



SWEDISH
STANDARDS
INSTITUTE

SVENSK STANDARD SS-EN ISO 16432:2007

Fastställd 2007-06-28

Utgåva 1

**Motståndssvetsning – Förfarande vid
presssvetsning av obelagda och belagda
lågkolhaltiga stål med pressvårta(or)
(ISO 16432:2006)**

**Resistance welding – Procedure for projection
welding of uncoated and coated low carbon
steels using embossed projection(s)
(ISO 16432:2006)**

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ICS 25.160.10

Språk: engelska

Publicerad: augusti 2007

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 16432

June 2007

ICS 25.160.10

English Version

**Resistance welding - Procedure for projection welding of
uncoated and coated low carbon steels using embossed
projection(s) (ISO 16432:2006)**

Soudage par résistance - Mode opératoire de soudage par
bossage(s) embouti(s) des aciers à bas carbone revêtus et
non revêtus (ISO 16432:2006)

Widerstandsschweißen - Verfahren zum Buckelschweißen
von niedriglegierten Stählen mit oder ohne metallischem
Überzug (ISO 16432:2006)

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.

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EN ISO 16432:2007 (E)

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Foreword

The text of ISO 16432:2006 has been prepared by IIW, International Institute of Welding, and has been taken over as EN ISO 16432:2007 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of an identical text or by endorsement, at the latest by December 2007, and conflicting national standards shall be withdrawn at the latest by December 2007.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 16432:2006 has been approved by CEN as a EN ISO 16432:2007 without any modification.

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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 IIV Secretariat for an official response.

Resistance welding — Procedure for projection welding of uncoated and coated low carbon steels using embossed projection(s)

1 Scope

This International Standard specifies requirements for embossed-resistance-projection welding in the fabrication of assemblies of uncoated and metallic coated low carbon steel comprising two thicknesses 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 appropriate welding equipment and projection welding conditions for various coated steels are given in Annexes A to C. 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 8167, *Projections for resistance welding*

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 14272, *Specimen dimensions and procedure for cross tension testing resistance spot and embossed projection welds*

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ISO 14273, *Specimen dimensions and procedure for shear 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

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

3.1 edge distance

minimum distance from the nearest edge of the component to the centre of the weld

3.2 embossed projection

projection in a sheet used for welding and produced by mechanical force using a punch to displace a predetermined amount of material into a cavity

NOTE See ISO 8167 for use on different sheet thicknesses.

3.3 projection base diameter

diameter of an embossed projection measured at the original surface of the stamped sheet

NOTE See ISO 8167.

3.4 weld pitch

distance between centres of adjacent projections

4 Symbols

Symbol	Term	Unit
d	weld diameter	mm
d_b	nominal-projection base diameter	mm
P_s	shear strength of weld	kN
R_m	ultimate tensile strength of steel	MPa
t	sheet thickness	mm

5 Materials

5.1 Form

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