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Replacing GB 16410-1996

Domestic gas cooking appliances

(Version Submitted for Approval)

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Promulgated by	**The General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China** **The Standardisation Administration of the People's Republic of China (SAC)**

Contents

Foreword

This Standard has mandatory clauses. In the Standard, all the parts of the following in bold typeface are mandatory clauses: subsections 5.2.1; 5.2.2a and c; 5.2.5c; 5.2.6b; 5.2.7.1b; 5.2.7.3; 5.2.10.2; 5.3.1.4; 5.3.1.5; 5.3.1.10d and f; 5.3.1.12; 5.3.1.14; 5.3.2.6; 5.3.6; 5.3.7.5a; 5.4.2.2; 5.4.2.3; 5.4.10.1; 5.4.16.1; all clauses of 8.1.1 apart from f; 8.1.2; 8.2.1; 8.2.4c, d and h; and Tables 2, 3, 4, 5, 6, 7 and 8. The remaining clauses are recommended clauses.

The following contents of this version of the Standard are based on the related international and foreign standards:

The standard conditions, maximum normal temperature rise, performance of the burner in relation to resistance to overheating and test methods are based on EN 30-1-1: 1998 “Domestic gas cooking appliances – Part 1-1: Safety – General.”

The valve closing time of the protective extinguishing device is based on EN 30-1-1: 1998 “Domestic gas cooking appliances – Part 1-1: Safety – General” and JIS S 2103-1996 “Gas-burning cooking appliances for domestic use.”

The utilisation performance requirements of the oven and test methods are based on JIS S 2103-1996 “Gas-burning cooking appliances for domestic use” and JIS S 2093-1996 “Test methods for gas-burning appliances for domestic use.”

The equation for calculating the CO concentration percentage in dry fumes is based on JIS S 2103-1996 “Gas-burning cooking appliances for domestic use.”

Comparing the Standard with GB16410-1996 “Domestic gas appliances,” the major changes are as follows:

– This version of the Standard has mandatory clauses whereas the whole text of the 1996 version of the Standard was mandatory;
– The scope of application has been increased to include gas-electric combined stoves;
– In the Terms and Definitions section, 2 terms have been deleted, 5 terms revised, and 16 terms added;
– The standard temperature has been adjusted from 0^{o}C in the 1996 version to 15^{o}C;
– In the 1996 version, the required heat input from the main fire of stoves with two

burners or more was a minimum of 2.91 kW. But in this Standard, it has been adjusted that there should be one main fire in stoves with two burners or more as well as in gas-electric combined stoves, and its converted actual heat input is: ≥ 3.5 kW for ordinary types of cooking appliances; ≥ 3.0 kW for infrared ray cooking appliances.

- The requirements for use in airy conditions have been deleted;
- It is specified that each burner of the stove should be equipped with a protective extinguishing device;
- The special structural requirements for cooking appliances which use AC power have been increased;
- The quality requirements in terms of the materials for cooking appliances have been revised as the performance requirements of materials;
- The clauses regarding packaging materials and packaging waste have been increased;
- The equation for calculating the actual heat input has been added to;
- The equation for calculating the converted actual heat input has been revised;
- The equation for calculating the percentage of CO concentration in dry fumes has been revised;
- Regarding the conditions of the test room, the room temperature of 20±15^{o}C has been changed to 20±5^{o}C;
- Falling and stacking requirements and test methods have been increased.

Appendix A of the Standard is an information appendix.

The transition period of the Standard after its promulgation is 9 months.

This Standard was proposed by the General Administration of Quality Supervision, Inspection and Quarantine and the Standardisation Administration of the People's Republic of China.

The Standard is held by the China Association for Standardisation and the China Metal Products Association.

Drafting units of the Standard: Zhongshan Vantage Gas Appliances Corporation, Quanguo Daily Metals Standardisation Centre, Jiangsu Provincial Supervision and Testing Centre for Product Quality, Zhejiang Dandy Kitchenware Co. Ltd., China Quality Supervision and Test Centre for Gas Appliances, China Product Quality Supervision and Test Centre for Gas Appliances (Foshan), China Supervision and Testing Centre for Quality of Daily Metal Products, Haier Group Gas Stove Research Unit, Foshan City Midea Electric Kitchen Appliances Manufacturing Co. Ltd., Guangdong Macro Gas Appliances Co. Ltd., Jiangsu Guangmang Light Tool Co. Ltd.,

Zhejiang Puti Electrical Appliances Co. Ltd., Hangzhou Laoban Industries Group Co. Ltd., Shanxi Tianzhou High Technology Co. Ltd. and Guangdong Chant (Group) Co. Ltd.

Main drafters of the Standard: Yi Hongbin, Yao Kenong, Wang Fengling, Gao Dekang, Liu Tong, Bi Zhitao, Weng Wuyun, Cai Weiming, Chou Minggui, Zhou Shideng, Du Renyao, Wu Weiliang, Fu Liang and Xiong Wei.

The previous versions of the Standard, which are replaced by this Standard on its promulgation, are:

– CJ 4-1983;
– GB 16410-1996.

Domestic gas cooking appliances

1 Scope

The Standard specifies the terms and definitions, classification, requirements, test methods, inspection rules, marking, packaging, transportation and storage of domestic gas cooking appliances.

The Standard is applicable to domestic cooking appliances which use town gas and domestic gas-electric combined stoves which use town gas and electrical energy, including:

a) Gas stoves with a nominal heat input at their single burners of ≤ 5.23 kW;

b) Gas ovens and gas barbecues with a nominal heat input of ≤ 5.82 kW;

c) Freestanding gas cookers and independent hotplates and grills with a nominal heat input meeting the requirements of a) and b);

d) Gas-powered rice cookers with a maximum volume for rice softening in the closed rice cooker of ≤ 4 l each time and a nominal heat input of ≤ 4.19 kW;

e) Gas-electric combined stove with a nominal heat input meeting the requirements of a), b) and d), and a total nominal input power of ≤ 5.00 kW.

For domestic gas cooking appliances which use gas types other than those covered by GB/T 13611 “Classification of town gas”, please refer to the Standard.

The Standard does not apply to gas cooking appliances used in road and other types of transport vehicles.

2 Normative references

The clauses in the following documents become clauses of this standard after being referenced. For all dated reference documents, subsequent amendments (excluding corrections) and revised versions do not apply to this standard; however, any parties that come to an agreement in accordance with the Standard are encouraged to study whether the latest versions of these documents are applicable. Where the references are not dated, their latest versions are applicable to the Standard.

GB 4208	Degrees of protection provided by enclosures (IP code)
GB 4706.1	Safety of household and similar electrical appliances – General requirements
GB 4706.22	Safety of household and similar electrical appliances –

	Specific requirements for stationary cooking ranges, hobs, ovens and similar appliances
GB 5013.4	Rubber insulated cables with rated voltages up to and including 450/750V – Part 4: Cords and flexible cables
GB 5023.3	Polyvinyl chloride insulated cables with rated voltages up to and including 450/750V – Part 3: Non-sheathed cables for fixed wiring
GB 13028	Technical requirements for isolating transformers and safety isolating transformers
GB/T 191-2000	Packaging, storage and transportation illustration signs
GB/T 1019-1989	General requirements for packing of household electrical appliances
GB/T 1690-1992	Methods for testing the resistance of vulcanised rubber to liquids
GB/T 1740-1979	Methods of testing the resistance of paint films to heat and humidity
GB/T 1765-1979	Method of producing paint films for testing heat and humidity resistance, salt-fog resistance and accelerated weathering
GB/T 1771-1991	Paints and varnishes — Determination of resistance to neutral salt spray
GB/T 2828.1-2003	Sampling procedures for attribute inspection – Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection
GB/T 2903-1998	Copper-copper nickel (Constantan) thermocouple wires
GB/T 3768-1996	Acoustics – Determination of sound power levels of noise sources using sound pressure – Survey method using an enveloping measurement surface over a reflecting plane
GB/T 3772-1998	Platinum 10 – Rhodium/Platinum thermocouple wires
GB/T 4857.3-1992	Packaging – Complete, filled transport packages – Stacking tests using static load
GB/T 7306.1-2000	Pipe threads with a 55-degree thread angle where pressure-tight joints are made on the threads – Part 1: Parallel internal and tapered external threads
GB/T 7306.2-2000	Pipe threads with a 55-degree thread angle where pressure-tight joints are made on the threads – Part 2: Tapered internal and external threads
GB/T 7307-2001	Pipe threads with a 55-degree thread angle where pressure-tight joints are not made on the threads

GB/T 13611-1992	Classification of town gas
GB/T 16411-1996	Universal test methods for gas burning appliances for domestic use
QB/T 3826-1999	Corrosion-resistant testing method for metal deposits and conversion coatings for light industrial products – Neutral salt spray (NSS) test
QB/T 3832-1999	Evaluation of the results of corrosion tests on metal deposits for light industrial products
CJ/T 3085-1999	Town gas terms

3 Terms and definitions

The terms established in GB 4706.1-1998, GB 4706.22-2002 and CJ/T 3085-1999 as well as the following terms are applicable to this Standard.

Remarks: The terms for cooking appliances which use AC power correspond to the terms for appliances established in GB 4706.1-1998. For example, cooking appliances correspond to appliances, Category I cooking appliances correspond to Category I appliances, Category II cooking appliances correspond to Category II appliances, Category III cooking appliances correspond to Category III appliances, electrothermal cooking appliances correspond to electrothermal appliances, electrical cooking appliances correspond to electrical appliances, and combined-type cooking appliances correspond to combined-type appliances.

3.1 Gas cooking appliances

A general term for appliances that cook using a gas burner. They are simply referred to as “cooking appliances” hereinafter. They include gas stoves, gas ovens, gas barbecues, freestanding gas cookers, independent hotplates and grills, gas rice cookers, and gas-electric combined stoves.

3.2 Gas stove

Gas-burning appliances that use an attached support to hold the cooking utensil and use fire to heat the cooking utensil directly. Simply referred to as “stove” hereinafter.

3.3 Built-in gas stove

A gas stove built into the cooking work surface. Simply referred to as “built-in stove” hereinafter.

3.4 Gas-electric combined stove

A two-function stove which is a combination of a gas stove and an electric stove (including electromagnetic stoves), and which can independently or simultaneously use gas and electrical energy for heating.

3.5 Gas oven

A gas-burning device which can semi-directly or directly heat food placed in an enclosed space (heating chamber) with a fixed capacity by using convective heat and radiation heat. Simply referred to as “oven” hereinafter.

3.6 Gas barbecue

An open-topped gas burning tool which directly grills the food by fire. Simply referred to as “barbecue” hereinafter.

3.7 Freestanding gas cooker

A gas-burning device which is a combination of an oven and a stove. Simply referred to as “freestanding cooker” hereinafter.

3.8 Independent hotplate and grill

A gas-burning device which is a combination of a barbecue and a stove. Simply referred to as “hotplate and grill” hereinafter.

3.9 Standard conditions

The dry gas conditions in which the specified temperature is $15^{o}C$ and the absolute pressure is 101.3 kPa.

3.10 Net Wobbe number

A proportion of the low heat value of gas to the square root of its relative density.

3.11 Nominal heat input

The designated value of the heat input of a stove as determined by the manufacturer when the stove is using the reference gas under the nominal gas supply pressure and in the standard conditions.

3.12 Actual heat input

The product of the low heat value of gas for use in testing and the actual gas flow during the test.

3.13 Converted actual heat input

The product of the designated low heat value of gas and the calculated value of the actual gas flow converted to standard status.

3.14 Gas supply pressure

The relative static pressure at the gas intake of the stove while the stove is in operation.

3.15 Nominal gas supply pressure

The specified gas supply pressure value designated by the manufacturer according to the gas category, the actual pressure of the pipe network and the standard requirements.

3.16 Limit gas

The standard gas equipped according to the permitted gas fluctuation range.

3.17 Burner

A device that can make gas burn stably.

3.18 Main burner

A burner for cooking or heating water when the stove is working.

3.19 Permanent pilot igniter

A small burner that uses flame to ignite the permanent ignition burner or the main burner.

3.20 Permanent ignition burner

A small burner that uses flame to ignite the main burner when the stove is not extinguished during the working period and is set to ready status (continuously burning pilot light).

3.21 Oven temperature controller

An automatic control device that guarantees that the preset temperature inside the oven remains constant and stable.

4 Classification of products

4.1 Types of cooking appliances

4.1.1 Depending on the gas type used, cooking appliances can be classified as: artificial gas cooking appliances, natural gas cooking appliances and liquefied petroleum gas (LPG) cooking appliances.

4.1.2 According to the number of burners, cooking appliances can be classified as: single-burner stoves, two-burner stoves and multiple-burner stoves.

4.1.3 According to their functions, cooking appliances can be classified as: stoves, freestanding cookers, independent hotplates and grills, ovens, barbecues, rice cookers and gas-electric combined stoves.

4.1.4 According to their structure types, cooking appliances can be classified as: table-top type, built-in type, floor type, assembled type and other types.

4.1.5 According to their heating methods, cooking appliances can be classified as: direct method, semi-direct method and indirect method.

4.2 Numbering method for cooking appliance models

4.2.1 According to the different functions, the codes for different types of gas cooking appliances use Latin capital letters as follows:

- JZ stands for gas stove;
- JKZ stands for freestanding cooker;
- JHZ stands for independent hotplate and grill;
- JH stands for barbecue;
- JK stands for oven;
- JF stands for rice cooker.

4.2.2 The type code for gas-electric combined stoves is composed of the type code for gas cooking appliances and the code for cooking appliances using electrical power for heating, and is indicated by Latin capital letters, as follows:

□ D

D — cooking appliances that use electrical power for heating

□ — type code of gas cooking appliances specified according to Subsection 4.2.1

4.2.3 The model number of a cooking appliance is composed of the type code of the cooking appliance, the type code of the gas and the code given by the enterprise, indicated as follows:

□□ - □

- □: code given by the enterprise: product characteristic number or design serial number (indicated by Latin letters and/or Arabic numbers).
- □: type code of gas:
  - Y – liquefied petroleum gas
  - T – natural gas
  - R – artificial gas
- □□: type code of cooking appliance specified according to Subsections 4.2.1 and 4.2.2.

For example:

JZD R - □

- □: code numbered by the enterprise
- R: artificial gas
- JZD: gas-electric combined stove

5 Requirements

5.1 Basic design parameters

5.1.1 For the nominal gas supply pressure at the front of cooking appliances please refer to Table 1.

5.1.2 The power source of cooking appliances which use AC power is: single-phase nominal voltage ≤ 250V.

5.1.3 When using cooking appliances in mountainous regions, the effects of the elevation on the actual heat input should be considered.

Table 1 Nominal gas supply pressure at the front of cooking appliances Unit: Pa

Types of Gas	Code	Nominal gas supply pressure at the front of cooking appliances
Artificial Gas	5R, 6R, 7R	1,000
Natural Gas	4T, 6T	1,000
	10T, 12T, 13T	2,000
Liquefied Petroleum Gas	19Y, 20Y, 22Y	2,800
Remarks: For special gas sources, if the nominal gas supply pressure identified		

locally is different from this table, please use the nominal gas supply pressure identified locally.

5.2 Performance

5.2.1 Air-tightness

The air-tightness of cooking appliances should meet the following requirements:

a) From the gas intake to the gas valve at a pressure of 4.2 kPa, the leakage must be ≤ 0.07 l/h;

b) When the automatic control valve is at a pressure of 4.2 kPa, the leakage must be ≤ 0.55 l/h;

c) When using 0-1 gas to ignite the burner, there must be no gas leakage between the gas intake and the flame outlet of the burner.

Please refer to the test methods in Subsection 6.6.

5.2.2 Heat input

The heat input of cooking appliances should meet the following requirements:

a) The error between the actual heat input of each burner and the nominal heat input should be within the range of 10%;

b) The proportion of the total converted actual heat input to the sum of the converted actual heat input of single burners should be ≥ 85%;

c) For gas stoves and gas-electric combined stoves with two or more burners, there should be a main fire, with an actual heat input of: ≥ 3.5 kW for ordinary stoves; ≥ 3.0 kW for infrared ray stoves.

Please refer to the test methods in Subsection 6.7.

5.2.3 Operating mode of burning

The operating mode for burning in cooking appliances should satisfy the requirements of Table 2.

Please refer to the test methods in Subsection 6.8.

