



SLOVENSKI STANDARD

oSIST prEN ISO 8167:2020

01-junij-2020

Uporovno varjenje - Bradavično uporovno varjenje - Bradavice za uporovno varjenje (ISO/DIS 8167:2020)

Resistance welding - Embossed projection welding - Projections for resistance welding (ISO/DIS 8167:2020)

Widerstandsschweißen - Buckelschweißungen mit geprägten Buckeln - Buckel zum Widerstandsschweißen (ISO/DIS 8167:2020)

Bossages pour le soudage par résistance (ISO/DIS 8167:2020)

Ta slovenski standard je istoveten z: prEN ISO 8167

ICS:

25.160.20 Potrošni material pri varjenju Welding consumables

oSIST prEN ISO 8167:2020

en,fr,de

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Resistance welding — Embossed projection welding — Projections for resistance welding

ICS: 25.160.30

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ISO/CEN PARALLEL PROCESSING



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Foreword

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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).

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For an explanation on 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 the following URL: www.iso.org/iso/foreword.html. (standards.itech.ai)

This document 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 8167:1989), which has been technically revised.

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

- updating of chapter 3 “terms and definitions”;
- Revision of [Annex B](#) and [Annex C](#);
- 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.

Resistance welding — Embossed projection welding — Projections for resistance welding

1 Scope

This International Standard specifies the geometries and dimensions of projections for embossed projection welding. Tools to make the projections are also included as an informative Annex (see [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.

NOTE Any solid projections are not included in this standard.

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 286-1, *Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes — Part 1: Basis of tolerances, deviations and fits*

ISO 17677-1, *Resistance welding — Vocabulary — Part 1: Spot, projection and seam welding*
<https://standards.iteh.ai/catalog/standards/sist/a7fbc593-8ef9-4621-bdde-7d17b56605dd/osist-pren-iso-8167-2020>

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:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

embossed projection

projection made by stamping or pressing processes for a sheet with punch and die

Note 1 to entry: Usually, open bottom types are used as the die. Closed bottom types also proposed!

3.2

solid projection

projection manufactured to achieve a special projection geometry

Note 1 to entry: A contour of the components is often used as the projection.

3.3

spherical projection (Type code: SP)

projection with circular protrusion (see [Figure 1](#))

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3.3

elongated projection (Type code: EP)

projection with oval protrusion (see [Figure 2](#))

3.4

ring-shaped projection (Type code: RP)**annular projection**

projection with ring-shaped protrusion (see [Figure 3](#))

Note 1 to entry: In the United State, a kind of solid projection is called as “annular projection”.

3.5

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](#))

3.6

Projection height

a

maximum height of the projection (see [Figure 1](#) to [Figure 3](#))

3.7

Projection width

b_1

maximum width of the elongated projection in the embossed side surface of the sheet (see [Figure 3](#))

3.8

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 [Figure 1](#) to [Figure 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.

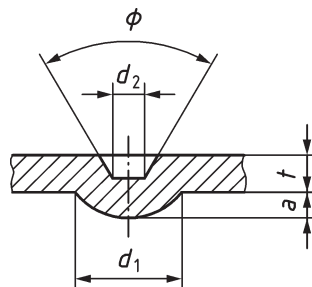


Figure 1 — Spherical projection

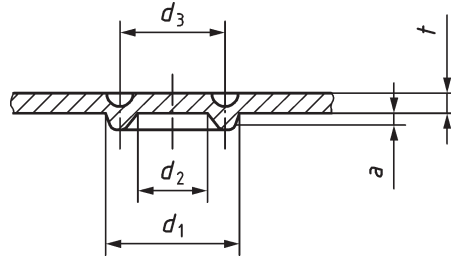
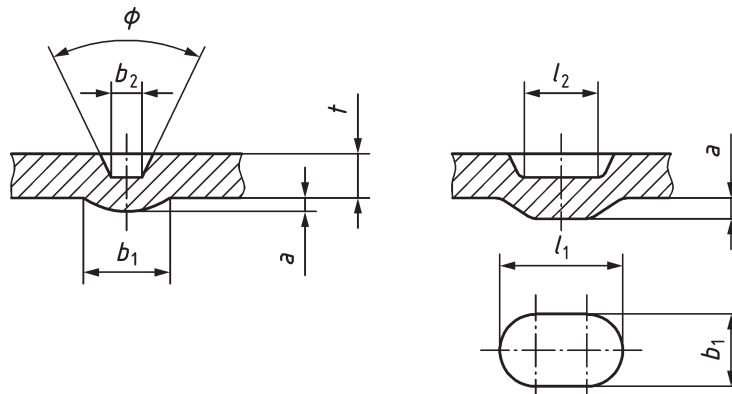


Figure 2 — Ring-shaped projection



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Figure 3 — Elongated projection
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5 Dimensions of projections

The dimensions shall be as specified in [Table 1](#) to [Table 3](#) for spherical, elongated and ring-shaped projections, respectively. The tolerance on the projection diameter, d_1 , projection width, b_1 , and projection height, a , shall be equal or less than the values specified in [Table 1](#) to [Table 3](#).

In the case of multiple projection welding with spherical and ring-shaped projections in one operation, more severe tolerance control for the projection height is required. The height of the individual projections on any of the components comprising the assembly shall not vary by more than 5 % from one another.

Alternative projection dimensions can be found in [Annex C](#).

NOTE 1 The height, a , is determined by the punch stroke when using open bottom die.

NOTE 2 The projection should be made in the thicker sheet with the dimensions determined according to the thinner sheet thickness

NOTE 3 [Annex A](#) indicates the relationship between sheet thickness t and projection diameter d_1 for spherical projections.

NOTE 4 When welding of dissimilar materials sheets, the projection should be made in the material with the lower heat conductivity and/or higher strength.