SLOVENSKI STANDARD
SIST EN ISO 16433:2007

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Uporovno varjenje - Postopek kolutnega varjenja neprevleļenih in prevleļenih malooglijļnih jekel (ISO 16433:2006)

Resistance welding - Procedure for seam welding of uncoated and coated low carbon steels (ISO 16433:2006)

Widerstandsschweißen - Verfahren zum Rollennahtschweißen von niedriglegierten Stählen mit oder ohne metallischem Überzug (ISO 16433:2006)

Soudage par résistance - Mode opératoire pour le soudage a la molette des aciers a bas carbone revetus et non revetus (ISO 16433:2006)

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Resistance welding - Procedure for seam welding of uncoated and coated low carbon steels (ISO 16433:2006)

Soudage par résistance - Mode opératoire pour le soudage à la molette des aciers à bas carbone revêtus et non revêtus (ISO 16433:2006)

Widerstandsschweißen - Verfahren zum Rollennahtschweißen von niedriglegierten Stählen mit oder ohne metallischem Überzug (ISO 16433:2006)

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.

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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

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Foreword

The text of ISO 16433:2006 has been prepared by IIW, International Institute of Welding, and has been taken over as EN ISO 16433:2007 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of an identical text or by endorsement, at the latest by December 2007, and conflicting national standards shall be withdrawn at the latest by December 2007.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 16433:2006 has been approved by CEN as a EN ISO 16433:2007 without any modification.

INTERNATIONAL STANDARD

ISO 16433

First edition
2006-04-01

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

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

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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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 16433 was prepared by the International Institute of Welding, recognized as an international standardizing body in the field of welding in accordance with Council Resolution.

Introduction

Requests for official interpretations of provisions in this standard should be made in writing and sent to the ISO Central Secretariat who will forward them to the IIW Secretariat for an official response.

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

1 Scope

This International Standard specifies requirements for resistance seam welding in the fabrication of assemblies of uncoated and metallic coated low carbon steel comprising two 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.

Organic-coated or primer-coated steels are not covered by this International Standard. Guidelines for the design of appropriate seam welding equipment and welding conditions are given in Annexes A and B. These are for guidance only and may need to be adapted to suit the specified service conditions of the fabrication, prevailing production conditions, type of welding equipment, mechanical and electrical characteristics of the welding machine, electrode configuration, and material. These requirements shall be taken from the relevant welding procedure specification for the application or procedure, where these exist.

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 5182:1991, *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 14327, *Resistance welding — Procedures for determining the weldability lobe for resistance spot, projection and seam welding*

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*

ISO 17654, *Destructive tests on welds in metallic materials — Resistant welding — Pressure test on resistance seam welds*

3 Terms and definitions

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

3.1
continuous-current seam welding
use of a continuous-current waveform to make a weld

NOTE A continuous weld nugget is formed along the weld seam.

3.2
interrupted-current seam welding
use of a current program comprising two or more pulses of current (commonly known as “on-time”) separated by a pre-set cool time (commonly known as “off-time”)

NOTE A weld nugget is produced during each pulse.

3.3
tread width
width of the electrode face which is in contact with the work piece

NOTE Sometimes this is called electrode face width.

4 Materials

4.1 Form

The steel shall be flat rolled, in coils or cut to length, and shall be free of all harmful imperfections.

4.2 Steel grades

A partial list of steel grades to which this International Standard is applicable is given in Annex C.

4.3 Surface conditions

Prior to welding, all surfaces of components to be seam welded shall be free of contaminants such as grease, scale, corrosion products, paint, dirt or excessive pitting. This condition shall be maintained until the welding process is completed. Uncoated hot-rolled steel shall be in the pickled condition.

Certain surface treatments, such as the application of paint primers, rust preventions, and oils may be applied before welding, provided that the coating is uniform in thickness and it has been demonstrated that consistent welds, conforming to this International Standard, can be obtained. Excessive use of surface pre-treatments may adversely affect electrode life and should therefore be avoided.

Coated steels can be supplied with a chromate or phosphate passivation treatment. Phosphated mild steel may be used in certain applications. These materials can be resistance seam welded, although the welding parameters outlined in Annex B may require appropriate adjustment. Generally, only thin phosphate pre-treatment of steel is acceptable prior to seam welding.