Table 2 Operating mode of burning

Item	Requirements
Flame transmission	Catch fire in 4 s, no backdraft

Flame-out	**No flame-out**
Extinguishing	**No extinguishing**
Evenness of flame	Even flame
Tempering	**No tempering**
Burning noise	≤ 65 dB(A)
Extinguishing noise	≤ 85 dB(A)
CO concentration in dry fumes (α = 1)	**≤ 0.05 (0-2 gas)**
Black smoke	No black smoke
Contact yellow flame	The electrode should not often contact yellow flame.
Burning stability of permanent ignition burner	**No flame-out, no tempering**
Burning stability when using an extra-large pot	**No flame-out, no tempering**
When the oven door is open or closed: **– Burning stability of main burner** **– Burning stability of permanent ignition burner**	 **No flame-out, no tempering** **No flame-out, no tempering**
When the temperature controller of the oven is in operation: **– Burning stability** **– Flame transmission**	 **No flame-out, no tempering** **Ignited easily, no backdraft**
Remarks: For the gradation and methods for testing nitrogen oxide content in the burning fumes of cooking appliances, please refer to Appendix A.	

5.2.4 Temperature increase

The temperature increase should not exceed the values specified in Table 3.

Please refer to the test methods in Subsection 6.9.

Table 3 Maximum normal temperature increase

Parts	Temperature increase (K)
Areas with which hands come into contact while operating: **– Metallic materials and coated metallic materials** **– Non-metallic materials**	 **35** **45**
Shell of dry batteries	20
Hose joint	20
Outer shell of valve	50

Outer shell of igniter	50
Outer shell of gas pressure adjustor	35
Lateral side of cooking appliances, wooden wall at the back, and wooden table-top surface under the cooking appliances: – When using lower-limit pot – When using extra-large pot	 100 100
Environmental space or switch surround, temperature control and temperature limiter: – With a T-sign – Without a T-sign	 T-25 30
Internal wiring and external wiring, including the rubber or PVC surface of the flexible power cord: – With a T-sign – Without a T-sign	 T-25 50
Surface of flexible cord protective case for additional insulation	20
Outer surface of capacitor	25
Coil: — Grade A insulation — Grade E insulation — Grade B insulation — Grade F insulation — Grade H insulation	 75 90 95 115 140

5.2.5 Heat impact resistance

a) No crack shall be found on the door glass after receiving a heat impact;

b) No crack shall be found on toughened glass after receiving a heat impact;

c) If other non-metallic panels are broken after receiving a heat impact, fragments may not be scattered.

5.2.6 Gravitational impact resistance

a) No crack shall be found on the toughened glass of the stove surface after receiving a gravitational impact;

b) If other non-metallic panels are broken after receiving a gravitational impact, fragments may not be scattered.

Please refer to the test methods in Subsection 6.11.

5.2.7 Safety devices

5.2.7.1 Protective extinguishing device

The protective extinguishing device of cooking appliances must meet the following requirements:

a) Valve opening time ≤ 15 s;
b) Valve closing time **≤ 60 s.**

Please refer to the test methods in Subsection 6.12.

5.2.7.2 Temperature control devices of rice cookers

The valve closing temperature of temperature control devices in rice cookers should be the boiling point at the testing place +0.5-4.5^{o}C.

Please refer to the test methods in Subsection 6.12.

5.2.7.3 Overheat control devices for the gas temperature

The highest permissible temperature of the gas is ≤ 300^{o}C.

Please refer to the test methods in Subsection 6.12.

5.2.8 Electric ignition device

Ignition must occur on at least 8 out of 10 attempts, and ignition failure may not occur twice consecutively. No backdraft may occur.

Please refer to the test methods in Subsection 6.13.

5.2.9 Utilisation performance

The utilisation performance of cooking appliances should satisfy the requirements of Table 4.

Please refer to the test methods in Subsection 6.14.

Table 4 Requirements in terms of utilisation performance

Utilisation Performance	Requirements
The heat efficiency of gas stoves and gas stove burners in combined stoves:	
– **Table-top type cooking appliances**	**≥ 55%**
– **Built-in type cooking appliances**	**≥ 50%**
Baking performance of barbecues and barbecue units in combined stoves.	No large burnt area may be found on food surfaces, and food may not be half-cooked.
Ovens and oven units in cooking appliances:	
– Baking performance	No large burnt area may be found on food surfaces.
– Temperature difference between each point inside the oven and the geometric centre of the oven	≤ 20°C
– The time for the geometric centre of the oven to reach 200°C	≤ 20 min
– Highest temperature inside the oven	≥ 230°C
– Precision of temperature controller	Within the range of ± 25°C
– Precision of temperature indicator	Within the range of ± 25°C
Rice cookers and the rice cooking units in combined stoves	
– Rice softening performance in closed rice cookers	Rice may not be half-cooked.
– Heat-preservation performance of rice cookers with thermal burners	The temperature at the centre of the cooked rice may not be lower than 80°C, and no signs of burning may be found.
– Heat-preservation performance of rice cookers employing electronic heat-preservation	The temperature at the centre of the cooked rice must be within the range of (71±6)°C. No obvious strange odour or brown colour may be found.
– **Heat efficiency**	**≥ 55%**

5.2.10 Electrical performance

5.2.10.1 For cooking appliances which use AC power, their electrical performance should satisfy the requirements of Table 5.
Please refer to the test methods in Subsection 6.15.1.

5.2.10.2 For cooking appliances which use DC power, when the voltage of DC

power is abnormal, the following requirements must be met:

– When the voltage is at 70% of the nominal voltage, the safety protection function should be normal and the utilisation may not be obstructed;

– When the voltage is at 0, the cooking appliances should be in safety protection mode or normal utilisation mode.

Please refer to the test methods in Subsection 6.15.2.

5.2.11 Durability performance

The durability performance of cooking appliances should satisfy the requirements of Table 6.

Please refer to the test methods in Subsection 6.16.

5.2.12 Vibration resistance performance

After the packaging of a cooking appliance has undergone horizontal and vertical vibration at a frequency of 10 Hz and amplitude of 5 mm for 30 minutes respectively, the air-tightness should meet the requirements of Subsection 5.2.1, the electrical performance should meet the requirements of Subsection 5.2.10.1, and the utilisation should not be obstructed.

Please refer to the test methods in Subsection 6.17.

5.2.13 Falling resistance performance

After the packaging of a cooking appliance has undergone a falling test in accordance with the methods specified in Appendix A of GB/T 1019-1989, the air-tightness should meet the requirements of Subsection 5.2.1. For cooking appliances which use AC power, their electrical strength, current leakage and ground resistance should satisfy the requirements of Table 5.

Table 5 Requirements in terms of Electrical Performance

Item	Performance Requirements
Anti-shock protection	**The anti-shock protection performance must meet the following requirements:** **– The test requires that the electric parts should not be easily touchable;** **– Only the basically insulated parts which are separated from the electric parts and the parts of the Category II structure are used. The test pin should not touch the electric parts;** – For parts which may occasionally be touched by a fork or any other type of

	sharp object during normal use, a long test pin should not touch the electric parts.
Current leakage and electrical strength at room temperature	**The current leakage of cooking appliances should meet the following requirements:** **— For Category I electrical cooking appliances, it should not exceed 3.5 mA;** **— For Category I electrothermal cooking appliances, it should not exceed 1 mA or 1 mA/kW, whichever is the greater value, but the maximum value should be ≤ 10 mA;** **— For Category II cooking appliances, it should not exceed 0.25 mA;** **— For Category III cooking appliances, it should not exceed 0.5 mA;** **— For electromagnetic stoves, it should not exceed the product of 0.7 mA (peak value) and the working frequency in the unit of kHz or 70 mA (peak value), whichever is the smaller value.**
	Electrical Strength **No flashover or puncture should appear during a voltage test on the insulated cooking appliance at a frequency of 50 Hz or 60 Hz on the basis of sine waves for 1 minute.** **For the voltage for use in the test and the place where it should be applied, please refer to Table 23.**
Current leakage and electrical strength at working temperature	**At the working temperature, the current leakage of cooking appliances should meet the following requirements:** **– For Category I electric cooking appliances, it should not exceed 3.5 mA;** **– For Category I electrothermal cooking appliances, it should not exceed 1 mA or 1 mA/kW, whichever is the greater value, but the maximum value should be ≤ 10 mA;** **– For Category II cooking appliances, it should not exceed 0.25 mA;** **– For Category III cooking appliances, it should not exceed 0.5 mA;** **– For electromagnetic stoves, it should not exceed the product of 0.7 mA (peak value) and the working frequency in the unit of kHz or 70 mA (peak value), whichever is the smaller value.**

	Electrical strength at the working temperature **No flashover or puncture should appear during a voltage test on the insulated cooking appliance at a frequency of 50 Hz or 60 Hz on the basis of sine waves for 1 minute.** **The test voltage is as follows:** **– For basic insulation at safe and extremely low voltages during normal utilisation: 500 V;** **– For other basic insulation: 1,000 V;** **– For additional insulation: 2,750 V;** **– For reinforced insulation: 3,750 V.**
Ground resistance	**There should be low resistance at the connection between the ground terminal or ground contact point and the ground metallic part. The ground resistance should not exceed 0.1 Ω.**
Humidity resistance	**The humidity resistance of a cooking appliance must meet the following requirements:** **a) After the cooking appliance has undergone a water pouring test and received an electrical strength test immediately afterwards, it should not be punctured.** **b) After the cooking appliance has undergone humidity treatment and received an electrical strength test immediately afterwards, it should not be punctured.**
Nominal input power	**The nominal input power error of a cooking appliance should satisfy the following requirements:** **a) For all cooking appliances, when the input power is ≤ 25W, the error should be < +20%.** **b) For electrothermal stoves and the combined-type stoves:** **– When the input power is > 25-200W, the error should be within the range of ± 10%.** **– When the input power is > 200W, then – 10% < error < + 5% or 20 W (select the greater value).** **c) For electric cooking appliances:** **– When the input power is > 25-300W, the error should be < +20%.** **– When the input power is > 300W, the error should be < + 15% or 60 W (select the greater value).**

Table 6 Requirements in terms of durability performance

Name of Device	Requirements in terms of Durability Performance
Gas cork valve	**Having functioned 15,000 times, air-tightness is at the right level and**

	utilisation is not obstructed.
Protective extinguishing device	**Having functioned 6,000 times, air-tightness, valve opening time and valve closing time are at the right level and utilisation is not obstructed.**
Electromagnetic valve	**Having functioned 30,000 times, air-tightness is at the right level and utilisation is not affected.**
Temperature control of oven	**The durability of the oven's temperature control should satisfy the following requirements:** **a) Having functioned in the same way as the electromagnetic valve 30,000 times, the temperature inside the oven is at the right level and utilisation is not affected.** **b) Methods of direct action on the valve:** **– After carrying out the bypass action 1,000 times, the air-tightness and temperature inside the oven are at the right level and utilisation is not affected.** **– After carrying out the non-bypass action 6,000 times, the air-tightness and temperature inside the oven are at the right level and utilisation is not affected.**
Temperature control of rice cooker	**Having functioned 1,000 times, air-tightness is at the right level and the rice softening performance in the closed rice cooker remains unchanged.**
Mechanical timer	**Having functioned 2,000 times, air-tightness is at the right level, utilisation is not affected and the scope of the timer has not changed more than ± 10%.**
Electric ignition device	Having functioned 15,000 times, the ignition performance is at the right level and utilisation is not affected.
Oven door	Having functioned 500 times, utilisation is not affected.

5.2.14 Pressure-bearing performance of package

After the packaging of a cooking appliance has undergone a pressure stacking test according to the methods set out in Appendix A of GB/T 1019-1989, the difference between the current height of the packaging and the height before the test should be less than 1 cm/m.

Please refer to the test methods specified in GB/T 4857.3-1992.

5.3 Structure

5.3.1 General structure

5.3.1.1 The parts of a cooking appliance should be safe and durable. Under normal operation, no deformation that leads to a breakage affecting utilisation may occur.

5.3.1.2 In the process of normal utilisation, the cooking appliance should have a sufficient level of stability, and no sliding or inclination may be caused.

5.3.1.3 When the overall structure is tilted up to 15^{o} in any direction, the parts may not fall over. Please refer to the test methods in Subsection 6.19.2.

5.3.1.4 The burner of a cooking appliance should be equipped with no less than 2 independent gas valves. Please refer to Figure 20.

5.3.1.5 If a malfunction is found in the electric ignition device, its safety should not be affected. After the protective extinguishing device functions, it can only be re-used when it is restored manually.

5.3.1.6 The burning status of the burner should be easily observable.

5.3.1.7 The ends of parts that may be touched by hand during use and cleaning should be smooth.

5.3.1.8 For attaching the parts of cooking appliances, standard tightening and fixing objects should be used, and the connection should be strong, reliable and easy to inspect and repair.

5.3.1.9 The tools usually used for the cleaning, inspection and repair of parts should be easy to install and dismantle.

5.3.1.10 The gas conduit should meet the following requirements:

a) The gas conduit (including the gas conduit of the permanent pilot igniter) should be in a position in which it cannot overheat and corrode;

b) The internal diameter of the gas conduit of the permanent pilot igniter should not be less than 2 mm;

c) When the gas conduit is connected by means of welding, a flange or threading, its structure should be able to guarantee its air-tightness performance;

d) The connecting joints of the pipes of cooking appliances should use pipe threading which meets the requirements of GB/T 7306.1, GB/T 7306.2 and GB/T 7307. The connecting joints of the hoses of cooking appliances should use the two structures shown in Figure 1 (Φ 9.5 mm or Φ 13 mm);

e) The suggested approach to gas piping is to adopt a connection system using hard pipes (or metallic hoses). When non-metallic hoses are used for connection, the gas conduit shall not be loosened and no gas leakage shall occur during the installation and dismantling of the hoses. Hoses and hose joints should be in positions which can be observed, inspected and repaired easily.

f) For connections between hoses and hose joints, safe tightening and fixing measures should be used.

5.3.1.11 The structure and packaging of cooking appliances should be able to bear

stacking, vibration and falling during storage and transportation.

5.3.1.12 Each burner in all types of cooking appliances should be equipped with a protective extinguishing device.

5.3.1.13 When the control structure is used normally, parts subject to an excessive temperature increase should not be readily touchable by the hands of the operator.

5.3.1.14 Asbestos should not be applied to the structure of cooking appliances.

5.3.2 Structure of stoves

5.3.2.1 The distance between the burner centres of the two-burner and multiple-turner stoves shall be determined according to the size and shape of the pot.

5.3.2.2 In two-burner and multiple-burner stoves, at least one burner and its support must be useable by sharp-bottomed pots, which should be able to sit on the stove stably under normal operation, and utilisation should not be obstructed.

5.3.2.3 The pot support should meet the following requirements:

a) When different types of pots are used, the pot support should be strong and firm. At least one of the burners should be able to hold a pan with a diameter of 100 mm. When using the moveable pot support, it can be adjusted and changed easily. When using the sharp-bottomed pot, normal burning should not be affected.

b) Please refer to the test methods in Subsection 6.19.3.1.

5.3.2.4 The fluid collection pan should have a sufficient capacity for holding any fluid spilled while cooking.

5.3.2.5 When the stove top undergoes the loading test, the deflection in all parts of the stove top should be ≤ 5 mm. Please refer to the test methods in Subsection 6.19.3.1.

5.3.2.6 When non-metallic materials are used for the panels, and when a panel is broken, the following requirements should be met:

a) Fragments may not be scattered;

b) The cooking pot may not tilt.

5.3.2.7 Built-in stoves should also meet the following requirements:

a) The bottom panel of the stove should be easy to clean (using the normal tool);

b) The bottom panel of the stove should be made of anti-corrosive materials or anti-corrosion measures must be applied to it;

c) A closed structure is suggested for use at the joint between the built-in position and the kitchen work surface;

d) An anti-spill structure is suggested for use for parts such as the burner ring, fluid collection pan, etc, so that any spilled fluid cannot flow to the bottom panel;

e) There should be an air intake to help ignition. The installation and structure

of the air intake should not affect the burning performance;

f) The stove top should be made of materials which are resistant to high temperatures and deflection. The heat-deformation deflection at any position should be ≤ 5 mm.

5.3.3 Structure of barbecues

5.3.3.1 It must be possible to put in and take out the baking pan and baking rack easily, and they should not fall out by themselves.

5.3.3.2 When a container is placed above the exhaust of the barbecue, the fume exhaust must not be affected. If no container should be placed there, this should be clearly indicated in writing in a visible place.

5.3.3.3 It must be possible to open and close the door of the barbecue flexibly and reliably.

5.3.4 Structure of ovens

5.3.4.1 During the loading test, the oven door should be stable. No deformation or damage affecting utilisation may occur. Please refer to the test methods in Subsection 6.19.3.2.

5.3.4.2 Ovens with no ignition device equipped may have their flame hole and ignition structure exposed only when the oven door is open.

5.3.4.3 It must be possible to open and close the oven door flexibly, and its seal must perform well.

5.3.4.4 During ordinary use, there should be no bending of the internal wall of the oven affecting the mechanisms.

5.3.4.5 It must be possible to put in and take out the baking pan, baking rack, etc, of the oven easily, and they should not fall out by themselves.

