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## Resistance welding — Overview of standards for resistance welding

*Soudage par résistance — Vue d'ensemble des normes de soudage par résistance*

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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*.

Any feedback, question or request for official interpretation related to any aspect of this document should be directed to the Secretariat of ISO/TC 44/SC 6 via your national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html). Official interpretations, where they exist, are available from this page: <https://committee.iso.org/sites/tc44/home/interpretation.html>.

# Resistance welding — Overview of standards for resistance welding

## 1 Scope

This document gives an overview of ISO documents for resistance welding. It covers the following processes:

- resistance spot welding;
- projection welding;
- seam welding;
- flash welding;
- upset (resistance butt) welding.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

No terms and definitions are listed in this document.

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 <http://www.electropedia.org/>

## 4 Overview of standards for resistance welding

[Table 1](#) shows an overview of standards for resistance welding.

Table 1 — Overview of standards for resistance welding

Standard topic	Resistance welding				
	Resistance spot welding	Projection welding	Seam welding	Flash welding	Upset (resistance butt) welding
Quality management	ISO 9000 series	ISO 9000 series	ISO 9000 series	ISO 9000 series	ISO 9000 series
Vocabulary for quality management	ISO 9000	ISO 9000	ISO 9000	ISO 9000	ISO 9000
Welding symbols/Graphical symbols	ISO 2553	ISO 2553	ISO 2553	ISO 2553	ISO 2553
Quality requirements for welding/joining	ISO 7000/IEC 60417 ISO 14554-1 ISO 14554-2	ISO 7000/IEC 60417 ISO 14554-1 ISO 14554-2	ISO 7000/IEC 60417 ISO 14554-1 ISO 14554-2	ISO 7000/IEC 60417 ISO 14554-1 ISO 14554-2	ISO 7000/IEC 60417 ISO 14554-1 ISO 14554-2
Specification and qualification standards					
General rule					
Joining procedure specification	ISO 15609-5	ISO 15609-5	ISO 15609-5	ISO 15609-5	ISO 15609-5
Qualification based on consumable, experience, standard welding procedure, and pre-production testing	N/A	N/A	N/A	N/A	N/A
Joining procedure test	ISO 15614-12	ISO 15614-12	ISO 15614-12	ISO 15614-13	ISO 15614-13
Joining procedures (guideline)	ISO 14373 ISO 18594 ISO 18595	ISO 8167 ISO 16432	ISO 16433		
Testing procedures and test specimens	ISO 10447 ISO 14270 ISO 14271 ISO 14272 ISO 14273 ISO 14323 ISO 14324 ISO 14329 ISO 17653 ISO 18592	ISO 10447 ISO 14270 ISO 14271 ISO 14272 ISO 14273 ISO 14323 ISO 14329	ISO 14270 ISO 14271 ISO 14273 ISO 14329 ISO 17654	ISO 14270 ISO 14271 ISO 14273 ISO 14329 ISO 17654	

Table 1 (continued)

Standard topic	Resistance welding					Upset (resistance butt) welding
	Resistance spot welding	Projection welding	Seam welding	Flash welding		
Non-destructive tests (NDT)	—	—	—	—	—	—
Guideline on quality level for imperfections	ISO 6520-2	ISO 6520-2	ISO 6520-2	ISO 6520-2	ISO 6520-2	ISO 6520-2
Evaluation of the weldability	ISO 18278-1 ISO 18278-2 ISO 18278-3 ISO 14327					
Acceptance levels of welds	—	—	—	—	—	—
Vocabulary	ISO 17677-1	ISO 17677-1	ISO 17677-1	ISO 17677-1	ISO 17677-1	ISO 17677-1
Measurements of welding parameters	ISO 17657-1	ISO 17657-1	ISO 17567-1	ISO 17657-1	ISO 17657-1	ISO 17657-1
	ISO 17657-2	ISO 17657-2	ISO 17657-2	ISO 17657-2	ISO 17657-2	ISO 17657-2
	ISO 17657-3	ISO 17657-3	ISO 17657-3	ISO 17657-3	ISO 17657-3	ISO 17657-3
	ISO 17657-4	ISO 17657-4	ISO 17657-4	ISO 17657-4	ISO 17657-4	ISO 17657-4
	ISO 17657-5	ISO 17657-5	ISO 17657-5	ISO 17657-5	ISO 17657-5	ISO 17657-5
Requirements for welding equipment	ISO 669	ISO 669	ISO 669	ISO 669	ISO 669	ISO 669
	ISO 5828	ISO 5828	ISO 5828	ISO 5828	ISO 5828	ISO 5828
	ISO 7931	ISO 865	ISO 865	ISO 8205-1	ISO 8205-1	ISO 8205-1
	ISO 1089	ISO 8205-1	ISO 8205-1	ISO 8205-2	ISO 8205-2	ISO 8205-2
	ISO 6210-1	ISO 8205-2	ISO 8205-2	ISO 8205-3	ISO 8205-3	ISO 8205-3
	ISO 7285	ISO 8205-3	ISO 8205-3			
ISO 8205-1						
ISO 8205-2						
ISO 8205-3						

