



SLOVENSKI STANDARD
SIST EN ISO 14373:2007

01-september-2007

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Resistance welding - Procedure for spot welding of uncoated and coated low carbon steels (ISO 14373:2006)

Widerstandsschweißen - Verfahren zum Punktschweißen von niedriglegierten Stählen mit oder ohne metallischem Überzug (ISO 14373:2006)

Soudage par résistance - Mode opératoire pour le soudage par points des aciers a bas carbone revetus et non revetus (ISO 14373:2006)

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Ta slovenski standard je istoveten z: **EN ISO 14373:2007**

ICS:

25.160.10 Varilni postopki in varjenje Welding processes

SIST EN ISO 14373:2007

en,fr,de

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ICS 25.160.10

English Version

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par points des aciers à bas carbone revêtus et non revêtus
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von niedriglegierten Stählen mit oder ohne metallischem
Überzug (ISO 14373:2006)

This European Standard was approved by CEN on 19 May 2007.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Foreword

The text of ISO 14373:2006 has been prepared by IIW, International Institute of Welding, and has been taken over as EN ISO 14373:2007 by 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 December 2007, and conflicting national standards shall be withdrawn at the latest by December 2007.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of ISO 14373:2006 has been approved by CEN as a EN ISO 14373:2007 without any modification.

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**Resistance welding — Procedure for spot
welding of uncoated and coated low
carbon steels**

*Soudage par résistance — Mode opératoire pour le soudage par points
des aciers à bas carbone revêtus et non revêtus*

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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 14373 was prepared by the International Institute of Welding, recognized as an international standardizing body in the field of welding in accordance with Council Resolution 42/1999.

Requests for official interpretations of any aspect of this International Standard should be directed to the ISO Central Secretariat, who will forward them to the IIW Secretariat for an official response.

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Resistance welding — Procedure for spot welding of uncoated and coated low carbon steels

1 Scope

This International Standard specifies requirements for resistance spot welding in the fabrication of assemblies of uncoated and metallic coated low carbon steel, comprising two or three sheets of metal, where the maximum single sheet thickness of components to be welded is within the range 0,4 mm to 3 mm, for the following materials:

- uncoated steels;
- hot-dip zinc or iron-zinc alloy (galvannealed) coated steel;
- electrolytic zinc, zinc-iron, or zinc-nickel coated steel;
- aluminium coated steel;
- zinc-aluminium coated steel.

This International Standard is applicable to the welding of sheets of the same or dissimilar thickness, where the thickness ratio is less than or equal to 3:1. It applies to the welding of three thicknesses, where the total thickness is less than or equal to 9 mm.

Welding with the following types of equipment is within the scope of this International Standard:

- a) pedestal welding equipment;
- b) gun welders;
- c) automatic welding equipment where the components are fed by robots or automatic feeding equipment;
- d) multi welders;
- e) robotic welders.

Information on appropriate welding equipment is given in Annex A, and information on spot welding conditions is given in Annex B. This information is provided for guidance only. Depending on the service conditions of the fabrication, the type of welding equipment, the characteristics of the secondary circuit, the electrode material, and the shape, it is possible that certain modifications are necessary. In such cases, further information may be obtained from the relevant application standard, where one exists.

The welding of organic coated or primer coated steels is not within the scope of this International Standard.

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 669, *Resistance welding — Resistance welding equipment — Mechanical and electrical requirements*

ISO 5182, *Welding — Materials for resistance welding electrodes and ancillary equipment*

ISO 10447, *Welding — Peel and chisel testing of resistance spot, projection and seam welds*

ISO 14270, *Specimen dimensions and procedure for mechanized peel testing resistance spot, seam and embossed projection welds*

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

ISO 15609-5, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 5: Resistance welding*

ISO 15614-12, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 12: Spot, seam and projection welding*

3 Terms and definitions

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For the purposes of this document, the terms and definitions given in ISO 669, ISO 14329, and the following apply.

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3.1 corona bond zone

area of the weld at the faying surfaces in which solid phase bonding has occurred

See Figure 2.