5.3.4.6 Baking pans for use in the oven should not be caused to bend by the object being baked, and should not allow the object being baked to leak out during utilisation.

5.3.4.7 The capacity of baking pans for use in the oven should be large enough to hold any spilled fluid.

5.3.4.8 It must be easy to clean the flame holes of burners inside the oven, and the fire should not be easily extinguished by any spilled fluid.

5.3.4.9 The temperature indicator of the oven should show the actual temperature inside the oven, and should be sensitive and reliable.

5.3.4.10 The temperature control of the oven should be sensitive and reliable, and

should indicate temperature values or temperature codes equivalent to 150°C, 200°C and above 250°C.

5.3.4.11 The oven should be made of heat-resistant materials which do not contaminate food. The heat-resistant materials of the oven should be even and consistent, and should not cause disassociation and falling.

5.3.4.12 When 2/3 of the baking pan is being pulled out of the oven, sliding may not be caused. For the ovens with locking devices, the pan should be locked at the locking point.

5.3.4.13 The exhaust of the oven should be positioned at the back of the oven body.

5.3.4.14 For ovens equipped with a hot air fan, when the oven door is open, the fan should stop running. It is essential that no danger be caused when the object being baked is put in and taken out. The circulator should be equipped with a protective frame and a protective net.

5.3.4.15 The lighting facilities inside the oven should be equipped with a protective cover.

5.3.5 Structure of rice cookers

5.3.5.1 Boiling water shall not be spilled onto the automatic extinguishing device. The automatic extinguishing device must not be caused to overheat.

5.3.5.2 On the wall of the inner pot, there should be a graduated water level for easy reference when pouring water.

5.3.6 Special structural requirements for cooking appliances that use AC power:

5.3.6.1 Cooking appliances that use AC power should be Category I stoves, Category II stoves or Category III stoves.

5.3.6.2 Category I stoves shall have safe grounding measures, and the ground resistance should meet the requirements of Table 5.

5.3.6.3 It must be possible to reliably support the electrothermal components inside the cooking appliances. Even if the electrothermal components break, the electrothermal lead shall not contact with the metallic parts.

5.3.6.4 The electrothermal components should not be designed to be components subject to visible scorching.

5.3.6.5 The outer shell of cooking appliances should be designed as a structure which can only be opened using a tool. There should be sufficient protection of any electric parts which could be accidentally touched.

5.3.6.6 The moving parts of cooking appliances should be placed or covered in consideration of the utilisation and operation of the cooking appliances, so as to offer sufficient protection from harm for people under normal use conditions.

5.3.6.7 The protective shell, protective cover and similar parts should not be dismantlable, and must have sufficient mechanical strength.

5.3.6.8 Under normal use conditions, it must not be possible for the electrical insulation of the structure of cooking appliances to be affected by condensation or by any fluid leaked onto the cold surface. The protection grade should not be lower than IP3. Tests should be carried out according to the requirements specified in Subsection 13.2.3 of GB 4208-1993.

5.3.6.9 When the safe and extremely low voltage used by cooking appliances is taken from the electricity network, it should go through a safe isolating transformer. The insulation of the safe isolating transformer should meet the requirements in terms of double insulation or reinforced insulation. The techniques of safe isolating transformers should meet the requirements of GB 13028.

5.3.6.10 The structure of cooking appliances should not allow parts such as insulation, internal wiring, airing parts, commutators and sliding rings to be exposed to oil, grease or similar substances.

However if the decision is made to allow the structure to be exposed to substances like oil or grease, the structural elements should have a sufficiently high level of insulation performance that does not contradict the Standard.

5.3.6.11 In the event of any accidental automatic re-connection to the restoration circuit breaker and the overcurrent protection device, no danger may be caused.

5.3.6.12 If the restoration button is not on the restoration control, and if accidental restoration could cause danger, then it should be made impossible for accidental restoration to occur, or protection should be added.

5.3.6.13 Parts which cannot be dismantled and which provide necessary protection against water shock or contact with moving parts should be fixed reliably, and should bear the level of mechanical stress that occurs during normal utilisation.

5.3.6.14 For objects which indicate open or closed positions, or the handle of similar components, controls and similar objects, if they may cause danger by being in the wrong positions, it should be impossible to set them to the wrong positions.

5.3.6.15 Any direct contact with electrical parts and heat insulation can be effectively prevented, unless these materials never corrode, never absorb humidity and can never be burned.

5.3.6.16 Wood, cotton, silk, ordinary paper and similar fibres or humidity-absorbent materials should not be used for insulation unless they have been macerated.

5.3.6.17 The structure of cooking appliances should make it impossible for any suspended electrothermal lead to come into contact with any easily touchable metallic parts.

5.3.6.18 Between parts connected by protective impedance, double insulation or reinforced insulation should be used for separation purposes.

5.3.6.19 The creepage distance and electrical gap on the additional insulation and the reinforced insulation should not be decreased, due to wearing, below the value specified in Table 8. If any wire, screw, nut, gasket, spring or similar parts are loosened or fall from their original position, the creepage distance and electrical gap on the additional insulation and the reinforced insulation should not decrease to 50% of the value specified in Table 8.

5.3.6.20 The design or protection of the additional insulation and the strengthened insulation should be such that the creepage distance or electrical gap cannot be decreased below the value specified in Table 8 due to the deposition of dust or dirt caused by the friction of parts inside the cooking appliances.

5.3.6.21 Any electricity-conducting liquid with which it is easy to come into contact including under normal use conditions should not have any direct contact with the electrical parts.

In Category II structures, this kind of liquid should not have any direct contact with the basic insulation or the reinforced insulation. It should pass the visual inspection, and its conformity should be checked.

5.3.6.22 The operation controls, handles, control rods, and the shafts of similar parts should not be electrified, unless the parts above them have been removed. Shaft shall not be easily touchable.

5.3.6.23 Even if the insulation of the handles, control rods and knobs being held or controlled is ineffective under normal utilisation, it should not be electric. If these handles, control rods or knobs are made of metal, and their shafts or fixed devices may be electric when the insulation is ineffective, then they should be covered by insulated materials, or additional insulation should be applied to separate the easily touchable parts from their shaft rods or fixed devices.

5.3.6.24 The electric capacitor should not be connected to the point between two corresponding contact terminals of a circuit breaker.

5.3.6.25 The protective impedance should be composed of at least two independent components. It should be impossible for any obvious change to occur in the impedance of these components within the life span of the cooking appliances.

5.3.6.26 Internal wiring

a) The wireway should be smooth and have no sharp corners or edges. The wiring protection should not make them contact with any burrs which could cause damage to insulation, fins for cooling, or similar sharp edges. The metallic hose of the feed-through insulation wire inside should have a flat, smooth surface or be attached with a bush. It should be able to effectively prevent wiring from coming into contact with moving parts;

b) The string of insulated beads on electric metallic wire and similar porcelain insulation should be fixed or supported, so as to keep its position unchanged. It should not be placed on sharp edges or sharp angular corners. If the string of insulated beads is inside a soft metallic conduit, it should be placed inside an insulated case, unless the conduit cannot be moved under normal use conditions;

c) Any naked internal wiring should be rigid and fixed, so as to make it impossible for the creepage distance and electrical gap to decrease to below the value specified in Table 8 during normal use conditions;

d) The insulation of the internal wiring should be able to bear the electrical stress that could occur during normal use. The electrical performance of its insulation should meet the requirements specified in GB 5023.3 or GB 5013.4;

e) When the casing pipe is used as additional insulation for internal wiring, reliable methods should be used to keep it fixed in position;

f) When applying 2N pulling force on the internal wiring, parts at a temperature higher than 100^{o}C (except wire which can resist high temperatures) and any moving parts should not be touched;

g) When the internal wiring runs through a metallic hole, the metal surface should be smooth or equipped with a casing pipe;

h) When the connector assembly is connected with the internal wiring, it should not fall off when 5N force is applied at the joint;

i) The yellow-green combined lead should only be applied to the ground lead. It should be connected to the point between the ground terminal of cooking appliances and the ground contact point of the plug;

j) Stranded wire points with bearing contact pressure should not be welded together using lead-silicon welding, unless the structure of the clamping device is such that it can preclude any danger of poor contact caused by the cold flow of the welding agent;

k) Aluminium wire should not be used for internal wiring.

5.3.6.27 Power connections and external flexible cords

5.3.6.27.1 The cooking appliances should use plug-attached flexible power cords to connect the power.

5.3.6.27.2 Flexible power cords should go through a Y shape and be connected to

the cooking appliances.

5.3.6.27.3 A connecting method should be adopted for the power cable of cooking appliances with the manufacturer, its maintenance department or similarly qualified staff to carry out replacements. Suitable warnings should be given in the operating manual. Users should not carry out maintenance work or change the power cable by themselves.

5.3.6.27.4 The plug should not be equipped with more than one soft flexible cord. The flexible power cord of ordinary hard-rubber protective cases should not be lighter than the YZ or YZW types given in Table 4 of GB 5013.4-1997 (Wire No. 53 of IEC 245).

5.3.6.27.5 The lead of the flexible power cord should have a claimed cross-section area as specified in Table 7.

Table 7 Minimum cross-section area of lead

Nominal Current A of Cooking Appliances	Claimed Cross-Section Area mm^2
< 6	0.75
> 6-10	1
> 10-16	1.5
> 16-25	2.5
> 25-32	4
> 32-40	6
> 40-63	10

5.3.6.27.6 When the flexible cord is partially moulded to the outer shell, the insulation of the flexible power cord should not be damaged.

5.3.6.27.7 The fixing devices of flexible cords should be placed in a position where they cannot be touched without the aid of a tool, or their structures cannot be equipped with flexible cords without the aid of a tool.

5.3.6.27.8 The insulated lead of the flexible power cord should again be isolated away from the basically insulated and easily touchable metallic parts. The insulation can be provided by using the protective case of the flexible power cord or other methods.

5.3.6.27.9 The flexible power cords should meet the requirements of GB 5023.3 or GB 5013.4.

5.3.6.27.10 Flexible power cords used by Category I cooking appliances should be equipped with a yellow/green-fused ground wire.

5.3.6.27.11 At the place where the lead of the flexible power cord bears the contact pressure, no ply reinforcement should be conducted through “lead

silicon", unless the structure of the clamping device is such that it can preclude any danger of poor contact caused by the cold flow of the welding agent.

5.3.6.27.12 The flexible power cords should not come into contact with any sharp ends or sharp edges of the cooking appliances. The flexible cord inlet should be attached with a bush, or its structure should be such that it can let the protective case of the flexible power cord pass through without any danger of it being damaged.

The flexible cord inlet should:

— have a shape which can prevent the flexible power cord from being damaged;

— be impossible to dismantle.

At the flexible cord inlet, the insulation between the lead of the flexible power cord and the outer shell of the cooking appliance should be composed of an insulation layer of lead and at least two independent insulation layers additionally added.

If the outer shell of the flexible cord inlet should be made of insulated materials, only one independent insulation layer is required.

5.3.6.27.13 Cooking appliances with flexible power cords should be equipped with a fixing device for the flexible cords, so that the lead is not subjected to tension and torque at the joint inside the cooking appliance, and so that the insulation of the lead is protected from wear.

It should not be possible to push the flexible cord into the cooking appliance, or to reach a level at which the flexible cord or the parts inside the cooking appliance can be damaged.

Its conformity can be inspected through visual inspections and manual tests, and the following tests should be carried out.

When the flexible cord receives a pulling force of 100N and 0.35 Nm torque, a mark should be made at the point 20 mm from the fixing device of the flexible cord, or at another suitable spot. After that, the same force should be used to pull the flexible cord 25 times. The pulling force should be applied in the most disadvantageous direction for 1 second each time, but sudden force should not be applied. During the test, the flexible cord should not be damaged.

After the test, the vertical displacement of the flexible cord should not exceed 2 mm, and the displacement of the lead inside the contact terminal should not exceed 1 mm. At the joint, no obvious tension may exist. The creepage distance and the electrical gap should not decrease below the value specified in Table 8.

5.3.6.28 Creepage distance, electrical gap and feed-through insulation distance

5.3.6.28.1 The creepage distance and the electrical gap should not be below the

value specified in Table 8.

5.3.6.28.2 The electrical gap between the wiring terminal and the easily touchable metallic parts should be measured in conditions in which the screw and nut are loosened as far as possible. The electrical gap should not be below 50% of the value specified in Table 8.

Table 8 Minimum creepage distance and electrical gap

Distance	Working Voltage ≤ 130 V		Working Voltage > 130 V - 250 V		Working Voltage ≥ 250 V - 480 V	
	Creepage Distance	Electri-cal Gap	Creepage Distance	Electri-cal Gap	Creepage Distance	Electri-cal Gap
Between the electric parts of different potentials [a]:						
- if deposited by anti-dirt objects [b]	1.0	1.0	2.0	2.0	2.0	2.0
- if not deposited by anti-dirt objects	2.0	1.5	3.0	2.5	4.0	3.0
- if enamel-insulated wires	1.5	1.5	2.0	2.0	3.0	3.0
- if protected by deposition from anti-dirt objects or humidity:	1.0	1.0	1.0	1.0	-	-
Resistance (including its connection line) of positive temperature coefficient (PTC)[b]						
Between the electric parts and other metallic parts crossing over the basic insulation:						
- if deposited by anti-dirt objects [b]						
● composed of porcelain, pure mica and similar materials	1.0	1.0	2.5 [c]	2.5 [c]	-	-
● composed of other materials	1.5	1.0	3.0	2.5 [c]	-	-
- if not deposited by anti-dirt objects	2.0	1.5	4.0	3.0	-	-
- if the electric parts are enamel-insulated wires	1.5	1.5	2.0	2.0	-	-
- at the end of pipe-shaped armoured electrothermal components.	1.0	1.0	1.0 [e]	1.0 [d]	-	-
Between the electric parts and other metallic parts crossing over the strengthened insulation:						
- if the electric parts are enamel-insulated wires	6.0	6.0	6.0	6.0	-	-

- towards other electric parts	**8.0**	**8.0**	**8.0**	**8.0**	**-**	**-**
Between metallic parts separated by additional insulation	**4.0**	**4.0**	**4.0**	**4.0**	**-**	**-**
Between electric parts inside the groove of the panel with cooking appliances installed and the fixed support surface	**6.0**	**6.0**	**6.0**	**6.0**	**-**	**-**

a The electrical gap specified here is inapplicable to the air gap between the contact points of the automatic control, micro-gap-structured switch and similar devices, and also inapplicable to the air gap between the mobile-phase parts in those devices with its electrical gaps alternated with the movements at the contact points.

b Normally, only if the inside of a cooking appliance does not create dust by itself, it shall not be considered that a cooking appliance with a reasonable anti-dust outer shell shall require anti-dirt treatments on the inside, and it does not have to be closed completely.

c If the part is rigid and is positioned by moulding, or if it is impossible for its structure to make the distance decrease due to deformation or movement of the part, then the value can be decreased to 2.6 mm.

d If it is protected by deposited anti-dirt treatments.

e If crossing over porcelain, pure mica and the similar materials which are protected by deposited anti-dirt treatments.

5.3.6.28.3 The distance of the narrow hole or opening on the outer parts of the feed-through insulation materials should be measured up to the metallic foil which can be contacted easily and has surface contact. Use the test pin shown in Figure 13 to push the metallic foil into the ridge and a similar position, but do not press it into the opening.

a) If necessary, during measurement, apply force to a random point on the naked lead other than the electrothermal component, to a random point on the non-insulated metallic capillary of the temperature control or a similar device, and to the outer surface of the metallic shell, so as to decrease the creepage distance and electrical gap.

b) This force is applied by the test pin shown in Figure 13, and its value is as follows:

– The force on the naked lead, the non-insulated capillary of the temperature control, the electric conductive hose, the metallic foil inside the cooking appliances and similar parts is 2 N;

– The force on the outer shell is 30 N.

5.3.6.28.4 For working voltages smaller than or equal to 250 V, the feed-through insulation distance between metallic parts, if separated by additional insulation, should not be below 1.0 mm; and if separated by strengthened insulation, it should not be below 2.0 mm.

5.3.6.29 Heat resistance: external parts composed of non-metallic materials,

whose deterioration may lead to the cooking appliances' failure to meet the requirements of the Standard, parts made of insulated materials used for supporting (including connection) the electric parts, and parts made from thermoplastic materials providing additional insulation or strengthened insulation should be effectively resistant to heat.

5.3.6.30 Power leakage tracking resistance: insulated materials which may create a tracking path when something crosses over them should be sufficiently resistant to tracking. At this point, the harshness of the working conditions should be considered.

5.3.6.31 Components

Under reasonable application conditions, the parts and electronic components of each type of electrical appliance should meet the related national standards.