Table 1 (continued)

Standard topic	Resistance welding					Upset (resistance butt) welding
	Resistance spot welding	Projection welding	Seam welding	Flash welding		
Electrodes, adapters and caps	ISO 5182	ISO 5182	ISO 5182	ISO 5182	ISO 5182	ISO 5182
	ISO 5821					
	ISO 5184					
	ISO 5827					
	ISO 5822					
	ISO 5183-1					
	ISO 5183-2					
	ISO 5826					
	ISO 5829					
	ISO 5830					
	ISO 8430-1					
	ISO 8430-2					
	ISO 8430-3					
ISO 9312						
ISO 9313						
ISO 20168						
Transformers			ISO 5826			
			ISO 10656			
			ISO 22829			
Welding personnel/Qualification of welding operator and weld setter	ISO 14732	ISO 14732	ISO 14732	ISO 14732	ISO 14732	ISO 14732
Occupational safety and health (OSH)	IEC 62135-1	IEC 62135-1	IEC 62135-1	IEC 62135-1	IEC 62135-1	IEC 62135-1
	IEC 62135-2	IEC 62135-2	IEC 62135-2	IEC 62135-2	IEC 62135-2	IEC 62135-2
	IEC 62822-3	IEC 62822-3	IEC 62822-3	IEC 62822-3	IEC 62822-3	IEC 62822-3

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- [4] ISO 1089, *Electrode taper fits for spot welding equipment — Dimensions*
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- [6] ISO 5182, *Resistance welding — Materials for electrodes and ancillary equipment*
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- [8] ISO 5183-2, *Resistance spot welding — Electrode adaptors, male taper 1:10 — Part 2: Parallel shank fixing for end-thrust electrodes*
- [9] ISO 5184, *Straight resistance spot welding electrodes*
- [10] ISO 5821, *Resistance welding — Spot welding electrode caps*
- [11] ISO 5822, *Spot welding equipment — Taper plug gauges and taper ring gauges*
- [12] ISO 5826, *Resistance welding equipment — Transformers — General specifications applicable to all transformers*
- [13] ISO 5827, *Spot welding — Electrode back-ups and clamps*
- [14] ISO 5828, *Resistance welding equipment — Secondary connecting cables with terminals connected to water-cooled lugs — Dimensions and characteristics*
- [15] ISO 5829, *Resistance spot welding — Electrode adaptors, female taper 1 : 10*
- [16] ISO 5830, *Resistance spot welding — Male electrode caps*
- [17] ISO 6210-1, *Cylinders for robot resistance welding guns — Part 1: General requirements*
- [18] ISO 6520-2, *Welding and allied processes — Classification of geometric imperfections in metallic materials — Part 2: Welding with pressure*
- [19] ISO 7000/IEC 60417, *Graphical symbols for use on equipment*
- [20] ISO 7285, *Pneumatic cylinders for mechanized multiple spot welding*
- [21] ISO 7931, *Insulation caps and bushes for resistance welding equipment*
- [22] ISO 8167, *Projections for resistance welding*
- [23] ISO 8205-1, *Water-cooled secondary connection cables for resistance welding — Part 1: Dimensions and requirements for double-conductor connection cables*
- [24] ISO 8205-2, *Water-cooled secondary connection cables for resistance welding — Part 2: Dimensions and requirements for single-conductor connection cables*
- [25] ISO 8205-3, *Water-cooled secondary connection cables for resistance welding — Part 3: Test requirements*
- [26] ISO 8430-1, *Resistance spot welding — Electrode holders — Part 1: Taper fixing 1:10*