INTERNATIONAL STANDARD

ISO 8167

Second edition
2021-06

Resistance welding — Embossed projection welding — Projections for resistance welding

Soudage par résistance — Soudage par bossage embouti — Bossages pour le soudage par résistance

Reference number
ISO 8167:2021(E)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 6, *Resistance welding and allied mechanical joining,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 121, *Welding and allied processes,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 8167:1989), which has been technically revised.

The main changes compared to the previous edition are as follows:

— Clause 3 has been updated;

— Annexes B and C have been revised;

— the document has been technically revised to the state of the art.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Official interpretations of ISO/TC 44 documents, where they exist, are available from this page: https://committee.iso.org/sites/tc44/home/interpretation.html.

Resistance welding — Embossed projection welding — Projections for resistance welding

1 Scope

This document specifies the geometries and dimensions of projections for embossed projection welding. Tools to make the projections are also included in Annex B.

The projections are used on hot-rolled, cold-rolled, uncoated and coated steels, stainless steels and nickel alloys for conventional welding quality up to 3 mm thickness, as single projections, in multiples or as a group of multiples.

Any solid projections are not included in this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 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 the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
spherical projection
projection with circular protrusion (see Figure 1)

Note 1 to entry: The type code for spherical projection is SP.

3.2
ring-shaped projection
annular projection
projection with ring-shaped protrusion (see Figure 2)

Note 1 to entry: The type code for ring-shaped projection is RP.

Note 2 to entry: In the United States, a kind of solid projection is called “annular projection”.

3.3
elongated projection
projection with oval protrusion (see Figure 3)

Note 1 to entry: The type code for elongated projection is EP.

3.4
projection diameter
d_1
outer diameter of the projection in the embossed side surface of the sheet for spherical and ring-shaped projections (see Figure 1 and Figure 2)

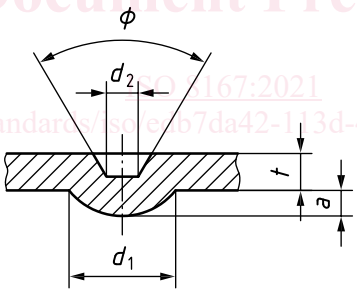
3.5
projection height
a
maximum height of the projection (see Figures 1 to 3)

3.6
projection width
b_1
maximum width of the elongated projection in the embossed side surface of the sheet (see Figure 3)

3.7
projection length
l_1
bottom length of the elongated projection in the embossed side surface of the sheet (see Figure 3)

4 Types of projections

The projection shape shall be selected from three types of projections shown in Figures 1 to 3 based on the design requirements of the welds or welding procedure specification (WPS) for the projection welding. Spherical projections are recommended for sheets thicknesses of 1 mm or greater. Ring-shaped projections and multiple spherical projections (e.g. a set of three projections) are usually used for sheets thinner than 1 mm. Elongated projections can be used to replace a set of two ring-shaped or spherical projections.



Key
a projection height
d_1 projection diameter
d_2 bottom diameter of the indentation part
t sheet thickness
ϕ indentation angle

Figure 1 — Spherical projection