5.3.6.31.1 Wiring terminal

The connection terminal of the power wire of cooking appliances can be connected to the external lead by means of welding, fusion welding, crimp connection and similar connection methods.

a) The wiring terminals of flexible power cords should be suitable for their utilisation purposes. Wiring terminals clamped by screw and screw-free wiring terminals should not be used for the connection of flat double-core tinsel cord, unless the end of the tinsel cord is equipped with a device which is suitable for use together with the screw wiring terminal;

b) Without the help of a tool, the wiring terminal should not be easily touchable, even if the electric parts above it cannot be reached;

c) Ground terminal:

– Easily touchable metallic parts of Category I cooking appliances should be permanently and reliably connected to a ground terminal inside the cooking appliances. The ground terminal should not be connected to the neutral wiring terminal;

– The clamping device of the ground terminal should be strong enough to prevent any accidental loosening;

– When designing the length of lead between the wiring terminal of power wire or the fixing device of a flexible cord and the wiring terminal, it should be considered that if the flexible cord slides out from the fixing device of the flexible cord, the mobile-phase lead should be tightened before the ground lead.

5.3.6.31.2 Screw

a) The solidifying device and the failed electrical connection, which may harm the extent of conformity with the Standard, should be able to bear the mechanical stress apparent during normal utilisation;

b) The structure of the electrical connection should be such that it can ensure that contact pressure is never transmitted through insulated materials which can contract or deform easily, unless the metallic parts have sufficient resilient force to compensate for any possible contraction or deformation of insulated materials;
c) Wide-distance screws (metallic plates) should not be applied to the connection of mobile-phase parts, unless they tightly compress those parts by way of direct mutual contacts;
d) Tapping screws cannot be applied to the electrical connections of mobile-phase parts, unless they can form a kind of mechanical screw thread of a completely standard shape. If this kind of screw can be operated by users or the installing person, they should still not be used unless their thread is formed by compression;
e) It must not hinder the connection if it is in normal use conditions only. There should be at least 2 screws at each joint, then the tapping screw and the wide-distance screws can be applied for ground continuity purposes;
f) If the screws and nuts for mechanical connection between different parts of the cooking appliances also carry out electrical connection or provide ground continuity, they should be reliably fixed and prevented from loosening.

5.3.7 Structure of parts

5.3.7.1 The valve should meet the following requirements:
a) The opening and closing of the valves and knobs of cooking appliances at room temperature or the highest temperature should be very flexible;
b) At the points where the knobs open and close, there should be obvious signs and directions. There should be range-restriction and self-locking devices (the main switch body, if exposed, should not be attached to any self-locking device);
c) After the heat resistance performance test, the air-tightness should meet the requirements of Subsection 5.2.1, and utilisation should not be hindered. Please refer to the test methods in Subsection 6.20.1.
5.3.7.2 The nozzle should meet the following requirements:
a) It can be easily dismantled and installed using general tools;
b) It should be at a position which cannot easily be blocked by dust and foreign particles from outside, or it should be a nozzle which cannot easily be blocked and can be cleaned during utilisation.
5.3.7.3 The burner should meet the following requirements:
a) The points and other joints welded by riveting shall have no defect that affects

utilisation;

b) The processing of flame holes should be precise. There should be no defect or deformation that affects burning;

c) Cast objects shall have no defect that affects their appearance and utilisation;

d) For burners composed of more than two heads, the interpositions between them should be accurate;

e) The interpositions between the nozzle, electric ignition device, safety device and other related parts should be accurate. In the process of utilisation, there should be no movement or falling;

f) Flame shall not cause unrelated portions to overheat or become damaged;

g) It must be possible to clean, install and dismantle the burner easily.

5.3.7.4 The draft regulator should meet the following requirements:

a) The air volume can be adjusted easily. Its position must not be able to slide by itself after adjustment;

b) Any draft regulators without adjustment knobs or handles should be installed in a position in which they can be operated easily.

5.3.7.5 The protective extinguishing device should meet the following requirements:

a) When the burner cannot be ignited or is accidentally extinguished, or the flame detector is ineffective, the gas channel of the burner can be closed;

b) In normal utilisation, the relative positions of the flame adjustor and the burner should remain unchanged.

5.3.7.6 The electric ignition device should meet the following requirements:

a) The position of the electrode in relation to the ignition hole as well as the gap between electrodes must be appropriate, and should be fixed;

b) Effective insulation measures should be taken for the electric portions of the high-voltage parts;

c) For any other high-voltage parts which can easily be touched by hand, effective insulation should be installed.

d) When dry batteries are used as a power source, it must be possible to replace the dry batteries easily;

e) After the heat resistance performance test, the ignition performance should meet the requirements of Subsection 5.2.8. Please refer to the test methods in Subsection 6.20.2.

5.4 Materials

5.4.1 General requirements for materials

5.4.1.1 They should be able to bear the normal use temperature.

5.4.1.2 The metallic parts (except the corrosion-resistant materials) should be electroplated, spray painted, porcelain enamelled, or undergo other suitable anti-corrosion surface treatment.

5.4.1.3 Parts with direct contact with food and possible contact with food should be made of materials which do not have a harmful chemical reaction with the human body, or materials which have undergone appropriate surface treatment. It must not be possible for any harmful substance to be created.

5.4.1.4 The materials should meet the related standards. After materials have been tested, they should meet the following requirements:

a) Heat resistance performance: they should meet the requirements specified in Subsection 5.2.5;

b) Corrosion resistance performance: no corrosion should be found on the surface. No bubbles, collapsing or rust may be found on the cast layer and the paint film;

c) Gas resistance performance: they should meet the requirements of Subsection 5.4.2;

d) Steel ball impact resistance performance of porcelain enamel: no collapse of the porcelain enamel may be found;

e) Flame-retarding performance of thermo and heat insulation materials: they should not be burned or the must be extinguishable by natural means within 1 minute;

f) Impact resistance performance: they should meet the requirements specified in Subsection 5.2.6;

g) Oil resistance performance: they should not be deformed, and shall not affect utilisation.

5.4.2 Sealing materials

5.4.2.1 Sealing materials that have come into contact with gas and the lubricant for the use of the cock valve should be adaptable to the characteristics of the gas used.

5.4.2.2 After the gas resistance performance test, the quality and mass change of the washer, spacer, etc for sealing the insulation should not be less than 20%, and no softening and fragility may appear which would affect utilisation. For rubber products, after the n-pentane test, their leakage should be less than 0.005 g/h. Please refer to the test methods in Subsections 6.21.4.1 and 6.21.4.2.

5.4.2.3 After the gas resistance performance test, the quality and mass change of the lubricant for the cock valve should be less than 10% at 20^{o}C, and should be less than 25% at 4^{o}C. After the test, the air-tightness should be at the right level. Please refer to the test methods in Subsections 6.21.4.3.

5.4.3 Thermo materials

There must be no corrosion on the contact surface, and no bad smell shall be created during utilisation.

5.4.4 Electricity-conducting materials

Electricity-conducting materials should be copper, copper alloy or materials with equivalent electrical performance, heat stability performance and mechanical stability performance. For places where elasticity is required and other necessary part materials, such restrictions do not apply when no danger has occurred.

5.4.5 Gas conduit and conduit of permanent pilot igniter

The gas conduit should be made of materials with a temperature resistance above 350^{o}C. The conduit of the permanent pilot igniter should be made of materials with a temperature resistance above 500^{o}C.

5.4.6 Cock valve

It should be made of materials with a temperature resistance above 350^{o}C.

5.4.7 Nozzle

It should be made of materials with a temperature resistance above 500^{o}C.

5.4.8 Nozzle stand

It should be made of materials with a temperature resistance above 350^{o}C.

5.4.9 Air conditioner (Ventilation door)

It should be made of materials with a temperature resistance above 500^{o}C.

5.4.10 Burner

5.4.10.1 The flame hole point of the burner should be made of materials with a temperature resistance above 700^{o}C. Please refer to the test methods in Subsection 6.20.4.

5.4.10.2 All the parts of the burner of cooking appliances from the gas outlet of the nozzle to the flame hole of the burner should be made of materials which have undergone a tempering test for 15 minutes according to the burner overheat resistance test methods, and the burner must not have any deformation affecting its performance. Please refer to the test methods in Subsection 6.20.3.

5.4.10.3 The thickness and surface treatment should meet the following requirements:

a) The wall thickness of the cast products shall not be less than 3 mm, and shall not

have defects such as obvious cast air holes;

b) The wall thickness of die-cast products shall not be less than 1.5 mm, and shall not have any defect affecting utilisation;

c) The wall thickness of stainless steel products should not be less than 0.3 mm;

d) The wall thickness of products made of hot-dipped aluminium-plating steel materials should not be less than 0.3 mm;

e) For ordinary steel-made products, the wall thickness of the steel materials should not be less than 0.5 mm, and anti-corrosion treatment should be carried out on the surface. When carrying out surface treatment using porcelain enamel, the steel ball impact test should be carried out, and the porcelain enamel should not be collapse;

f) The wall thickness of products made of copper and copper alloy material should not be less than 1 mm.

5.4.11 Pot support

It should be made of materials with a temperature resistance above 700^{o}C.

5.4.12 Fluid plate

It should be made of materials with a temperature resistance above 500^{o}C.

5.4.13 Inner walls, baking pan and baking rack of oven, and radiation plate of barbecue

It should be made of materials with a temperature resistance above 500^{o}C. During utilisation, there should be no creation of gas harmful to the human body caused by heat decomposition.

5.4.14 Glass of oven door

After the heat impact resistance test, no breaking shall appear.

5.4.15 Toughened glass panel

5.4.15.1 After the heat impact resistance test, no breaking shall appear on the panel.

5.4.15.2 After the gravitational impact resistance test, no breaking shall appear.

5.4.16 Other non-metallic panels

5.4.16.1 In case of breaking during utilisation, the fragments shall not scatter.

5.4.16.2 Other performance points should meet the related standards.

5.4.17 Stove legs

5.4.17.1 It is suggested that the point in contact with the kitchen work surface is

made of rubber or other materials which cannot slide.

5.4.17.2 Having undergone the oil resistance test, rubber products or other non-metallic products in contact with the kitchen work surface should not affect utilisation.

5.4.17.3 The hardness HS (Shore A) of rubber products in contact with the kitchen work surface should reach 50-90.

5.4.18 Pot of rice cookers

This should be made of materials with a temperature resistance above 500^{o}C.

5.4.19 Packaging materials and packaging waste

The packaging materials and packaging waste should meet the following requirements:

a) The toxic metal and other harmful substance content inside the packaging materials should be restricted. One point should be noted: whether these materials will create radiation or harmful ingredients when they are burned, or whether they will release harmful substances when they are buried;

b) All the materials should be available for recycling and reuse to a high extent;

c) Try to reduce the proportion of non-degradable materials used in the packaging materials as a whole;

d) All the materials can be recycled and disposed of easily.

5.4.20 Flame detector of protective extinguish device

It should be made of materials with a temperature resistance above 700^{o}C, and an oxidised layer shall not be caused in a high-temperature environment.

5.5 Appearance

5.5.1 The appearance should be attractive, simple, and have well-coordinated colours. There should be no defect affecting the appearance.

5.5.2 The panel of cooking appliances should bend no more than 5 mm.

6 Test methods

6.1 Test room status

6.1.1 The room temperature should be 20±5^{o}C. In each test, the fluctuation of the

room temperature should be less than 5°C.

Determination method of room temperature: 1 metre from the front side, left side and right side of the cooking appliances, fix the temperature sensing part of the thermometer at a height equivalent to the upper end of the cooking appliances, then test the temperature of the above 3 points and take the average.

6.1.2 The ventilation and air flow should be good. The carbon oxide content in the indoor air should be less than 0.02%, and the carbon dioxide content in the indoor air should be less than 0.2%. The air flow speed at 1 metre around the tested cooking appliance should be ≤ 0.3 m/s.

6.1.3 Power source conditions: the fluctuation scope of the voltage of AC power for use in the test room should be within the range of ± 2%.

6.2 Gas for use in the test

6.2.1 The code of the gas for use in the test should be according to the specifications of GB/T 13611. Please refer to Table 9. The scope of the change of the net Wobbe number in the gas during the testing procedures should be within the range of ± 2%. When the cooking appliances stop operating, the static pressure should be less than or equal to 1.25 times the gas supply pressure.

Table 9 Gas for use in test

Code	Gas for Use in Test
0	Reference gas
1	Yellow flame limit gas
2	Tempering limit gas
3	Flame-out limit gas

6.2.2 The gas supply pressure for use in the test is shown in Table 10.

Table 10

Code	Gas Supply Pressure			
	Liquefied Petroleum Gas	Natural Gas		Artificial Gas
1 (maximum test pressure)	3300	3000	1500	1500
2 (nominal gas supply pressure)	2800	2000	1000	1000
3 (minimum test pressure)	2000	1000	500	500

6.2.3 When using gases other than those specified in GB/T 13611, the gas for use in testing the cooking appliances should be the gas which was used as the basis during

the design of the product. For the scope of fluctuation, please refer to the related specifications in GB/T 13611.

6.2.4 The code for the condition of gases for use in tests is: code of test gas – code of supply pressure of gas for use in tests.

For example:

0-2 indicating: reference gas – nominal gas supply pressure

6.3 Main instruments for use in the test

The main instruments for use in tests are indicated in Table 11.

6.4 Test equipment

The test equipment is shown in Table 12.

6.5 Test status of cooking appliances

Cooking appliances should be tested according to the specified installation and utilisation status. Apart from the concrete specifications in each independent performance test, they should meet the following basic requirements:

a) For the air volume required for burning of the burner, use 0-2 gas and adjust it so that the flame is at its best level. Then fix the ventilation door. When carrying out various performance tests, the ventilation door cannot be adjusted;

b) The selected aluminium pot (lower-limit pot) should be attached to the stove and the heating water volume should be set as specified in Table 17. When the water volume is too little during the test, water should be poured in gradually;

c) During the test, the moveable pot support should be adjusted to the point which is most disadvantageous to the test;

d) For barbecues with fluid collection pan, water should be poured into the fluid collection pan. When the water volume is too little during the test, water should be pour in gradually;

e) During tests on ovens, place a baking pan in the middle of the oven;

f) During tests on rice cookers, the water should be poured in based on the maximum volume of the cooked rice. When the water level is lower than 1/2 of the water volume during the test, water should be poured in gradually.

6.6 Air-tightness test

The air-tightness test on the gas channel is indicated in Table 13

Table 11 Main instruments for use in tests

Purposes (Test Items)	Names of Instruments	Specifications	
		Scope	Precision or Minimum Graduation
Measurement of room temperature and gas temperature	Thermometer	0°C-50°C	Gas temperature 0.5°C; Room temperature 1°C
Measurement of humidity	Humidometer	10%RH-98%RH	±5%RH
Measurement of atmospheric pressure	Barometer	81 kPa-107 kPa	0.1 kPa
Measurement of gas pressure	U-shape pressure gauge or manometer	0 Pa-5000 Pa	10 Pa
Measurement of time	Second meter	-----	0.1 s
Measurement of gas flow	Gas flow meter	-----	0.1 l
Measurement of relative density of gas	Relative density meter of gas	-----	±2%
Measurement of air-tightness	Gas leakage meter	-----	-----
Measurement of noise	Sound level meter	40 dB-120 dB	1 dB
Measurement of gas ingredients	Chromatographic instrument or absorption gas analyser	-----	-----
Measurement of heat value of gas	Calorie meter	-----	-----
Measurement of carbon monoxide	Carbon monoxide measurement instrument	0-0.2%	0.001%
Measurement of carbon dioxide	Carbon dioxide measurement instrument	0-15%	0.01%
Measurement of oxygen content	Oxygen measurement instrument	0-21%	0.01%
Water temperature	Thermometer	0°C-100°C	0.2 □
Measurement of surface temperature	Thermoelectric thermometer, thermocouple	0°C-300°C	2 □
Measurement of voltage	Table of AC power voltage	-----	Precision: Grade 1.0
	Table of DC power voltage	-----	Precision: Grade 1.0
Measurement of ground resistance	Ground resistance tester	-----	-----
Measurement of current leakage	Current meter, voltage meter, current leakage tester	-----	-----
Measurement of power consumption	Power table	-----	-----

Measurement of temperature rise of coils	DC low resistance tester	-----	-----
Measurement of mass and quality	Weighing apparatus	0 kg-15 kg	10 g

Table 12 Test equipment

Purposes of Test Items	Names of Test Equipment	Types and Specifications	
		Types	Remarks
Preparation of gas for use in test	Gas supply device	-----	Wobbe number ± 2%
Measurement of heat input	Measurement device of gas consumption		-----
Air-tightness test of gas channel	Testing device of air-tightness		-----
Durability test	Testing device of durability of gas valve	-----	
	Testing device of durability of ignition, control devices	-----	
	Testing device of durability of protective extinguishing device	-----	
	Testing device of durability of electromagnetic valve	-----	
Heat resistance test of structural parts	Temperature constancy device	Temperature constancy device	Room temperature ~ 750°C
Vibration test	Testing device of vibration	Vibration test stand	Vibration frequency 10 Hz，full vibration amplitude 5 mm Up and down, left and right
Electrical strength test	Testing device of electrical strength	-----	-----
Structural test of electric parts	Finger probe Test pin	-----	-----
Power abnormality test	Testing device of power cut	-----	0.05 s -180 s
	Other testing device	-----	-----

Table 13 Air-tightness test of gas channel

Test Items	Test Conditions, Test Statuses, Test Methods
From gas intake to gas valve	Let the tested gas valve be set to closed status, and the rest of the valves at open status, and then carry out inspection one by one (the correlated valves are treated

	as the same valve for inspection). Connect the leakage detector to the gas intake. Transfer 4.2 kPa air into it and inspect its leakage.
Automatic control valve	Close the automatic control valve, and open the rest of the valves. Connect the leakage detector to the gas intake. Transfer 4.2 kPa air into it and inspect its leakage.
From gas intake to flame hole of burner	Test condition: Use 0-1 gas. Test status: Ignite all the burners. Test method: Use soap solution, leakage detection liquid or the burner for fire testing to inspect whether there is leakage from the gas intake to each position in front of the flame hole of burner

6.7 Heat input test

The heat input test is indicated in Table 14.

