
**Resistance welding — Destructive tests
of welds — Pressure test of resistance
seam welds**

*Soudage par résistance — Essais destructifs des soudures — Essai de
pression des soudures par résistance à la molette*

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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 17654 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 6, *Resistance welding and allied mechanical joining*.

This second edition cancels and replaces the first edition (ISO 17654:2003), which has been technically revised.

Requests for official interpretations of any aspect of this [International Standard] should be directed to the Secretariat of ISO/TC 44/SC 6 via your national standards body. A complete listing of these bodies can be found at www.iso.org.

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Resistance welding — Destructive tests of welds — Pressure test of resistance seam welds

1 Scope

This International Standard specifies the pressure test method to be applied to resistance-seam-welded specimens of different types of materials with single sheet thicknesses ranging from 0,3 mm to 3,2 mm.

The purpose of this pressure test is to determine the suitability of the material, welding equipment, welding parameters and of other factors on a tank, a vessel or a container for liquids or gases, which are manufactured by resistance seam welding.

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 14329, *Resistance welding — Destructive tests of welds — Failure types and geometric measurements for resistance spot, seam and projection welds*

ISO 17677-1, *Resistance welding — Vocabulary — Part 1: Spot, projection and seam welding*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 17677-1 and ISO 14329 apply.

4 Purpose of test

The pressure test can be performed as a type test.

5 Test specimens

5.1 Requirements

The following shall apply to the preparation of all specimens.

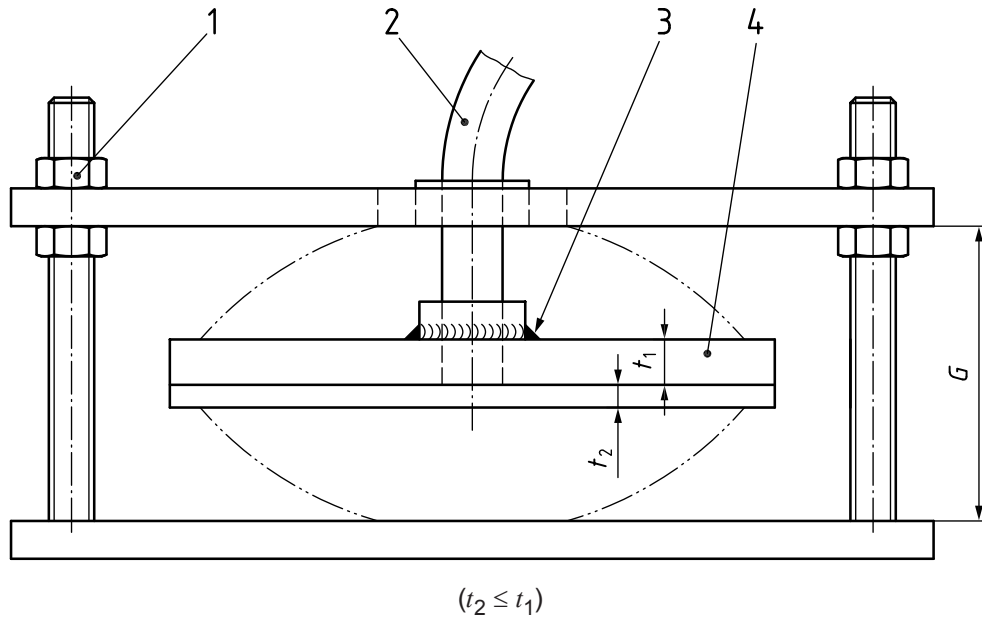
- Materials, thickness, heat treatment and condition of the sheets used for the test specimens shall be identical to those used for welding the actual component.
- For a given welding process, the welding equipment used to produce the test specimens shall have a specification comparable to that used for welding the actual component.

In special cases, e.g. transfer of welding parameters into production lines, the same parameters should be used.

- It has to be ensured that the electrodes that are used to weld the specimens shall be of the same material and geometry as the ones used for welding the actual component.

5.2 Dimensions

Dimensions of resistance-seam-welded test specimens, of type A and type B, are given in Figure 1.

**Key**

- | | | | |
|---|---|-------|---|
| 1 | nuts to adjust G | G | expansion range ($t_1 + t_2 + 20$ mm) (restricted expansion) |
| 2 | water or compressed air supply connection | t_1 | sheet thickness of top sheet |
| 3 | leakproof weld | t_2 | sheet thickness of bottom sheet |
| 4 | test specimen | | |

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Figure 2 — Restraining fixture

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If the test pressure is not specified, the test specimen shall be checked for leakage either at a pressure sufficient to deform the sample by 20 mm, see Figure 2, or at 0,15 MPa, whichever is the lower pressure.

If a test pressure greater than 0,15 MPa is specified, for safety reasons, the test shall be conducted in air using internal water pressure. No leakage of water from any of the seam welds is permitted during the specified time.

The time during which the test pressure is to be maintained shall be specified. This generally depends on the material, the weld process and the product specification.

7 Test report

The test report shall include at least the following information:

- a) a reference to this International Standard (ISO 17654:2011);
- b) the test materials and sheet thicknesses;
- c) chemical composition and mechanical properties of the test materials;
- d) the geometry of the test specimens;
- e) welding method (seam welding);
- f) welding equipment and welding parameters;
- g) weld dimensions;
- h) test results, test pressure and time for which the pressure is maintained during the test, pressure fluid;
- i) any deviation(s) from this International Standard.

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