



BSI Standards Publication

## Resistance welding — Weldability

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Part 1: General requirements for the evaluation of weldability for resistance spot, seam and projection welding of metallic materials

## National foreword

This British Standard is the UK implementation of EN ISO 18278-1:2022. It is identical to ISO 18278-1:2022. It supersedes BS EN ISO 18278-1:2015, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee WEE/29, Resistance welding.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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English Version

## Resistance welding - Weldability - Part 1: General requirements for the evaluation of weldability for resistance spot, seam and projection welding of metallic materials

Soudage par résistance - Soudabilité - Partie 1:  
Exigences générales pour l'évaluation de la soudabilité  
pour le soudage par résistance par points, à la molette  
et par bossages des matériaux métalliques (ISO 18278-  
1:2022)

Widerstandsschweißen - Schweißseignung - Teil 1:  
Allgemeine Anforderungen an die Bewertung der  
Schweißseignung von Widerstandspunkt-, Rollennaht-  
und Buckelschweißen von metallischen Werkstoffen  
(ISO 18278-1:2022)

This European Standard was approved by CEN on 16 May 2022.

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## European foreword

This document (EN ISO 18278-1:2022) has been prepared by Technical Committee ISO/TC 44 "Welding and allied processes" in collaboration with Technical Committee CEN/TC 121 "Welding and allied processes" 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of an identical text or by endorsement, at the latest by December 2022, and conflicting national standards shall be withdrawn at the latest by December 2022.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 18278-1:2015.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Endorsement notice

The text of ISO 18278-1:2022 has been approved by CEN as EN ISO 18278-1:2022 without any modification.

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**Resistance welding — Weldability —**  
**Part 1:**  
**General requirements for the**  
**evaluation of weldability for**  
**resistance spot, seam and projection**  
**welding of metallic materials**

*Soudage par résistance — Soudabilité —*

*Partie 1: Exigences générales pour l'évaluation de la soudabilité pour le soudage par résistance par points, à la molette et par bossages des matériaux métalliques*



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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.

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](http://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](http://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](http://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 third edition cancels and replaces the second edition (ISO 18278-1:2015) and the first edition of ISO 14327:2004, which have been technically revised.

The main changes are as follows:

- the concept of weldability lobe was added to this document.

A list of all parts in the ISO 18278 series can be found on the ISO website.

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](http://www.iso.org/members.html).

# Resistance welding — Weldability —

## Part 1:

# General requirements for the evaluation of weldability for resistance spot, seam and projection welding of metallic materials

## 1 Scope

This document specifies procedures for assessing the generic weldability for resistance spot, seam and projection welding of uncoated and coated metals.

The purpose of the tests described in this document are to

- a) compare the metallurgical weldability of different metals,
- b) assess the weldability of differing component designs, e.g. dimensional configuration, stack-up, projection geometry, etc.,
- c) investigate the effect of changes in welding parameters such as welding current, weld time, electrode force or complex welding schedules including pulse welding, current stepping etc. on weldability, and/or
- d) compare the performance of resistance welding equipment.

Precise details of the test procedure to be used depend on which aspect of items a) to d) will be evaluated relative to the welding result obtained.

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

ISO 693, *Dimensions of seam welding wheel blanks*

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

ISO 5821, *Resistance welding — Spot welding electrode caps*

ISO 8167, *Resistance welding — Embossed projection welding — Projections for resistance welding*

ISO 14270, *Resistance welding — Destructive testing of welds — Specimen dimensions and procedure for mechanized peel testing resistance spot, seam and embossed projection welds*

ISO 14271, *Resistance welding — Vickers hardness testing (low-force and microhardness) of resistance spot, projection, and seam welds*

ISO 14272, *Resistance welding — Destructive testing of welds — Specimen dimensions and procedure for cross tension testing of resistance spot and embossed projection welds*