Table 14 Heat input test

Test Items	Test Conditions, Test Statuses, Test Methods
Actual heat input	Test condition: Use 0-2 gas. Test status: Connect the barometer and gas flow meter to the cooking appliances according to Figure 8. Before igniting the cooking appliances, the gas channel in front of the cooking appliances should be at the maximum gas flow volume. Test methods: — For cooking appliances using AC power, set the voltage of the power to the nominal voltage; — When testing the heat input of a single burner, only the single burner is ignited, and then inspection is carried out one by one. When testing the total heat input of cooking appliances, all the burners should be ignited at the same time for inspection; — After the single burner or all the burners are ignited, use the gas flow meter to measure the gas flow volume within 15-20 minutes. The indicator on the gas flow meter should run for at least a complete circle, and the time of measurement should not be less than 1 minute. Repeat the measurement at least twice, and the error of readings should be less than 2%. Take the average of the two gas flows; Calculate the actual heat input by using equation (1). $$\Phi_{actual} = \frac{1}{3.6} \times V \times Q_1 \times \frac{273}{273 + tg} \times \frac{P_{amb} + P_m - S}{101.3} \quad \text{..... (1)}$$ In the equation: Φ_{actual} — actual heat input, kW; Q_1 — 0°C, low heat value of the tested gas under the status of 101.3 kPa, MJ/m^3;

	V — actual gas flow volume, m^3/h; t_g — gas temperature inside the gas flow meter, ^oC; P_{amb} — atmospheric pressure during the test, kPa; P_m — actual relative static pressure of gas inside the gas flow meter, kPa; S — saturated vapour pressure when the temperature is t_g, kPa (when using the dry-type flow meter for measurement, the S value should be multiplied by the relative humidity of the tested gas for modification).
Converted actual heat input	Calculate the converted actual heat input by using equation (2). $$\Phi = \frac{1}{3.6} \times \frac{273}{288} \times Q_1 \times Q_1 \times \frac{\sqrt{d_a}}{\sqrt{d_{mg}}} \times \frac{101.3 + P_s}{101.3} \times \frac{P_{amb} + P_m}{P_{amb} + P_g} \times \frac{\sqrt{288}}{\sqrt{273 + t_g}} \times \frac{P_{amb} + P_m - (1 - 0.622 / d_a) \times S}{101.3 + P_s} \quad \ldots\ldots (2)$$ (The parts in blue have to be square rooted.) Φ — converted actual heat input, kW; Q_1 — 0^oC, low heat value of the intended gas under the status of 101.3 kPa, MJ/m^3; V — actual gas flow volume, m^3/h; d_a — relative density of dry tested gas under standard status; d_{mg} — relative density of dry designated gas under standard status; P_{amb} — atmospheric pressure during the test, kPa; P_s — nominal gas supply pressure used in design; kPa; P_m — actual relative static pressure of gas inside the gas flow meter, kPa; P_g — actual relative static pressure of gas at the front of the cooking appliances, kPa; t_g — actual gas temperature inside the gas flow meter, ^oC; S — saturated vapour pressure when the temperature is t_g, kPa (when using the dry-type flow meter for measurement, the S value should be multiplied by the relative humidity of the tested gas for modification); 0.622 — relative density of ideal gas of vapour.
Precision of nominal heat input	Calculate the precision of nominal heat input by using equation (3). $$\text{Precision of nominal heat input (\%)} = \frac{\text{Converted actual heat input} - \text{Nominal heat input}}{\text{Nominal heat input}} \times 100 \ldots (3)$$
Proportion of the total converted actual	Calculate the proportion of the total converted actual heat input to the sum of the converted actual heat input of single burners by using equation (4). Total converted actual heat input

heat input to the sum of the converted actual heat input of single burners	$b = \frac{\Phi_i}{\sum \Phi_i} \times 100$ …… (4) In the equation: b — Proportion of the total converted actual heat input to the sum of the converted actual heat input of single burners, %; Φ_i — Converted actual heat input of single burners

6.8 Test of operating mode of burning

6.8.1 Test conditions of operating mode of burning

The test conditions of the operating mode of burning are shown in Table 15.

Table 15 Test conditions of operating mode of burning

Test Items		Gas Adjustment Ways		Test Voltage[a)] (%)	Test Gas
		Gas Volume Adjustment Way [a)]	Gas Volume Switch Way [a)]		
Flame transmission		Large	All	110	0-2
Flame-out		Large	Large	90 and 110	3-1
Extinguishing		Large, Small	All	90 and 110	0-1, 0-3
Evenness of flame		Large, Small	All	100	0-2
Tempering		Large, Small	All	90 and 110	2-3
Burning noise		Large	Large	100	0-1
Extinguishing noise		Large	Large	90 and 110	0-2
Carbon oxide		Large	Large	100	0-2
Contact yellow flame		Large	Large	90	1-1
Black smoke		Large	Large	90	1-1
Burning stability of permanent ignition burner	Extinguishing	Large	Large	100	0-1, 0-3
	Tempering	Large	Large	100	2-3
Burning stability when using a super-large pot		Large	All	90 and 110	1-1
Burning stability when the oven door is closed.	Main burner	Large, Small	Large	90 and 110	0-3
	Permanent ignition burner	Small	Small	90 and 110	0-2

Burning stability and flame transmission when the temperature controller of oven is working.	Permanent ignition burner	Large, Small	Large	90 and 110	0-3
	Burner	Large, Small	Large	90 and 110	0-3
a) When adjusting the gas knob or taking out the rod, the gas volume can be adjusted. "Large" refers to the gas volume at maximum status. "Small" refers to the gas volume at minimum status. If the minimum status is not known. If the minimum status is not known, one-third of the maximum gas flow volume is regarded as being at the minimum status. b) When adjusting the gas knob, the adjustment way of the number of burners can be changed. Among them, "large" refers to the ignition of all the burners, "small" refers to the ignition of the minimum number of burners, and "all" refers to the ignition of the burners one by one. c) For the cooking appliances using AC power, when the voltage change has effects on the performance, a test should be carried out according to the voltage conditions specified in the table.					

6.8.2 Test methods of operating mode of burning

The test methods of the operating mode of burning are indicated in Table 16.

Table 16 Test methods of operating mode of burning

Test Items	Test Statuses, Test Methods
Flame transmission	Test status: For the cooking appliances with gas volume adjustor, test is carried out only at the "Maximum" status. Test method: After a flame hole of the main burner is ignited at cold status, record the time taken for the flame to be transmitted to all the flame holes and check by visual inspection whether there is any backdraft.
Flame-out	Test method: After the main burner has been ignited at cold status for 15 seconds, if above 1/3 of the flame hole is found to be subject to flame-out on visual inspection, it is judged as flame-out.
Extinguishing	Test method: After the main burner has been ignited for 15 seconds, check by visual inspection whether each flame hole has flame.
Evenness of flame	Test method: After the main burner has been ignited for 20 minutes, check by visual inspection whether the flame is clear and even.
Tempering	Test method: After the main burner has been ignited for 20 minutes, check by visual inspection whether the flame is tempering.
Burning noise	Test method: — After all the burners have been ignited for 15 minutes, carry out the test on the 3 points specified in Figure 2. — Use a noise level meter and press A to calculate the weight. Use speed monitoring to carry out the measurement. The noise of the environment itself

	should be lower than 40 dB, or above 10dB lower than the actual noise; otherwise, make corrections according to Table 2 in GB/T 3768-1996.
Extinguishing noise	Test method: — After the cooking appliance has operated for 15 minutes, close the gas valve rapidly. Carry out the test on the 3 points specified in Figure 2. — Use a noise level meter and press A to measure the weight. Use speed monitoring to carry out the measurement. The noise of the environment itself should be lower than 40 dB, or above 10dB lower than the actual noise; otherwise, make corrections according to Table 2 in GB/T 3768-1996; — Add 5dB to the measured maximum noise to form the extinguishing noise.
CO concentration in dry fumes (α = 1, V%)	Test status: Based on the specifications of Subsection 6.5. Test method: — For the shape of the fume sampler and its installation position, please refer to Figure 3; — Measure the CO_{2t} concentration in the indoor air (at dry status); — After the cooking appliance has been ignited for 15 minutes, use the fume sample to take a sample. Measure the CO_a content and CO_{2a} content in the dry fumes; — Calculate the CO concentration in dry fumes by using equation (5). $$CO = CO_a \times \frac{CO_{2\,max}}{CO_{2a} - CO_{2t}} \quad \text{..... (5)}$$ In the equation: CO — carbon monoxide concentration in dry fumes, α = 1, V% CO_a — measured carbon monoxide concentration in dry fume sample, V% CO_{2t} — measured carbon dioxide concentration in indoor air (at dry fume status), V% CO_{2a} — measured carbon dioxide concentration in dry fume sample, V% $CO_{2\,max}$ — carbon dioxide concentration (calculated value) in the theoretical dry fume sample, V%
Black smoke	Test method: Ignite the main burner from cold status until the flame is stable. Place a clean pot or a glossy metallic plate on the cooking appliance, and check whether there is black smoke by visual inspection. After the cooking appliance has been ignited for 20 minutes, repeat once.
Contact yellow flame	Test method: Within 15 minutes since the main burner is ignited from cold status, check whether there is a yellow flame by visual inspection. If there is a yellow flame, do the test within any random 1 minute. The electrode should continuously

	contact the yellow flame for more than 30 seconds.
Burning stability of permanent ignition burner	Test method: — For cooking appliances with permanent ignition burners, after the permanent ignition burner has been ignited for 15 minutes, check by visual inspection if there is any extinguishing and tempering occurring to the permanent ignition burner. — Open the gas valve to the maximum, and ignite the main burner continuously. When the main burner is being ignited and extinguished, check whether there is any extinguishing and tempering occurring to the permanent ignition burner.
Burning stability when using an extra-large pot	Test status: Use a pot which is 4 cm larger in diameter than the pot for use in the test (lower limit pot) as specified in Table 17. Test method: Ignite the burners of the cooking appliances one by one, and let the gas valves all open. Check by visual inspection if there is any black smoke and if the burning is stable.
Burning stability when the oven door is closed.	Burning stability of main burner: Test method: Ignite the main burners of the permanent ignition burners (constantly burning pilot light) and oven, and adjust the gas volume to keep the temperature at the centre of the oven at (150 ± 10)°C. Use the ordinary operation speed to open and close the oven door 5 times, and check by visual inspection if the burning is stable.
	Burning stability of permanent ignition burner: Test method: Ignite the permanent ignition burner only. After the burning has been stable or 5 minutes later, use the ordinary operation speed to open and close the oven door 5 times, and check by visual inspection if the burning is stable.
Burning stability and flame transmission when the temperature control of the oven is working.	Burning stability of the burner of constantly-lit oven when the temperature controller is not working: Test method: Preset the temperature controller at 200°C. After the permanent pilot igniter and the burner of the oven are ignited, check by visual inspection if there is any extinguishing and tempering occurring to the burner of the oven when the temperature control is at the working status.
	Test method: Preset the temperature controller at 200°C. After the permanent pilot igniter and the burner of the oven are ignited, check by visual inspection if the flame transmission is normal, and if there is any backdraft when the temperature controller is at working status.
Remarks: Under the condition that the fume sample is guaranteed to be even, for all gas cooking appliances other than gas stoves, the fume sampling device can be determined according to the concrete situation.	

Table 17 Pot and heating water volume in the test of cooking appliances

Actual Heat Input kW	Size of Aluminium Pot mm				Heating Water Volume
	Diameter of Pot	Wall thickness of Pot	Diameter of Rounded Corner	Height	
＜1.10	140	0.55 ± 0.1	16	90	0.5
1.10	160	0.55 ± 0.1		100	0.8
1.40	180	0.6 ± 0.1		110	1.0
1.72	200	0.65 ± 0.1		125	1.5
2.08	220	0.65 ± 0.1		140	2
2.48	240	0.7 ± 0.1		150	2.5
2.91	260	0.7 ± 0.1		160	3
3.36	280	0.8 ± 0.1		175	4
3.86	300	0.8 ± 0.1		190	5
4.40	320	0.9 ± 0.1		200	6
4.95	340	0.9 ± 0.1		210	7
5.56	360	1.0 ± 0.1		225	8

6.9 Temperature rise test

The temperature rise test is shown in Table 18.

Table 18 Temperature rise test

Test Items	Test Conditions, Test Statuses, Test Methods
General temperature rise	Test Conditions: — Use 0-1 gas; — The environmental temperature is 20°C ± 5°C; —Cooking appliances using AC power are supplied with power according to the nominal voltage. Test Statuses: — The test of gas stoves is based on the test status specified in Subsection 6.5; — For ovens with temperature controllers, the temperature controller should be adjusted to the indicated position of the highest temperature; — For ovens without temperature controllers, the gas volume should be adjusted. The temperature at the centre of the oven should be kept at 230°C ± 10°C. If it cannot reach 230°C, the gas valve should be adjusted to the maximum utilisation status; — The rice cooker should have water poured in at the water level for the maximum cooked rice volume;

	— Pots for use in the test of electric stove heads should be selected according to Figure 6, and water should be poured in to 2/3 of the depth of pot; — Pots for use in the test of electromagnetic stove heads should be selected according to Figure 7, and water should be poured in to 2/3 of the depth of pot; — The combined cooking appliances are set at the test statuses according to their respective functions. All the burners (including the electrothermal stove head) should be utilised at the same time. But the stove burner with a barbecue uses the stove at the test status; — Cooking appliances with other functions (e.g. gas stoves also serving as barbecues, rice cookers also serving as gas stoves, etc) are tested at their respective functional statuses; — The device for measuring the temperature rise is shown in Figure 4; — For the distance between cooking appliances and the temperature-test plate, please refer to Figure 5. Test Methods: — Ignite all the burners; — Open the valve of the gas stove, barbecue and rice cooker to the maximum. Open the valve of the burner of the oven to the specified position; — All the heat generating units work according to normal utilisation conditions; — After the temperature rise to the temperature testing position has been constant (the longest temperature rise time should not exceed 1 hour), use a thermoelectric thermometer or thermocouple (pre-buried in the wooden plate) to measure and record the temperature rise at the following places: • the place where hands have to contact during operation; • outer shell of dry batteries; • hose joint; • outer shell of valve; • outer shell of igniter; • outer shell of gas pressure adjuster; • environmental space or surrounding object of switch, temperature controller and temperature limiter; • internal wiring and external wiring, including the rubber or PVC insulated surface of flexible power cords; • surface of flexible cord protective case for additional insulation • outer surface of capacitor • lateral side of cooking appliances, wooden wall at the back, and wooden table-top surface under the cooking appliances
Temperature rise when using an extra-large pot	Test Conditions: — Use 0-1 gas; — The environmental temperature is $20^{o}C \pm 5^{o}C$; Test Statuses: — Place on the gas stove stand a pot which is 4 cm larger in diameter than the pot for use in the test (lower limit pot) as specified in Table 17. When a pot of above 36 cm is used, a bucket can be the replacement; — No ignition on the barbecue and oven; — The electric stove is not turned on;

	— The device for measuring the temperature rise is shown in Figure 4; — For the distance between cooking appliances and the temperature-test plate, please refer to Figure 5. Test Methods: — Ignite all the gas stove heads; — Open the valve of the gas stove burner to the maximum; — After the temperature rise at the temperature testing position has been constant (the longest temperature rise time should not exceed 1 hour), use a thermoelectric thermometer or thermocouple (pre-buried in the wooden plate) to measure and record the temperature rise at the lateral side of cooking appliances, wooden wall at the back, and wooden table-top surface under the cooking appliances.
Temperature rise of coils	Test Conditions: — Use 0-1 gas; — The environmental temperature is $20^{o}C \pm 5^{o}C$; Test Statuses: — The pot for use in the test of electric stove heads should be selected according to Figure 6, and water should be poured in to 2/3 of the depth of pot; — The pot for use in the test of electromagnetic stove head should be selected according to Figure 7, and water should be poured in to 2/3 of the depth of pot; — Under normal working conditions, the electrothermal cooking appliances work at 1.15 times the nominal input power; — Under normal working conditions, the electric cooking appliances supply power at the most disadvantageous voltage between 0.94 times and 1.06 times of the nominal voltage; — For cooking appliances for which air volume can be adjusted, the air volume should be adjusted to the minimum. Test Methods: Ignite all the burners, turn on the electric stove, and keep it boiling. The test starts after the cooking appliance has conducted burning for 15 minutes. During the test, the temperature rise should be continuously monitored. Measure it by using the resistance method, and calculate the temperature rise of coils by using equation (6). $$\triangle t = \frac{R_2 - R_1}{R_1}(K + t_1) - (t_2 - t_1) \quad \text{(6)}$$ In the equation $\triangle t$ — temperature rise of coils R_1 — resistance at the beginning of the test, Ω; R_2 — resistance at the end of the test, Ω; K — equivalent to 234.5 for copper wires; equivalent to 225 for aluminium wires; t_1 — room temperature at the beginning of the test, ^{o}C; t_2 — room temperature at the end of the test, ^{o}C.

