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Replacing GB 8877-1988

Safety requirements for the installation, operation and maintenance of household and similar
electrical appliances

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Table of Contents

| | |
|--|----|
| Foreword | II |
| 1 Scope | 1 |
| 2 Cited regulatory documents | 1 |
| 3 Terms and definitions | 1 |
| 4 Classification of appliances | 2 |
| 5 Installation and operation requirements for appliances | 2 |
| 6 Installation of appliances | 2 |
| 7 Operation of appliances | 3 |
| 8 Maintenance of appliances | 3 |

GB 8877-20XX

Foreword

The present standard replaces GB 8877-1988.

The present standard differs from GB 8877-1988 primarily with respect to the following:

- Chapter 1 Scope: written in accordance with the writing norms of GB/T 1.1-2002;
- Chapter 2 Cited regulatory documents: added a number of standards relating to household appliance installation, operation, and maintenance;
- Chapter 3 Terms and definitions: deleted terms found in the cited regulatory documents, added the two terms “installation” and maintenance”;
- Chapter 5: this chapter was deleted because it did not belong within the scope of the present standard;
- Chapter 6: this chapter was deleted because it did not belong within the scope of the present standard;
- Chapter 8 Requirements for power supplies and for electrical devices within buildings. Changed to “Installation and operation requirements for appliances” and placed after Chapter 4;
- Most of the content of Chapter 7, Chapter 9, and Chapter 10 was revised in accordance with National Standards and the latest internal conditions of the industry.

The present standard was put forward by the China National Light Industry Council.

The present standard is administered by the National Technical Committee on Standardisation of Household Electrical Appliances.

The main entities involved in drafting the present standard: China Household Electrical Appliance Research Institute, Haier Group Customer Service Company, BSH Electrical Appliances (Jiangsu) Co., Ltd, Hisense Kelon Electrical Holdings Company Limited, Gree Electric Appliances, Inc. of Zhuhai, China National Household Electrical Appliances Service Association, China Quality Certification Centre, and China Consumers Association.

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GB 8877-20XX

Safety requirements for the installation, operation and maintenance of household and similar electrical appliances

1 Scope

The present standard specifies safety requirements for the installation, operation and maintenance of household and similar electrical appliances.

The present standard applies to household and similar electrical appliances.

Appliances that are operated in special environments may need additional requirements.

2 Cited regulatory documents

The clauses in the documents below become clauses of the present standard by virtue of being cited by the present standard. If a date is indicated for a cited document, no subsequent revision sheet (not including corrigenda) or amended version shall apply to the present standard. Nevertheless, the parties to agreements based on the present standard are encouraged to study whether the most recent versions of these documents can be used. If no date is indicated for a cited document, then the most recent version applies to the present standard.

GB 1002 Types, basic parameters, and dimensions of single-phase plugs and socket-outlets for household and similar uses

GB 2099.1 Plugs and socket-outlets for household and similar purposes – Part 1: General requirements

GB/T 3187 Reliability and maintainability terms

GB 4208 Degrees of protection provided by enclosures (IP code)

GB 4706.1 Safety of household and similar electrical appliances – Part 1: General requirements

3 Terms and definitions

The following terms and definitions apply to the present standard.

3.1

installation

The entire activity of securing the appliance and correctly assembling, connecting, and debugging it to achieve its expected operating functions in light of the user's specific environmental conditions.

3.2

maintenance

All techniques and management, including supervisory activities, carried out to preserve (or restore) the product in (to) a condition where it can perform the specified functions.

3.3

live part

Conductor or conducting part that is electrified during normal operation. It includes neutral conductors, but according to conventional practice does not include protective neutral conductors (PEN conductors).

Note: This term does not necessarily imply risk of electric shock.

3.4

exposed live part

A conductive part of the appliance that might be touched. Normally, it is not electrified, but may become so in the event of a failure.

Note: A conductive part of the appliance that, in the event of a failure, can become electrified only through an exposed live part is not considered an exposed live part.

3.5

external live part

A conductive part that easily draws in electric potential (generally earth potential).

3.6

neutral conductor

A conductor that is connected to a neutral point of a system and that is used to transmit electrical energy.

GB 8877-20XX

Note: In some situations, a single conductor, under specified conditions, can combine the roles of neutral conductor and protective grounding.

3.7

protective grounding

A conducting wire, required by certain anti-shock protective measures, used to connect electrically with any of the parts listed below:

- exposed live part;
- external live part;
- terminal block;
- ground electrode;
- power supply grounding point or artificial neutral point.

Note: Protective grounding is indicated by the symbol \oplus or PE and is differentiated by a specified colour.

3.8

place without hazard of indirect electric shock

A person in such a place cannot simultaneously touch an exposed live part of an electrical appliance and any external live part (including the ground surface or a wall) and cannot simultaneously touch the exposed live parts of two appliances. Protective grounding is strictly prohibited in such a place.

3.9

qualified person

A person who has received training that conforms to professional norms, has professional knowledge and skills, and can identify the possible hazards that might occur in connection with installed and maintained appliances; or a person who has professional credentials.

4 Classification of appliances

4.1 Classification according to form of anti-shock protection

- Class 0 appliance
- Class 0 I appliance
- Class I appliance
- Class II appliance
- Class III appliance

4.2 Classification according to degree of enclosure protection

For the specific requirements of each degree, see the GB 4208 enclosure protection degree classifications. The recommendations for electrical appliance products for household and similar purposes employ the degrees below:

- IP20-IP24
- IP30-IP34
- IP41-IP44

5 Installation and operation requirements for appliances

5.1 The permitted power supply voltage deviation range for appliances having rated voltages of 220 V/50 Hz and 380 V/50 Hz is $\pm 10\%$. The permitted power supply voltage deviation range for appliances having rated voltages of 42V or lower is $\pm 10\%$.

