's skills are important factors in ensuring the quality of the welded product.

The testing of a welder's skill in accordance with this International Standard depends on the welding techniques and conditions used, in which uniform rules are complied with and standard test pieces are used.

The principle of this International Standard is that a qualification test qualifies a welder not only for the conditions used in the test, but also for all other conditions which are considered easier to weld in accordance with this International Standard. It is presumed that the welder has received training and/or has industrial practice within the range of qualification.

The qualification test can be used to qualify a welding procedure and a welder provided that all the relevant requirements, e.g. test piece dimensions and testing requirements are satisfied (see ISO 15614-1^[11]).

All new qualifications shall be in accordance with each part of this International Standard from its date of issue.

At the end of its period of validity, existing qualification tests of welders in accordance with the requirement of a national standard may be revalidated according to this International Standard. This is providing that the technical intent of this International Standard is satisfied. It is necessary for the new range of qualification to be interpreted in accordance with the requirements of this International Standard.

Australian/New Zealand Standard

Qualification testing of welders—Fusion welding

Part 1: Steels

1 Scope

This part of ISO 9606 specifies the requirements for qualification testing of welders for fusion welding of steels.

It provides a set of technical rules for a systematic qualification test of the welder, and enables such qualifications to be uniformly accepted independently of the type of product, location and examiner or examining body.

When qualifying welders, the emphasis is placed on the welder's ability manually to manipulate the electrode, welding torch or welding blowpipe, thereby producing a weld of acceptable quality.

The welding processes referred to in this part of ISO 9606 include those fusion-welding processes which are designated as manual or partly mechanized welding. It does not cover fully mechanized and automated welding processes.

NOTE For such processes, see ISO 14732 [\[10\]](#).

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 857-1, *Welding and allied processes — Vocabulary — Part 1: Metal welding processes*

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 5173, *Destructive tests on welds in metallic materials — Bend tests*

ISO 5817, *Welding — Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) — Quality levels for imperfections*

ISO 6947, *Welding and allied processes — Welding positions*

ISO 9017, *Destructive tests on welds in metallic materials — Fracture test*

ISO/TR 15608, *Welding — Guidelines for a metallic material grouping system*

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 17636 (all parts), *Non-destructive testing of welds — Radiographic testing*

ISO 17637, *Non-destructive testing of welds — Visual testing of fusion-welded joints*

ISO/TR 25901:2007, *Welding and related processes — Vocabulary*