6.10 Test of heat impact resistance

The test of heat impact resistance is shown in Table 19.

Table 19 Test of heat impact resistance

Test Items	Test Conditions, Test Statuses, Test Methods
Glass of oven door	Immediately after the general temperature rise test (the temperature inside the oven is 230°C ± 10°C) is done and under the original test statuses, pour 5 ml and 10 ml of cold water at 5°C onto the centre of the glass for 2 times. After the temperature of glass returns to the normal condition, check whether there is any crack left on the glass.
Stove top made of toughened glass	At the status of normal temperature, pour 500 g of the melted metallic silicon (232°C) on the geometric centre of the glass stove top. Twenty seconds later, pour 500 ml of cold water at 20°C ± 5°C on the geometric centre of the stove top. Having repeated the procedure 5 times, check whether there is any crack left on the glass.

6.11 Test of gravitational impact resistance

Under the condition of normal temperature, prepare a round, smooth-surfaced steel cake with a weight of 1800 g, diameter Φ of 120 mm, and the round corner at the bottom at R10 mm. It is made to fall down freely from 200 mm above the geometric centre of the stove top at the installation status. Repeat the procedure 10 times.

6.12 Test of safety device

The safety device test is indicated in Table 20.

Table 20 Test of safety device

Test Item	Test Conditions, Test Statuses, Test Methods
Protective extinguishing device	Valve opening time: — Test condition: Use 0-3 gas. — Test status: At the status of normal utilisation. — Test method: Calculate the time as from the operation of ignition to the time the extinguishing protection device is situated at a valve opening status. Valve closing time: — Test condition: Use 0-1 gas. — Test status: Normal utilisation status — Test method: After the main burner has been ignited for 15 minutes, carry out compulsory extinguishing immediately. Record the time from extinguishing to the time the protective extinguishing device is turned off.
Temperature control device of rice cooker	Test condition: Use 0-2 gas. Test status: At the status of maximum rice volume. Test method: According to Figure 12, insert the mercury thermometer to the area of within 50mm in diameter at the centre of the bottom of the inner pot. Let the thermometer keep on contacting with the bottom of the inner pot. Within 5 seconds after the control component cut off the main burner, take the reading shown on the thermometer, and at the same time turn off the thermo burner. Then, pour

	in about 50 ml of hot water at 80°C ~ 90°C. About 10 minutes later, carry out the test for the second time, and repeat the test 3 times. Take the average of the 3 readings of the thermometer as the valve closing temperature of the temperature control device.
Oil temperature overheat control device	Test condition: Use 0-2 gas. Test status: Select the pot for use in test according to Table 17. Pour in the salad oil at the depth of 10mm. Ignite the burner. Measure the highest temperature of oil as the control device is functioning. For cooking appliances with temperature adjustor, set it at the highest temperature to carry out the test. Test method:

6.13 Test of electric ignition device

6.13.1 Test condition: Use 0-1 gas, 0-3 gas.

6.13.2 Test statuses:

— The igniter using dry batteries should be adjusted to 70% of the nominal voltage of the power voltage;

— The igniter using AC power should be adjusted to 90% of the nominal voltage of the power voltage.

6.13.3 Test methods:

— Carry out preparatory ignition several times in advance.

— The ignition of each time should be carried out when the burner is close to the room temperature.

— According to the different igniters, the operation methods of ignition and the speed of ignition shall be different. They are specified as follows:

- For single-shot type piezoelectric igniters, the operation once is regarded as one time. The speed of each time should be controlled at 0.5 second ~ 1 second.
- For rotary igniter, the rotation once is regarded as one time. The speed of each time should be controlled at 0.5 second ~ 1 second.
- For the continuous power-generating type or the heating-fuse type igniter using AC power or DC power, staying at the ignition position for 2 seconds is regarded as one time.

— Repeat the ignition 10 times. Inspect the number of times of catching fire and check whether there is the backdraft.

6.14 Utilisation performance test

The utilisation performance test is shown in Table 21.

Table 21 Utilisation performance test

Test Items	Test Conditions, Test Statuses, Test Methods
Heat efficiency	Test condition: Use 0-2 gas.

Test status:

— Connect with the stove for use in test according to the methods indicated in Figure 8. Use the stirrer for processing according to Figure 9, or use other device which can stir even the water temperature.

— Use equation (1) to calculate the actual heat input. Select the use of the upper-limit pot and lower-limit pot as well as the heating water volume according to Table 17.

Test method:

— Ignite the burner. Adjust the gas supply pressure to the nominal value.

— After the burning is stable, place the pot on the stove. The initial water temperature should be 5°C plus room temperature, and the final water temperature should be 30°C plus the initial water temperature. When the water temperature is at 5°C before the initial temperature, start stirring the water. When the initial temperature is reached, start measuring the gas consumption. When the temperature is 25 K higher than the initial temperature, start the stirring again. When the temperature is 30 K higher than the initial temperature, turn off the gas and continue stirring. The highest temperature reached is regarded as the final temperature. Calculate the actual heat efficiency by using equation (7).

$$\eta_{actual} = \frac{M \times C \times (t_2 - t_1)}{V_{consumption} \times Q_1} \times \frac{273 + t_g}{273} \times \frac{101.3}{P_{amb} + P_m - s} \times 100 \quad \ldots\ldots\ldots\ldots (7)$$

In the equation:

η_{actual} — actual heat efficiency, %.

M — heating water volume, kg.

C — specific heat of water, C = 4.19 × 10^{-3} MJ/kg. °C

t_1 — initial temperature of water, °C.

t_2 — final temperature of water, °C.

$V_{consumption}$ — actual gas consumption volume, m^3.

Q_1 — actual low heat value of tested gas at the status of 0°C, 101.3 kPa, MJ/kg^3.

P_m — actual relative static pressure of gas inside the gas flow meter, kPa.

P_{amb} — atmospheric pressure during the test, kPa.

t_g — temperature of gas inside the gas flow meter during the test, °C.

s — saturated vapour pressure when the temperature is t_g, kPa (when using the dry-type flow meter for measurement, the s value should be multiplied by the relative humidity of the tested gas for modification).

Carry out the test more than twice under the same condition. When the difference of the heat efficiency of the 2 consecutive times is below 5%, take the average as the actual heat efficiency; otherwise, re-test should be carried out until

	the requirement is met. Having finished the test of the actual heat efficiency of the upper-limit pot and the lower-limit pot, calculate the heat efficiency of stove head by using equation (8). $$\eta = \eta_{actual,\ down} + \frac{q_{down} - 5.47}{q_{down} - q_{up}} \times (\eta_{actual,\ up} - \eta_{actual,\ down}) \quad \ldots\ldots\ldots (8)$$ In the equation: η — heat efficiency, %. $\eta_{actual,\ down}$ — actual heat efficiency when using the lower-limit pot, %. $\eta_{actual,\ up}$ — actual heat efficiency when using the upper-limit pot, %. q_{down} — heat strength at the bottom of pot when using the lower-limit pot in the test, W/cm^2. q_{up}— heat strength at the bottom of pot when using the upper-limit pot in the test, W/cm^2. Remarks: heat strength at the bottom of pot = actual heat input (W) / area of the pot for use in test in the front projection side (cm^2)
Baking performance of barbecue	Test condition: Use 0-2 gas. Test status: At the status of normal utilisation. Test method: After the burner has been ignited for preheating for 3 minutes, put the raw fish fillet, meat, and so on, in the barbecue according to the specifications of the operation manual. Check by visual inspection whether there is a large area of burnt sign on the food surface and whether the food is half-cooked.
Baking performance of oven	Test condition: Use 0-2 gas. Test status: At the status of normal utilisation. Test method: After the burner has been ignited for preheating for 3 minutes, put the raw fish fillet, meat, and so on, in the barbecue according to the specifications of the operation manual. Check by visual inspection whether there is a large area of burnt sign on the food surface.
Temperature distribution of oven	Test condition: Use 0-2 gas. Test method: Place the temperature-test plate on the baking pan and put it into the oven according to Figure 10. The centre of the temperature-test plate should be at the place around the central part inside the oven. Ignite the burner, and keep the temperature at the centre of the temperature-test plate at 180°C ± 10°C. One hour later, measure the temperature at the central temperature-test point and other 6 temperature-test points. Calculate the difference between the temperature at the central temperature-test point and the temperature at other 6

	temperature-test points.
Temperature rise time of oven	Test condition: Use 0-2 gas. Test status: Do not place anything into the oven. Open the gas valve to the status of maximum utilisation. For the oven with temperature controller, the temperature controller should be set at the highest temperature. Test method: Ignite the burner when the temperature inside the oven is the same as the room temperature. After ignition, use the thermocouple shown in Figure 11 to measure the time required for the temperature at the geometric centre of the oven to rise from ignition to 200°C, and find out the temperature rise time by using equation (9). $$T_c = T \times \frac{180}{200 - t} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (9)$$ In the equation: T_c — temperature rise time (the time required for the temperature inside the oven to rise from 20°C to 200°C), min. T — actual time, min. t — room temperature, °C.
Highest temperature of oven	Test condition: Use 0-2 gas. Test status: Do not place anything into the oven. Open the gas valve to the status of maximum utilisation. For the oven with temperature controller, the temperature controller should be set at the highest temperature. Test method: After the burner is ignited, use the thermocouple shown in Figure 11 to measure the reachable highest temperature when the inside of the oven has reached the heat balance.
Precision of temperature controller of oven	Test condition: Use 0-2 gas. Test status: At the heating status where no food is put into the oven. Test method: For the oven with temperature controller, if the graduation indicated on the temperature controller is 150°C, 200°C and 250°C, let it stay at the position of the indicated graduation. Ignite the burner of the oven. When the temperature controller has worked for 20 minutes, use the thermocouple shown in Figure 11 to measure the temperature at the central part inside the oven, and measure the difference between it and the indicated temperature.
Performance test of rice cooker	Rice softening performance in the closed rice cooker: — Test condition: Use 0-2 gas. — Test status: It is divided into two statuses in the test: maximum rice volume and minimum rice volume.

	— Test method: • Before the test, the rice for use in test should be immersed in water for a period of time. The test can be carried out according to the specified conditions of the operation manual of the product. • Cook the rice according to the methods specified in the operation manual. In the 15th minute after automatic extinguishing, inspect the quality of the cooked rice. • Turn off the main burner, and let the rice pot preserve heat automatically. During the heat preservation period, inspect the quality of the cooked rice. Heat preservation performance: — Rice pot with a thermo burner: • Test condition: Use 0-2 gas. • Test status: Use the maximum rice volume for test. • Test method: After the main burner is extinguished, let the heat preserved for 1 hour at the airless status. Then measure the temperature at the central part of the cooked rice and inspect the quality of the cooked rice. — Electronic thermo rice cooker: • Test condition: Use 0-2 gas. • Test status: Use the maximum rice volume in the test. • Test method: In the 15th minute after the extinguishing of the main burner, connect the thermo power. Let the heat be preserved for 12 hours without air flow. Then measure the temperature of the cooked rice and inspect the condition of the cooked rice. The points for temperature measurement are shown in Figure 12. Take the average of the various points. Heat efficiency: — Test condition: Use 0-2 gas. — Test status: • Connect with the rice pot for use in the test according to the methods shown in Figure 8. • The water volume for use in test is two times of the maximum rice volume. — Test method: Use the same test method as the heat efficiency of gas stove.

6.15 Electrical performance test

6.15.1 The electrical performance test of the cooking appliances using AC power is

shown in Table 22.

Table 22 Electrical performance test

Test Item	Test Conditions, Test Statuses, Test Methods
Anti-shock protection	Test statuses: At all the statuses in times of working according to the normal utilisation of cooking appliances, and at the status that the burner ring or handle and other dismantlable parts can be even dismantled. Test methods: — Apply unobvious force onto the finger probe specified in Figure 15. Except the inclined placing of the cooking appliances which are utilised on the ground and their mass exceed 40 kg, the cooking appliances are situated at every possible status. The finger probe goes through the opening and stretch to any permitted depth. After it is inserted to the front, middle and back of any single position, turn or incline the finger probe. If the finger probe cannot enter the opening, use a straight-typed joint-free finger probe to apply force to 20N. If this finger probe can enter the opening, use the original finger probe with joint to repeat the test. When carrying out the test, connect an indicating light with the place between the testing instrument and the dangerous parts inside the shell, and supply safe power of extremely low voltage at 40 V ~ 50 V. If the surface of the dangerous electric parts is found to have a layer of paint film or oxidised layer or protection of the similar method, then cover it by a layer of golden foil during the test. A test is carried out again together with the connected electric parts during normal working. — Apply unobvious force onto the test pin shown in Figure 13a) to go through each opening of the Category II cooking appliances or the Category II structured cooking appliances. — For the corresponding places being possibly touchable occasionally by fork or sharp-like object under normal utilisation, apply unobvious force onto the long test pin shown in Figure 13b) to go through each opening. If the touchable parts are found to have the following circumstances, they are not regarded as electric: — The part is supplied with safe power of extremely low voltage. • For AC power, its peak value of voltage is ≤ 42.4 V. • For DC power, its voltage is ≤ 42.4 V. — Through protective impedance, the part is separated from the electric parts. The current between the part and power source under the circumstances with protective impedance: For DC, it should be ≤ 2 mA; for AC, its peak value should be ≤ 0.7 mA. Besides,

	• For the peak voltage being greater than 42.4 V and small than or equal to 450 V, its power capacity should be ≤ 0.1 μF. • For the peak voltage being greater than 450 V and small than or equal to 15 kV, its electric discharge should be ≤ 45 μC. Inspect its conformity through the measurement of power supply from the nominal voltage. Independently carry out measurement of the voltage and the current between the various correlated parts and each electrode of power source. Measure the power discharge immediately after the power is cut. If the test circuit contains a resistance with its value being 2000Ω ± 100Ω, and the measured discharge volume in times of ignition is ≤ 45 μC, then the easily touchable part of its ignition circuit is regarded as not electric.
Current leakage and electrical strength at working temperature	Current Leakage Test conditions: The work of cooking appliances continuously extends to the corresponding time of the most disadvantageous conditions during normal utilisation. The electrothermal cooking appliances work by using 1.15 times the nominal input power. The electric cooking appliances and the combined cooking appliances are supplied by the power being 1.06 times of the nominal voltage. Test status: — Before the test is carried out, protective impedance should be cut off from the electric parts. — Carry out the measurement by using the device formulated by the circuit as described in Figure 14d). The measurement is done between any one electrode and the metal-foiled easily touchable metallic part. The connected metal foil is ≤ 20 cm × 10 cm. It contacts with the easily touchable surface of the insulated materials. — During the test, the cooking appliances should keep insulated from the ground. The ground wire of the flexible power cord should be cut off from the ground terminal inside the cooking appliances. — Place a selected test pot according Figure 6 / Figure 7 in the electric stove cooking region, and heat the water at 2/3 of the depth of pot. Keep the water boiling and at maintain its water level. Test methods: — If it is a single-phase Category II appliance, use the circuit diagram shown in Figure 14c). — If it is a single-phase non-Category II appliance, use the circuit diagram shown in Figure 14a).

