
**Destructive tests on welds in metallic
materials — Macroscopic and
microscopic examination of welds**

*Essais destructifs des soudures sur matériaux métalliques — Examens
macroscopique et microscopique des assemblages soudés*



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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.

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ISO 17639 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 5, *Testing and inspection of welds*.

Requests for official interpretation of any aspect of this International Standard should be directed to the Secretariat of ISO/TC 44/SC 5 via the member body in the user's country, a complete listing of which can be found at www.iso.org.

Destructive tests on welds in metallic materials — Macroscopic and microscopic examination of welds

1 Scope

This International Standard gives recommendations for specimen preparation, test procedures and their main objectives for macroscopic and microscopic examination.

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 6520-1, *Welding and allied processes — Classification of geometric imperfections in metallic materials — Part 1: Fusion welding*

ISO 9956-3, *Specification and approval of welding procedures for metallic materials — Part 3: Welding procedure tests for arc welding of steels*

ISO 9956-4, *Specification and approval of welding procedures for metallic materials — Part 4: Welding procedure tests for the arc welding of aluminium and its alloys*

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

ISO/TR 16060, *Destructive tests on welds in metallic materials — Etchants for macroscopic and microscopic examination*

3 Terms and definitions

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

3.1

macroscopic examination

examination of a test specimen by the naked eye, or under low magnification (generally less than $\times 50$), with or without etching

3.2

microscopic examination

examination of a test specimen by microscope with a magnification of generally $\times 50$ to $\times 500$, with or without etching

3.3

operator

person who performs the macroscopic and/or microscopic examination