

CCS J 64



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 8366-2021

**Resistance welding - Resistance welding equipment -
Mechanical and electrical requirements**

Issued on: May 21, 2021

Implemented on: December 1, 2021

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and definitions	2
3.1 Mechanical structure of spot welding, projection welding and seam welding equipment	2
3.2 Mechanical structure of butt welding and flash welding equipment	8
3.3 Static mechanical properties	10
3.4 Electrical and thermal properties	13
3.5 Pneumatic and hydraulic performance	15
4 Symbol	15
5 Working environment and conditions of use	17
5.1 General	17
5.2 Ambient temperature	18
5.3 Liquid cooling medium	18
5.4 Humidity	18
5.5 Altitude	18
5.6 Transport and storage	18
6 Test conditions	18
6.1 General	18
6.2 Environmental conditions	18
6.3 Measuring instruments	18
7 Rated no-load voltage at the output	19
7.1 General	19
7.2 AC no-load voltage (U ₂₀)	19
7.3 DC no-load voltage (U _{2d})	19
8 Maximum short-circuit current	19
8.1 General	19
8.2 Spot welding and seam welding equipment	20
8.3 Projection welding equipment	20
8.4 Butt welding and flash welding equipment	20
9 Thermal rating	21
9.1 General	21

9.2 Temperature rise test	21
10 Cooling liquid circuit (liquid cooling welding equipment)	21
11 Static mechanical properties	22
11.1 General	22
11.2 Spot welding and projection welding equipment	22
11.3 Seam welding equipment	26
11.4 Butt welding equipment	27
12 Nameplate	28
12.1 General	28
12.2 Description	28
12.3 Tolerance	30
13 Operating Instructions	30
Appendix A (informative) Example of nameplate	32
Reference	35
Figure 1 Spot welding, projection welding and seam welding equipment composition	2
Figure 2 Butt welding equipment composition	4
Figure 3 Electrode arm (lower electrode arm)	4
Figure 4 Types of electrode wheel drive	6
Figure 5 Electrode wheel profile	6
Figure 6 Main dimensions	7
Figure 7 Types of clamps (description in the upsetting direction)	8
Figure 8 Butt welding and flash welding equipment size	10
Figure 9 Contact error of spot welding seam welding equipment	11
Figure 10 Contact error of projection welding equipment (when force F is applied to the electrode platform)	12
Figure 11 Contact error of butt welding equipment	12
Figure 12 Verticality of movement of the upper electrode platform (projection welding)	13

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document replaces GB/T 8366-2004 "Mechanical and Electrical Requirements for Soldering Resistance Welding Machines". Compared with GB/T 8366-2004,

In addition to structural adjustments and editorial changes, the main technical changes are as follows.

--- Incorporate the contents of Chapter 5 of GB/T 8366-2004 into the scope of application of the standard, which is suitable for resistance spot welding, projection welding, seam welding, butt welding and

Flash welding (see Chapter 1, Chapter 5 of the.2004 edition);

--- Deleted some normative references (see Chapter 2, Chapter 2 of the.2004 edition);

--- Modify "static mechanical properties", "electrical properties" and "thermal properties" to "static mechanical properties" and "electrical and thermal properties", adding

"Pneumatic and hydraulic performance", deleted "dynamic mechanical characteristics" (see Chapter 3, Chapter 3 of the.2004 edition);

--- Deleted the terms and definitions such as "electrode cap" and "upsetting stroke" (see Chapter 3 of the.2004 edition), and added "radial offset" and "50% negative

Terms and definitions such as "input power at duty cycle" (see Chapter 3);

--- Deleted 17 symbols such as e_{min} (see Chapter 4 of the.2004 edition), and added 11 symbols such as axial offset h (see Chapter 4);

---Deleted the lifting or loading and unloading requirements in the working environment and use conditions (see 6.6 in the.2004 edition), and added the cooling liquid medium

Requirements (see 5.3);

--- Deleted the chapter on resistance welding transformers (see Chapter 8 of the.2004 edition);

---The measurement method of DC no-load voltage has been added (see 7.3);

---The measurement method of the maximum short-circuit current has been added (see Chapter 8);

--- Incorporate the temperature rise test and the temperature rise test conditions into the thermal rating chapter, and add the requirements for testing in accordance with IEC 62135-1 (see

Chapter 9, Chapter 12 of the.2004 edition);

--- The normative Appendix A has been deleted (see Appendix A of the.2004 edition).

The translation method used in this document is equivalent to ISO 669.2016 "Mechanical and Electrical Requirements for Resistance Welding Equipment for Resistance Welding".

The Chinese documents that have consistent correspondence with the normatively cited international documents in this document are as follows.

---GB/T 32514.2-2016, Resistance welding welding current measurement Part 2.Welding current measurement with current induction coil

Measuring instrument (ISO 17657-2.2005, IDT);

---GB/T 32514.5-2016, Measurement of resistance welding welding current Part 5.Confirmation of welding current measurement system
(ISO 17657-5.2005, IDT).

1 Scope

This document defines and specifies the specific electrical and mechanical properties of the following resistance welding equipment.

---Resistance spot welding;

---Projection welding;

--- Resistance seam welding;

---Butt welding 1); and

---Flash welding 2).

This document specifies the technical parameters of the equipment and the methods for measuring these properties.

Not all requirements apply to all types of equipment.

Resistance welding equipment includes the following types.

---Single-phase AC resistance welding machine;

---Single-phase secondary rectification resistance welding machine;

---Single-phase inverter resistance welding machine;

---Three-phase secondary rectification resistance welding machine;

---Three-phase primary pole rectification resistance welding machine (sometimes called inverter);

---Three-phase inverter resistance welding machine.

This document does not apply to solder mask transformers that are separate from the equipment.

Note. IEC 62135-1 specifies the safety requirements for resistance welding equipment.

1) Usually refers to the non-preferred term, butt welding.

2) Usually refers to the non-preferred term, flashbutt welding.