	— For electromagnetic stove head, use the circuit diagram shown in Figure 14b). Electrical Strength Test conditions: According to the different structures and utilisation statuses, the following voltage tests are adopted respectively. Connect and test the circuit diagram according to Figure 19. Test status: After the current leakage test, carry out the test without any protective impedance. Test methods: — The insulation has to immediately receive the sine-wave-based voltage at the frequency 50 Hz for 1 minute. It is applied to the place between the electric parts and the easily touchable parts. For the Category II structure with metallic objects between the electric parts and the easily touchable parts, the voltage application has to cross over the basic insulation and additional insulation respectively. — At the beginning of the test, the applied voltage should not exceed half of the specified voltage. Then it is rapidly raised to full value.
Current leakage and electrical strength at room temperature	Test conditions: — Before the test, protective impedance should be cut off from the electric parts. Test status: — The test is carried out with power disconnected. Test methods: — The application of the test AC voltage is shown in Item 1 and Item 3 specified in Table 23. Metallic foil ≤ 20 cm × 10 cm. If necessary it should be moved so as to make all parts of the surface are tested. — Test voltage: For single-phase cooking appliances, it is 1.06 times the nominal voltage. — Within 5 seconds after application of the test voltage, measure the current leakage. Electrical Strength: After the current leakage test, carry out electrical strength test immediately. Test methods: — The test voltage and the place of application are shown in Table 23. — The easily touchable parts made of insulated materials should be covered by metallic foil. — For cooking appliances with nominal voltage ≤ 130 V, reduce 1,250 V to 1,000 V.

	— At the beginning of the test, the applied voltage should not exceed half of the specified voltage. Then it is rapidly raised to full value.
Nominal input power error	Test conditions: Adjust the input voltage to be nominal working voltage. In the whole testing process, the input voltage should be kept at the fluctuation range of ± 2%. Test status: The cooking appliance is situated at a stable working status. Test methods: Use the Table of Power to measure the power of the cooking appliance at working status.
Humidity resistance	Water Leakage Test: Test status: — Place the cooking appliance horizontally. Test methods: — Let a pot equivalent to electric stove head and gas stove head filled with salt water containing about 1% of NaCl, and place the pot at the centre of the cooking region. Use 0.5 l of the solution to stably pour into the pot for 15 seconds so as to remove the residue fluid let on the surface of the cooking appliance. Then electrical strength test is carried out at the cooking appliance. — For the cooking appliances with switch and temperature control, pour 0.2 l of the solution on the electric stove head and let it flow over the switch or the controller. After that, place a container on the stove head and press down to the moveable parts. — For the cooking appliances with a vent on the surface, let 0.2 l of the solution go through a funnel from 200mm above the vent and run to the vent at the most disadvantageous situation (the diameter of the funnel outlet is 8 mm). Humidity Treatment: Test condition: The test can only be carried out after the cooking appliance has received the above test and then has been placed in a test room at a common atmospheric environment for 24 hours. Test status: The cooking appliance is placed in a humid box at a relative humidity of (93 ± 2)% for 48 hours. Keep the air at any one temperature within the range of 20^{o}C ~ 30^{o}C, and keep the temperature change within the range of ± 1^{o}C. Before placing it into the humid box, let the sample reach this temperature. Test methods: — After this treatment is done, the cooking appliance should be inside the original humid box, or in a room that can make the sample reach the specified temperature. After that, carry out electrical strength test immediately

Table 23 Test Voltage

Position of Application	Test Voltage, V		
	Category III Appliance and Category III Structure	Category II Appliance and Category II Structure	Other Appliances
1 Between the electric part and the easily touchable part:			
— where only basic insulated isolation is adopted.	500	—	1,250
— where strengthened insulated isolation is adopted.	—	3,750	3,750
2 For the double-insulated parts, it is between the metallic parts, which only adopt basic insulation to isolate from the electric parts, and:			
— the electric parts.	—	1,250	1,250
— the easily touchable parts.	—	2,500	2,500
3 If the measured distance between the electric parts and the metallic outer shell with insulated lining or the metallic cover, and going through the lining, is less than the corresponding gap specified in Subsection 29.1, then it is between the metallic outer shell with insulated lining or the metallic cover and the metallic foil with contacts with the surface layer inside the lining.	—	2,500	1,250
4 If the insulation is accidentally failed and its shaft is electric, then it is between the metallic foil touchable with the handle, knob, grip and the similar parts, and their shafts.	—	2,500	2,500 (1,250)
5 Under the circumstances that the flexible cord is placed inside the inlet bush of the insulated material, flexible cord protection device, flexible cord fixing device and the similar parts, it is between the easily touchable parts and the flexible power cord wrapped by metallic foil.	—	2,500	1,250
6 If a resonant voltage U is caused between a joint at the airing or the capacitor and the wiring terminal of any one external lead, then it is between this joint and:			
— the easily touchable parts.	—	—	2U+ 1,000
— the metallic parts which only adopt basic insulation to isolate from the electric parts.		2U + 1,000	
1) The value in the brackets is applicable to Category 0 cooking appliances.			
2) The outer surface of the flexible cord protection device has no metallic foil wrapped.			
3) The moment applied to the camping screw of the flexible cord fixing device is 2/3 of the moment			

specified in Table 12 of GB 4706.1-1998.

4) For the test between the airing-capacitor joint and the easily touchable parts or the metallic parts, it is carried out only when the insulation of that place has received resonant voltage under normal working conditions. During the test, disconnect other parts and shut down the capacitor.

6.15.2 DC power abnormality test

6.15.2.1 Test condition: Use 0-2 gas.

6.15.2.2 Test status: 15 minutes after the cooking appliance is ignited.

6.15.2.3 Test methods:

— Slowly reduce the DC power from the nominal voltage to 70% of the nominal value. Test if the cooking appliance can keep on working normally, and if the extinguishing protection function of the cooking appliance is normal.

— Slowly reduce the DC power from the nominal voltage to 0 V, and resume it to the nominal voltage. Test if the cooking appliance is situated at the specified status.

6.16 Durability performance test

6.16.1 Gas cork valve

6.16.1.1 Test condition: Use the air with the same pressure as the nominal gas supply pressure.

6.16.1.2 Test status: The appliance and the cooking appliance are situated at a separating status, or the appliance is installed on the cooking appliance.

6.16.1.3 Test method: After the test has been carried out 15,000 times at an operation speed of (5~20) times/min., carry out air-tightness and operation performance tests.

6.16.2 Electric ignition device

6.16.2.1 Test condition: Use the air with the same pressure as the nominal gas supply pressure, or use 0-2 gas.

6.16.2.2 Test status: The appliance and the cooking appliance are situated at a separating status, or the appliance is installed on the cooking appliance.

6.16.2.3 Test method: After the test has been carried out 15,000 times at an operation speed of (5~20) times/min., carry out ignition performance test.

6.16.3 Extinguishing protection device

6.16.3.1 Test condition: Use 0-2 gas.

6.16.3.2 Test status: The appliance and the cooking appliance are situated at a separating status, or the appliance is installed on the cooking appliance.

6.16.3.3 Test method: Ignite the burner. Let the flame detector of the extinguishing protection device contact with the flame for 1 minute. After that, turn off the power and extinguish the burner. The flame detector stays away from the flame for no less than 1 minute. This kind of operation is regarded as one time.

After the test has been carried out for 6,000 times, carry out air-tightness test as well as the performance test of the extinguishing protection device.

6.16.4 Electromagnetic valve

6.16.4.1 Test condition: Use the air with the same pressure as the nominal gas supply pressure.

6.16.4.2 Test status: The appliance and the cooking appliance are situated at a separating status, or the appliance is installed on the cooking appliance.

6.16.4.3 Test method: Repeat the opening and closing acts at a speed of (10~30) times/min. After the test has been carried out for 30,000 times, carry out the open-and-close functional and air-tightness tests.

6.16.5 Mechanical timer

6.16.5.1 Test condition: Use the air with the same pressure as the nominal gas supply pressure.

6.16.5.2 Test status: The appliance and the cooking appliance are situated at a separating status, or the appliance is installed on the cooking appliance.

6.16.5.3 Test method:

Turn the knob of the main shaft to the minimum preset time, but cannot be less than 1 minute. The time of connection is regarded as the starting point of time, and the time of disconnection is regarded as the final point of time. This kind of operation is regarded as one time. After the test has been carried out 2,000 times:

— carry out air-tightness test;

— turn the main shaft to the full-range angle within 2 seconds. The time of connection is regarded as the starting point of time, and the time of disconnection is regarded as the final point of time. Measure the full-range preset time for 3 times, and take the arithmetic average. The average is compared with the full-range preset time before the durability test, and the change rate is calculated.

6.16.6 Temperature controller of oven

Use the controller to control the temperature at the central part of the oven at the status of 200^{o}C. Alternately blow hot air and cold air onto the temperature sensing place of the temperature controller (heat sensor). The air blowing for 1 minute is regarded as one time. The number of times for the test to be carried out is based on the specifications in Table 6. Carry out the temperature control precision, temperature indication precision and air-tightness tests of the temperature controller.

6.16.7 Temperature controller of rice cooker

Let the rice cooker simmer. Let the temperature controller function repeatedly at a certain interval. Assuredly cut the gas supply of the main burner. After the test has been carried out 2,000 times, carry out air-tightness test and rice softening test in the closed rice cooker.

6.16.8 Oven door

After the door and the linked mechanism have been repeatedly operated for 500 times at a speed of (5~20) times/min., inspect whether the oven door and the linked mechanism have been damaged or malfunctioned.

6.17 Vibration test

Tie the cooking appliance according to the transportation requirements, and place it horizontally on the vibration machine. Let the machine vibrate at the frequency 10 Hz, full amplitude 5 mm, in up-and-down direction and in left-and-right direction for 30 minutes respectively. After that, carry out the air-tightness, electrical performance and utilisation function tests of the gas channel.

6.18 Falling test

Let the sides 3, 2, 5, 4, 6 of the test piece face downwards one by one by using the methods given by Appendix in GB/T 1019-1989. For the packed object at a mass below 25 kg, the height of the fall is 600 mm. For the packed object at a mass of 25kg ~ 50kg, the height of the fall is 450 mm. The release is done under the condition that the initial speed is 0. Each side has to fall once. For those products which cannot be put upside down, they should carry out falling test, with the bottom facing downwards, for 6 times continuously. After that, carry out the air-tightness and electrical performance tests of the gas passage (its electrical strength, current leakage and ground resistance should meet the requirements of Table 5).

6.19 Structure test

6.19.1 General test

According to the requirements of Subsection 5.3, make visual inspection and carry out the test.

6.19.2 Inclined and turn-over test

Place the cooking appliance horizontally on the test table. Let it inclined gradually until it forms an included angle of 15^{o} with the water level. Check visually whether it is turned over, and if there is any movement and falling of the fire-catching parts.

6.19.3 Loading test

6.19.3.1 Loading test of stove top and pot support

Place the cooking appliance horizontally on a firm and solid surface. Apply 98.1 N static load to the central part of the pot support for 5 minutes. Inspect the bending of any part of the stove top, and whether the pot support is deformed and damaged.

6.19.3.2 Loading test of oven door

Place the oven horizontally on a firm and solid plane, and open the oven door. For the table-top type oven, apply a static load of 39.2 N to the central part of the door.

For the built-in stove, apply a static load of 147 N to the central part of the door. Maintain both actions for 5 minutes. Inspect whether it is turned over and whether there is any deformation and damage affecting the utilisation.

Remarks:

1 The so-called "without any deformation and damage affecting the utilisation" refers that after loading is added, the bending at the front edge of the door (referring to the difference between the position of door being at full-open status and the sunk position after loading is added to the door) should not be below 15 mm, and the mechanism shall not be damaged.

2 Method of applying the load: The fluid collection pan, which is attached to the oven and is for use in oven, can be placed at the central part of the oven door. Place a round heavy load at a diameter 260 m on the central part of the fluid collection pan.

6.20 Heat resistance performance test of parts

6.20.1 Heat resistance performance test cork valve and other valves

Put the valve into the temperature constancy box. Adjust the temperature to 90^{o}C for 24 hours, and then take it out. Let it cool down to room temperature naturally. Carry out the air-tightness test according to Subsection 6.6.

6.20.2 Heat resistance performance test of electric ignition device

Put the electric ignition device into the temperature constancy box. Adjust the temperature to 90^{o}C for 24 hours, and then take it out. Let it cool down to room temperature naturally. Carry out the test according to Subsection 6.13.

6.20.3 Overheat resistance performance test of burner

According to Table 17, select an upper-limit pot based on the actual heat input. Pour in proper water volume into the pot. Use tempering limit gas. Ignite the burner under the nominal gas supply pressure, and use tempering artificially. If tempering is unavailable, gas can be ignited at the nozzle, so as to make it burn inside the nozzle or burner. If this kind of burning cannot be maintained, it can be realized by the ways of reducing the pressure or appropriately decreasing the flow volume. But the gas supply pressure cannot be lowered to a pressure which is lower than the tempering test. Maintain tempering burning for 15 minutes, and test whether the burner has any deformation affecting its performance.

6.20.4 Test methods and judging principles by using the materials with temperature resistance greater than 700^{o}C at the flame hole of burner:

Take out the parts of the units that can be dismantled easily that form the flame hole of the burner. Measure the size of the flame hole part, calculate the area of the flame hole, and place it in a temperature constancy box at an adjusted temperature of 700^{o}C. Take it out 2 hours later, and let it cool down to room temperature naturally. Measure the size of the flame hole part, calculate the area of the flame hole, and test the area alteration rate of the front and rear flame holes which should be within the

range of ± 10%. If exceeding the range, it is regarded as failed.

6.21 Test of materials

6.21.1 General tests

According to the requirements of Subsection 5.4, make visual inspection and carry out the test.

6.21.2 Heat resistance performance test

Put the test sample into the heating stove. Let the temperature rise slowly to the temperature specified in Subsection 5.4, and keep it at the temperature for 1 hour. Visually inspect whether the materials have any change affecting the utilisation

6.21.3 Corrosion resistance performance test

6.21.3.1 Salt fog test of electroplated objects

Put the electroplated sample in the specified sprayed fog of salt water. At the temperature of 35°C ± 2°C, spray a fog of salt solution at a concentration of 5%. The pressure of the fogged air is (70 ~ 100) kPa, and the time is (24 ~ 72) hours. Take out the test sample, and inspect the extent of corrosion. The test methods are executed according to QB/T 3826-1999, and the mass assessment is executed according to QB/T 3821-1999.

6.21.3.2 Salt fog resistance test of paint coated test sample

Prepare the test sample according to the specifications in GB/T 1765-1979, and then carry out salt water spray test. The test methods are executed according to the related specifications in GB/T 1771-1991, and the extent of corrosion is assessed according to the specifications of GB/T 1740-1979.

6.21.4 Gas resistance performance test

6.21.4.1 Test method of film

Let the 3 test samples, with their mass measured in advance, be immersed in the liquid of liquefied petroleum gas at (5 ~ 25)°C for 72 hours. Take them out and place them in the air for 24 hours. Test their mass and quality change according to the methods given in GB/T 1690-1992. For films for use in artificial gas, carry out the test by using the solution specified in GB/T 1690-1992.

6.21.4.2 Test methods of gas sealing spacer, washer

Except the implementation of the test indicated in Subsection 6.21.4.1, the following test also has to be carried out. First of all, put the three test samples, with the thickness 2 mm, outer diameter 19 mm and inner diameter 18 mm, into the devices shown in Figure 16 respectively. Each device is filled with 0.5 g of n-pentane. Compress the test samples to 80% of their original thickness, and then weigh the devices. Put them in the temperature constancy tank at 23°C ± 2°C for 24 hours. After that, weigh them again, and indicate the average leakage of n-pentane from the 3 test samples per hour.

6.21.4.3 Test methods of grease sealing materials

Apply 1 gram of sealing materials on an aluminium plate. Place it in the greenhouse for 24 hours, and then put it in the test equipment shown in Figure 17. Turn on the knobs A and B. Use n-butane to exhaust the air inside, and then turn off knob B. Keep the gas pressure inside the U-tube at 5.0 kPa. It is placed under the conditions of $20^{o}C \pm 1^{o}C$ and $4^{o}C \pm 1^{o}C$ for 1 hour respectively. After that, calculate the change rate of the sealing materials.

6.21.5 Steel ball impact resistance performance test of porcelain

Place the porcelain enamel treated test sample on a wooden plate of the corresponding size. Let a steel ball at a diameter 30 mm fall freely from the height of 300 m and the impact onto the test sample. The porcelain enamel should not fall from the test sample.

6.21.6 Inflaming retarding performance test of thermo and heat insulation materials

At the place with materials evenly spread, put a test sample at the length (150 ± 1) mm and thickness (13 ± 1) mm on the device shown in Figure 18. After it is burned by fire for 1 minute, take away the fire. Check visually whether the test sample is burned. When burning happens to the test sample, measure the time from burning to extinguishing by itself.

