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

GB 15578-2008

Replacing GB 15578-1995

Safety requirements for resistance welding machines

电阻焊机的安全要求

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Foreword

The standard Chapter 3 "Terms and definitions" are recommended, the rest are mandatory. This standard replaces GB 15578-1995. The main changes compared to the Standard and GB 15578-1995 are as follows:

- Expanding the scope of the standard. Original standard applies only to single-phase frequency AC resistance welding machine.
- Dielectric strength test voltage and temperature limits have been modified.
- Increasing the terms and definitions.
- Increased clearances and creepage distances.
- Adds to the protective conductor connection requirements.
- Increasing the power on/off switching device and leakage protection requirements.
- Increased component compliance requirements.
- Increased the use of the specification and requirements of the nameplate.
- Added Appendix A and Appendix B content. The Standard Appendix A and Appendix B are informative. The standard proposed by China Electrical Equipment Industrial Association. This standard by the National Standardization Technical Committee Welder (SAC/TC70) centralized. This standard drafting units. seven high-tech Co., Ltd., Tianjin, Guangzhou Hing Electric Co., Ltd., Shanghai Dongsheng Welding Group Co. The company, Chengdu Institute of electric welding machine, Chengdu tripartite Electric Co. Drafters of this standard. What, Liu Guoying, Hucheng Ping, Yinxian Hua NATIONAL NATURAL. This standard was first released in 1995, this is the 1st Amendment. Safety requirements for resistance welding machine

1 Scope

GB 15578 sets the safety requirements for resistance welding machines and their controllers - the spot, seam, projection and butt welders whose electrodes close with enough force to crush a hand and which draw currents in the kilo-ampere range. It covers the mechanical hazards and their guarding, the two-hand and foot controls, the electrical safety of the primary and secondary circuits, the protection against the water and fume generated, the earthing, the marking and the instructions, together with the inspection rules and test methods. It is replaced by GB 15578-2026 from 1 February 2027. Issued on 24 September 2008, in force since 1 August 2009. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the edition it replaces are taken from there. The clause text, the tables and the numeric limits are not reproduced on this page - they are in the document itself, which is delivered in full in English translation.

This standard specifies the general safety requirements, inspection rules and test methods for resistance welding machine. This standard applies to not more than GB/T 156 standard supply voltage specified in Table 1 or by a mechanical device driven resistance welding machines and the like Technology used in welding and resistance welding machine controller (hereinafter referred to as controller), including single and multi-station use welder. Resistance welding machine controller and can be composed as a whole, can also be separated into single devices, but no matter what form the structure taken are applicable to This standard. NOTE. This standard does not include electromagnetic compatibility (EMC) requirements.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 156-2007 standard voltage (IEC 60038.2002, MOD)

GB/T 2900.22-2005 Electrotechnical terminology Welder

GB/T 3805-1993 extra low voltage (ELV) limits (eqv IEC 61201)

GB/T 4207-2003 Fixed insulating materials under moist conditions index tracking of the measuring method and the proof tracking index compared (IEC 60112. 1979, IDT)

GB 4208-2008 housing protection (IP Code) (IEC 60529.2001, IDT)

GB 5226.1-2002 Safety of machinery electrical equipment Part 1. General requirements (

IEC 60204-1.2000, IDT)

GB/T 5465.2 Graphical symbols for electrical equipment (GB/T 5465.2-2008, IEC 60417DB.2007, IDT)

GB/T 8366-2004 solder resistance welding machine for mechanical and electrical requirements (ISO 669.2000, MOD)

GB 14050-1993 system grounding types and safety technical requirements

GB/T 15543-1995 power quality three-phase voltage unbalance factor Insulation coordination within the

GB/T 16935.1-1997 low pressure system equipment - Part 1. Principles, requirements and tests (idt IEC 60664- 1.1992)

GB/T 16935.3-2005 within low-voltage systems Insulation coordination for equipment - Part 3. Using the coating, potting or molding for antifouling Protection (IEC 60664-3.2003, IDT)

GB/T 17045-2006 General Protection against electric shock devices and equipment (IEC 61140.2001, IDT)

3 Terms and Definitions

This standard uses the following terms and definitions of IEC 60050 (151), IEC 60050 (851), GB/T 2900.22, GB 5226.1 And GB/T 16935.1 of the definition.

3.1 From the power source, the electrodes, the body and the control devices and other components, to complete the process of resistance welding equipment or the like the process.

Note 1. You can be a separate device, it can be part of an integrated machinery and equipment.

Note 2. The use of the word "resistance welding machine" hereinafter.

3.2 Similar to the resistance welding process on a mechanical device similar to resistance welding machine carried out, for example, resistance brazing, resistance brazing or resistive Fever.

3.3 Handheld, built-in transformers for resistance welding machines.

3.4 Work fixing, welding solder position by resistance welding machine.

3.5 Movement of the workpiece, mounted in a fixed position using a resistance welding machine.

3.6 Means for controlling the working process of resistance welding machine and welding parameters.

3.7 Test in accordance with a design scheme of the manufacturing one or more products is carried out to verify their compliance with the relevant standards. (IEV851-02-09)

3.8 After the production process or product made for each product test conducted to verify their compliance with relevant standards or code requirements. (IEV851-02-10)

3.9 Was visually observed to confirm the presence of the product does not comply with the relevant standards is obviously not a defect.

3.10 All conductive parts of the circuit by the welding current.

3.11 Resistance welding machine for welding operation and control for the power supply circuit protection circuits.

4 Conditions of Use

4.1 Environmental conditions Comply with the requirements of the standard resistance welding machines should be able to work under the following conditions.

a) ambient air temperature range. 5 °C ~ 40 °C Relative humidity. 40 °C does not exceed 50% 20 °C not more than 90% Dust in the ambient air, acid, corrosive gases or substances, which are not more than the normal content of these substances due to the welding process generated except.

b) the temperature of the cooling medium should not exceed. 1) cooling liquid inlet 30 °C
NOTE. If you add antifreeze, the minimum ambient temperature can be reduced accordingly, so as not to solidification condition. 2) air-cooled 40 °C

c) a liquid coolant inlet pressure range. 0.15MPa ~ 0.3MPa.

d) a liquid coolant should conform to appropriate standards, the use of cooling water quality should be consistent with industrial water quality standard.

e) Altitude should not exceed 1000m.

Note. You can agree between manufacturers and users in different environmental conditions, resistance welding confidential agreed after tagging.

4.2 Power supply Power supply shall comply with the provisions of GB/T 156-2007 in. The quality of the power supply network should meet the following requirements.

a) should be an actual voltage waveform of a sine wave;

b) fluctuations in grid voltage does not exceed the rating of $\pm 10\%$;

c) voltage fluctuations in the grid frequency does not exceed the rating of $\pm 1\%$;

d) three-phase voltage unbalance factor $\leq \pm 4\%$.