5.2 Electrical lines in places where class 0I or class I appliances are operating must be specially provided with protective grounding. In addition, the protective grounding and the protective device (fuse, low-voltage circuit breaker, residual current-operated protective device, etc.) must meet the relevant stipulations in the electrical engineering design standards.

5.3 Indoor areas shall be provided with power supply sockets that are configured for power supply line load capacities and that meet operating quantity requirements.

6 Installation of appliances

GB 8877-20XX

- 6.1** Qualified persons shall be responsible for installation or de-installation of appliances whose instructions for use require installation by a qualified person.
- 6.2** Class 0 appliances may be installed only in places without hazard of indirect shock.
- 6.3** The grounding systems of class I appliances must be reliably connected to protective grounding permanently installed in buildings. If wire connections consist of different metals, then adopt measures to prevent electrochemical corrosion.
- 6.4** Appliances that generate high temperatures during operation may not be installed near flammable or explosive materials.
- 6.5** If working in a high place, the installer must fasten safety belts and proceed in compliance with the relevant work rules.
- 6.6** Prior to installation of the appliance, inspect the strength of the installation points to ensure that the appliance is reliably secured.
- 6.7** During the installation process, ensure that no accident will occur as the result of a falling installation tool or component.
- 6.8** When installing, first inspect to determine whether the user is using electricity safely. The main inspection items are: correct, reliable connection of power socket live and neutral wires, reliability of grounding system, capacities of switches and meters, and whether selected power line loads and line material specifications comply with standard requirements. If a safety risk is found, immediately inform user and recommend that user adopt a solution as soon as possible. If it is necessary to install a new power source, obtain approval from the user and have the installation performed by a person who has the credentials to perform electrical work.
- 6.9** If the appliance requires that a hole be bored into a wall, then fully inspect and understand the routing of water and electrical lines of the installation wall prior to installation and thus position the hole to avoid water and electrical line positions in the wall and to protect load-bearing structures of the building from damage.
- 6.10** During the appliance installation process, do not perform metal welding or cutting work at the site of installation.
- 6.11** After installation of the appliance has been completed, perform an electrical installation inspection of the installed appliance and of the power supply.

7 Operation of appliances

- 7.1** The user of the appliance shall carefully read and comprehend the instructions for use and operate the appliance in accordance with the requirements of the instructions for use.
- 7.2** The appliance power plug shall be fully inserted into a permanent power socket. In addition, ensure that there is a good connection between the power plug and the power socket.
- 7.3** If a power strip is needed, use a power strip that complies with the requirements of GB 2099.1. The total rated current of the connected appliance shall not exceed the rated current of the original permanent socket or line.
- 7.4** Do not supply power to an appliance by drawing it from a lamp that has a socket-outlet.
- 7.5** Appliances that lack automatic controls shall be turned off when persons leave the site.
- 7.6** Appliances that generate high temperatures during operation shall not be operated near flammable or explosive materials or in similar environments.

7.7 If an appliance produces an unusual noise, odour, or temperature, or if it breaks down, stop operation immediately, and turn the switch off to cut off the power supply.

7.8 The user shall not disassemble the appliance and shall not modify internal wiring, components, or protective devices.

7.9 When removing a plug from a socket, grip the plug directly; do not pull on the power cord.

7.10 Do not replace appliance or power supply fuses with ordinary conductors or fuses that exceed specified current capacities.

7.11 The user shall not on his own change the settings of low-voltage circuit breakers or residual current-operated protective devices.

8 Maintenance of appliances

8.1 Units or individuals that engage in appliance maintenance shall have the proper professional credentials.

Units that engage in appliance maintenance shall have the necessary maintenance equipment. The precision of the maintenance instruments and meters shall meet standard requirements.

8.2 Establish strict safety work rules and maintenance work rules. Serviced appliances shall comply with the requirements of appliance safety standards.

8.3 Establish proper maintenance records, and ensure that the maintenance technician and the user each keep one copy.

The main contents of maintenance records shall be:

- a.** service date;
- b.** model and production date or lot number or product code of serviced appliance;
- c.** the maintenance that was performed;
- d.** the name and signature of the maintenance technician;
- e.** warranty expiration date.

GB 8877-20XX

8.4 Manufacturers shall, as required, provide maintenance technicians with the acceptable parts, components, and maintenance guides (including at least wiring diagrams, methods of installation and de-installation, and specifications and model numbers of replaceable parts and components) that are needed for maintenance. Maintenance technicians shall promptly provide feedback on product quality to the manufacturer or vendor.

8.5 When maintenance is performed during the safe operation life of an appliance, the maintenance technician may not change the original design performance, parameters, or structure without the consent of the manufacturer. Nor may he use replacement materials whose performance is inferior to that of the original materials or parts or components that do not comply with the original specifications. Maintenance performed after the safe operation life of the appliance shall preserve the original types of anti-shock protectors and the original degrees of enclosure protection.

8.6 Maintenance technicians shall perform their work in accordance with safe work rules and maintenance work rules. They shall perform the relevant inspections on appliances after maintenance.

8.7 If, when servicing an appliance, one discovers that insulation has been damaged, that sheaths for flexible cables or wires have been broken, that protective wires have fallen, or that potential hazards have developed in components such as plugs, sockets, or switches, inform the consumer and, after gaining the consumer's consent, perform repairs to eliminate the hazard.

8.8 After an appliance has been serviced, perform an insulation resistance inspection. When necessary, perform an electrical strength test.