3.2 cross-tension test

test to determine the load-carrying capability of a spot welded joint subjected to cross tension loading

3.3 shear test

tensile shear test

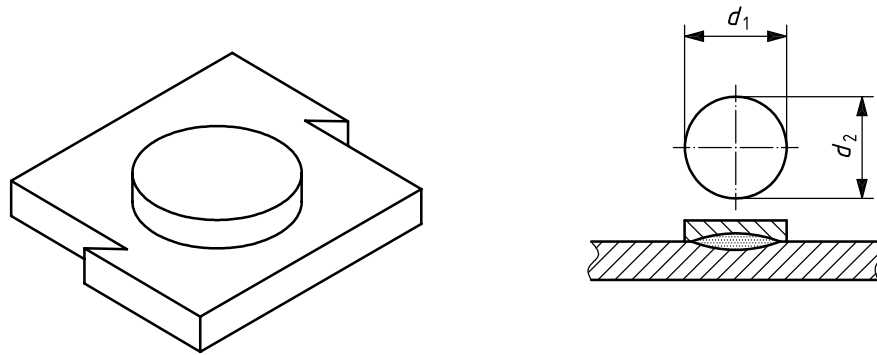
test to determine the load-carrying capability of a spot welded joint subjected to shear tension loading

3.4 weld nugget

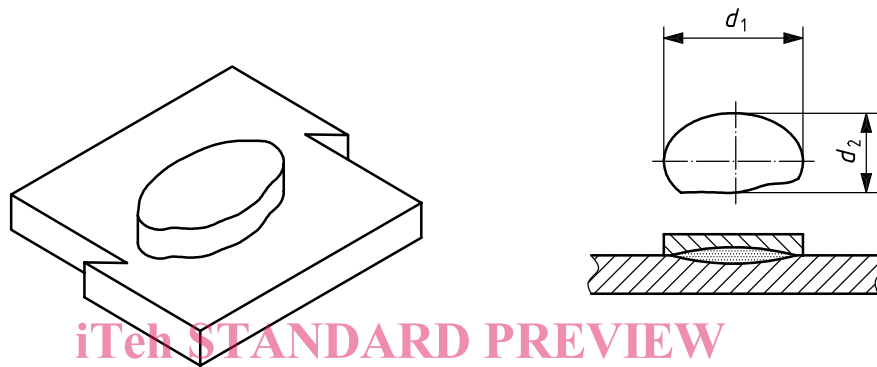
lenticular zone in a resistance weld, where metal from both (all) sheets has melted and re-solidified

3.5 weld pitch

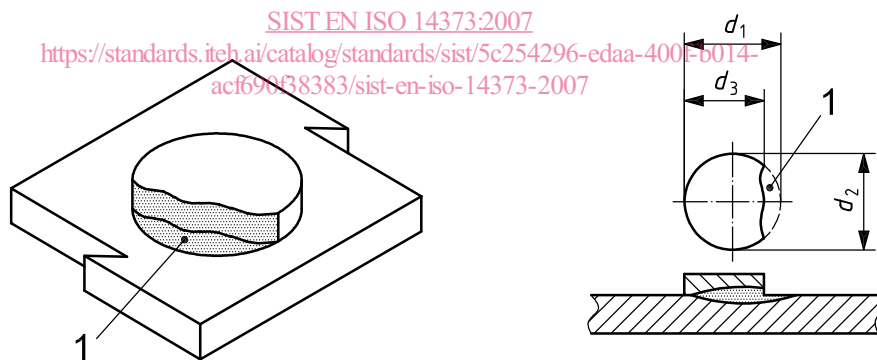
centre-to-centre distance between adjacent spot welds



a) Symmetrical^a



b) Asymmetrical^a



c) Partial^b

Key

1 interfacial fracture

^a $d = d_p = (d_1 + d_2)/2$.

^b $d = (d_1 + d_2)/2$ and $d_p = (d_2 + d_3)/2$.

Figure 1 — Measuring of weld size for weld with plug (slug) failure