BS EN ISO 17654:2011

BSI Standards Publication

Resistance welding — Destructive tests of welds — Pressure test of resistance seam welds (ISO 17654:2011)

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National foreword

This British Standard is the UK implementation of EN ISO 17654:2011. It supersedes BS EN ISO 17654:2003 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee WEE/29, Resistance welding.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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English Version

Resistance welding - Destructive tests of welds - Pressure test of resistance seam welds (ISO 17654:2011)

Soudage par résistance - Essais destructifs des soudures - Essai de pression des soudures par résistance à la molette(ISO 17654:2011)

Widerstandsschweißen - Zerstörende Prüfung von Schweißverbindungen - Druckprüfung an Widerstandsrollennahtschweißverbindungen (ISO 17654:2011)

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Foreword

This document (EN ISO 17654:2011) has been prepared by Technical Committee ISO/TC 44 “Welding and allied processes” in collaboration with Technical Committee CEN/TC 121 “Welding” the secretariat of which is held by DIN..

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2012, and conflicting national standards shall be withdrawn at the latest by March 2012.

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Foreword

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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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INTERNATIONAL STANDARD ISO 17654:2011(E)

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.

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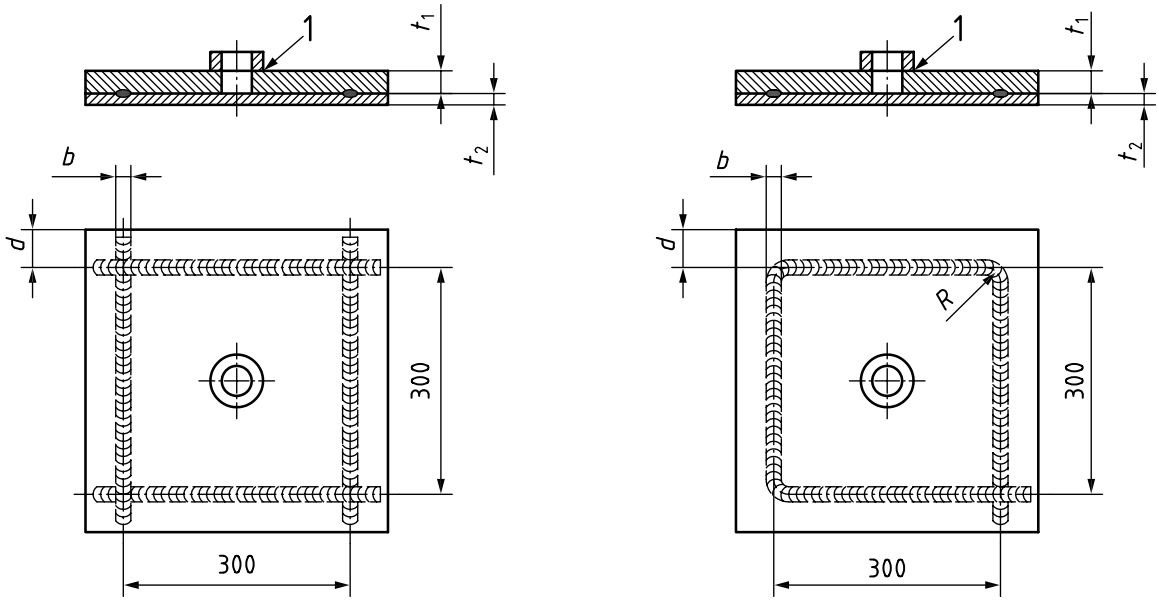
Dimensions in millimetres



($t_2 \leq t_1$)

a) Type A — Specimen with four seams

($t_2 \leq t_1$)

b) Type B — Specimen with one seam

Key

1 leakproof weld

R radius specified for the product

t_1 thickness of top sheet

t_2 thickness of bottom sheet

d edge distance = 2,5 × b (smaller distances may be used for wire seam welding)

b width of weld seam

Figure 1 — Dimensions of test specimens

5.3 Number of test specimens

At least three test specimens shall be tested.

6 Test equipment and test procedure

The test shall be carried out with the specimen shown in Figure 1 assembled in a restraining fixture as shown in Figure 2. The purpose of the restraining fixture is to restrict expansion of the specimen within the expansion range, G, indicated in Figure 2.

The test specimen shall be connected to a supply of compressed air or water at the specified pressure and in the case of compressed air immersed in a water bath. No leaks (in the form of bubbles escaping from any of the seam welds after a specified time) are permitted.

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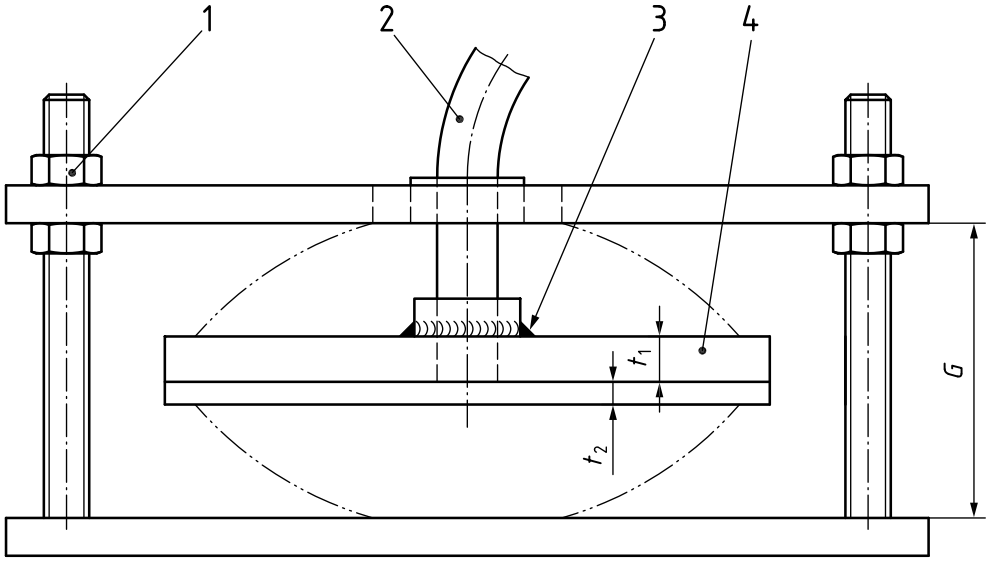

$(t_2 \leq t_1)$

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		

Figure 2 — Restraining fixture

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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BSI Group Headquarters

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