6.21.7 Oil resistance performance test

Immerse the rubber-made stove leg test sample in the edible oil (e.g. bean oil) at the temperature $20^{o}C \pm 15^{o}C$ for 24 hours. After that, inspect visually whether there is any deformation obviously affecting the utilisation

7 Test rules

Cooking appliances should carry out inspection and type inspection before they are delivered from the factory.

7.1 Ex-factory inspection

7.1.1 Before delivery from the factory, the cooking appliances should carry out the following inspection one by one:

a) Air-tightness performance of gas piping system;
b) Operation flexibility performance of each part;
c) Ignition performance and burning stability performance;
d) Ground resistance (applicable to Category I cooking appliances);
e) Appearance;
f) Name plate;
g) Current leakage (applicable to the cooking appliances using AC power);
h) Electrical strength (applicable to the cooking appliances using AC power).

Remarks: The cooking appliances stored in the warehouse for more than 2 years should be

re-inspected according to this Subsection.

7.1.2 Sampling test

7.1.2.1 During the batch inspection of products before acceptance, carry out the sampling test. The sampling methods are specified in GB/T 2828.1-2003.

7.1.2.2 Sampling plan

a) The sampling plan is specified in GB/T 2828.1. The acceptable quality level (AQL) is 4.0. The inspection level taken is S = 1. Implement the sampling plan according to the normal inspection for one time;

b) When the sampling test of a product is failed, the products of the batch are judged as non-conforming. This batch of products should be re-inspected one by one, and then receive sample test again.

7.1.2.3 In addition to the specified contents of Subsection 7.1.1, the sampling test should also include heat input, carbon oxide content in fume, heat efficiency.

7.1.3 After the products have passed the inspection, certificates of conformity are issued before delivery out of the factory.

7.2 Type inspection

7.2.1 Inspection should be carried out according to all the contents of the Standard.

7.2.2 In case of any one of the following circumstances, type inspection should be carried out:

a) Assessment of the trial manufacturing finalizing of new products or old products to be produced in another factory;

b) After official production, the structure, materials and workmanship may have greater change which may affect the performance of products;

c) After official production, an output accumulated regularly or to a certain volume should carry out inspection periodically;

d) After the production of certain products has been stopped for 1 year, the production is resumed;

e) There is a greater difference between the ex-factory inspection results and the type inspection of the last time;

f) The General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China makes a request of type inspection.

7.2.3 Sampling method: Take 3 samples each time. 2 of them receive the test and 1 is the reserved sample

7.2.4 When all the items of type inspection have met the requirements of the Standard, the type inspection is judged to be passed. If there are any non-conforming items, they should be improved. Do the re-inspection until all the items are passed. Then the type inspection can be judged as passed.

7.3 Judgment principles for the inspection of single cooking appliance

7.3.1 Classification of clauses

The text in blocked characters are the mandatory clauses, and the rest of them are the recommendatory clauses.

7.3.2 Judgment methods

7.3.2.1 After a single machine sample has been tested, if there are more than 1 (including 1) mandatory clause not conforming to the regulations, the machine sample is regarded as non-conforming.

7.3.2.2 After a single machine sample has been tested, if there is 1 or several recommendatory clause not conforming to the regulations, the non-conformance contents of the machine sample should be stated in the test report.

8 Marking, package, transportation, storage

8.1 Marking

8.1.1 Each cooking appliance should be installed with a name plate at the suitable place. The marking contents should include:

a) Name and model number;

b) Kind of gas to be used or applicable regions;

c) Nominal gas supply pressure;

d) Nominal heat input:

e) Name of manufacturer;

f) Year, month of manufacturing or code;

g) Nominal voltage (applicable to the cooking appliances using AC power, V);

h) **Nominal input power (applicable to the cooking appliances using AC power, kW/W);**

i) **Nominal frequency (applicable to the cooking appliances using AC power, Hz)**

j) **Sign of Category II structure (only indicated on the Category II cooking appliances).**

8.1.2 Besides the marking of the name plate, the following marking should also be made:

a) The wiring terminal for connection with the electric wire fence should contain the following markings:

— The wiring terminal especially for the connection with the neutral wire should be marked with the letter N;

— The protective ground terminal should be marked with the sign: 

Remarks: All these specifications show that the sign should not be placed on screw, dismantlable washer or any other parts which can be dismantled during the connection of lead.

b) Unless being obviously unnecessary, the marking or placement

position of the switch which may cause danger during work should clearly state that the part it controls is which part of the cooking appliance;

Remarks: The marking way, no matter being placed anywhere, used for this purpose should be so clearly explained that they are comprehended by anybody without language proficiency or without the knowledge of the National Standard.

c) The different fire volumes of switch on the cooking appliances and the different fire volumes of controller on the cooking appliances should be indicated by numbers, letters or other visual way;

d) During the period of installation or normal utilisation, the controller intending for adjustment should be indicated with the adjustment direction;

e) If the compliance with the Standard is determined by an available changing act of the thermal fused object or the fuse, then its name plate or other indications for identifying the fuse should be clearly shown on the visible position when the cooking appliance is required to be dismantled for changing the fuse;

Remarks: 1 Marking on the fuse: The marking is acceptable only if its marking is still clear after the fuse is functioned.

2 The marking required in the Standard should be clear, readable and durable. After a person uses a hand to hold a water-damped cloth to wipe the marking for 15 seconds, and uses a fuel-damped cloth to wipe the marking for 15 seconds, the marking should be still clear and readable. It is not so easy for the marking plate to be dismantled or for the edge to be rolled up.

f) If the stove head surface is made of glass, porcelain or the similar fragile materials, and the heat-generation component is installed on the abovementioned materials or above them, or the main part of the outer shell of the electric parts of the cooking appliance is made of the abovementioned materials, then the following warning should be stated in the Operation Manual and on the cooking appliance:

Warning — If cracks are found on the surface, turn off the cooking appliance to any possible avoid electric shock.

8.2 Package

8.2.1 Outside the package carton should be indicated with the product name, model number, kind of gas to be used or applicable regions

8.2.2 The package should be safe, firm, beautiful. The package carton should be indicated with the ex-factory date and name of factory, the words like “fragile product, upwards, avoid rain, turnover prohibited, fork truck restricted, stack weight limit,” and so on. The pattern of characters or illustration should meet the specifications of GB/T 191-2000.

8.2.3 Inside the package carton, there should be a list of product accessories, certificate of conformity, maintenance guarantee certificate, as well as installation and

operation manual.

8.2.4 When delivered out of the factory, each cooking appliance should be attached with the installation and operation manual. An installation and operation manual should include the following contents:

a) Description on the size of appearance and installation;

b) Operation and adjustment methods of ignition and extinguishing;

c) **Safety notes (relating to gas, ventilation, fire prevention, prevention of human burn, keep away from children, and so on);**

d) **If the flexible power cord is damages, it should be replaced by the manufacturer or its maintenance department or the similar professional staff in order to avoid danger;**

e) Notes for cleaning and maintenance;

f) Address of factory and the contact affairs;

g) Size of hole opening in the installation requirements and the fixing method (built-in cooking appliances);

h) **The kitchen cabinets for installing the built-in stove should have the hole opened at the size that meets the ventilation requirements and connecting with the atmosphere; otherwise, explosion will be caused by the deposited gas leakage;**

i) Handbook of environmental effects for user;

j) All the messages on the name plate (when the marking is invisible after the built-in stove is installed) should be clearly indicated in the manual;

k) The cooking appliance will generate heat during the utilisation period. Avoid contacting with the heat generating unit. The metallic objects, such as knife, fork, ladle and cover, should not be placed on the stove top because they may be heat generating.

8.2.4 The package materials should meet the requirements of Subsection 5.4.19 of the Standard.

8.3 Transportation

8.3.1 In the process of transportation, prevent drastic vibration, compression, rain and corrosion of chemical products.

8.3.2 During the transportation, rolling and throwing are prohibited

8.4 Storage

8.4.1 The finished products have to be stored in a warehouse with dry ventilation and without corrosive gas around.

8.4.2 The cooking appliances should be stored according to the classification of models. The stacking of products should not be too high. Prevent compression and falling which may cause damage of products.

The I place should be a sharp angle.

The II place should be in a form of slot, which is painted in red.

a) For use by rubber hose at 9.5mm. b) For use by rubber hose at 13mm.

Figure 1 Shape and size of hose joint

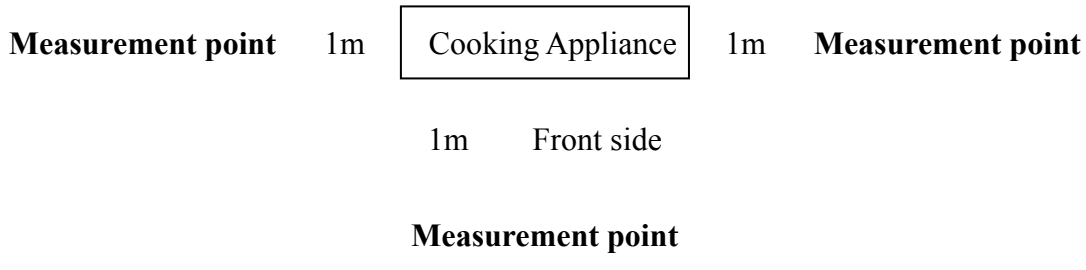
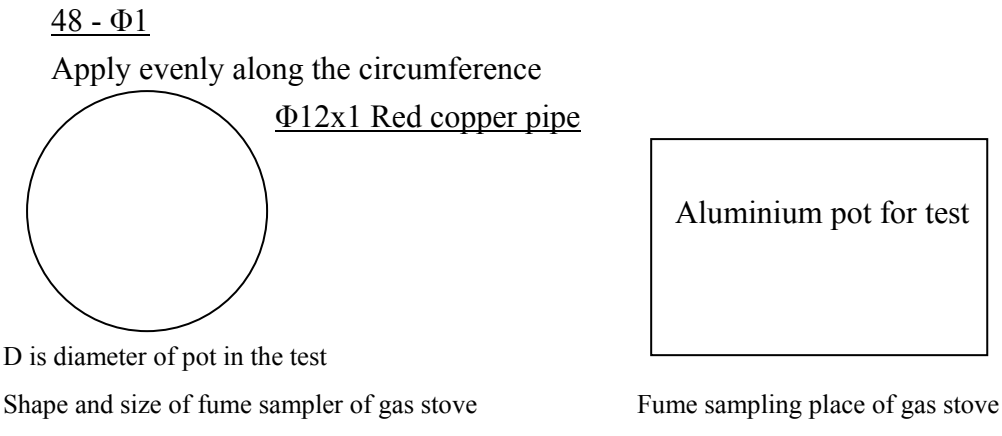
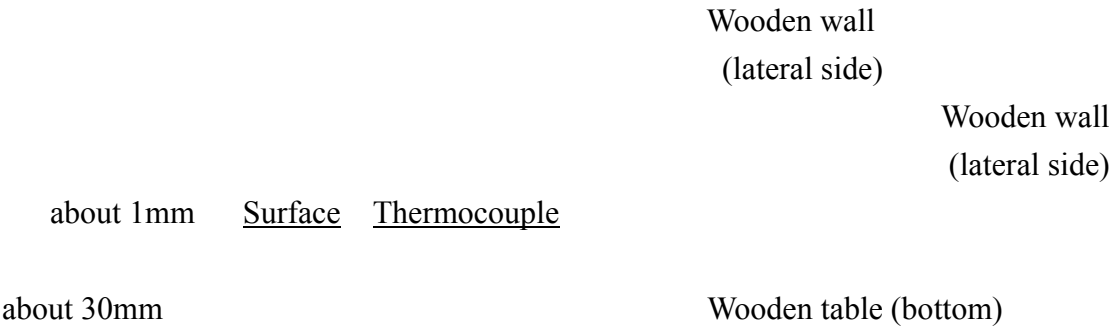


Figure 2 Illustration of noise test



Remarks: The barbecue, oven and rice cooker should use the sampler which is respectively suitable for their exhaust shape, to take samples.

Figure 3 Ringed fume sampler and the sampling position

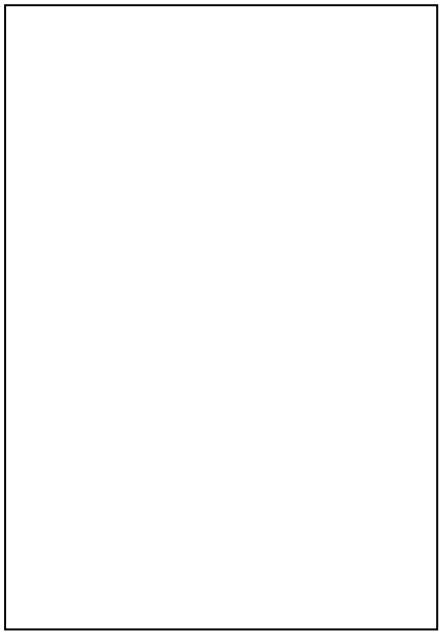


a) The materials of wooden wall and wooden table should be the 5-6-layered plywood. The wooden table should be painted on the surface. The wooden wall surface should be painted with non-shiny paint;
b) The size of wooden wall and wooden table should be a little bit larger than the cooking appliance;
c) Try to bury more thermocouples (thermal resistance), and make them form a net shape;
d) Thermocouples (thermal resistance) should be buried at the depth of 1mm of the wooden wall and wooden table;
e) The thermocouples (thermal resistance) should refer to GB/T 3772-1998 and GB/T 2903-1998.

Figure 4 Testing device for temperature rise on the surface of wooden wall and wooden table

a. Disconnection at heating place (stove) b. Disconnection at heating place (oven) c. Rice cooker

Figure 5 Distance between cooking appliance and temperature-test plate



Diameter of cooking region	a	b	c
100	110	140	8
145	145	140	8
180	180	140	9
220	220	120	10
300	300	100	10

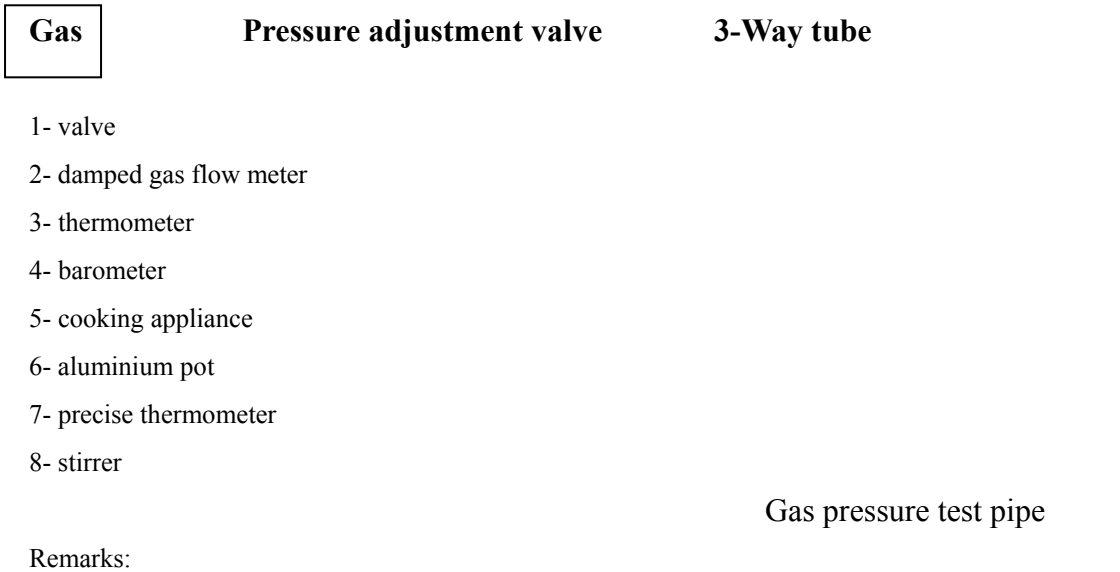
Figure 6 Stove for use in the test of electric stove head

Thickness at the bottom and lateral wall
1.5 – 2.5

Maximum limit of concavity

The pot is made of carbon steel (the maximum carbon content is 0.18%), without a handle and a protruding cylinder. The diameter of the flat bottom region is at least the diameter of the cooking region. The maximum concavity (C) is 0.006d. d is the diameter of the plane region at the bottom. The bottom is not convex.

Figure 7 Stove for use in the test of electromagnetic stove



Remarks:

a The precise thermometer should be placed at the central position at 1/2 of water depth.

b The stirrer should be placed at the position without contact with the mercury ball of thermometer

c The measurement point of gas pressure in front of the cooking appliance should be at the 3-way tube position shown in the figure. The distance from the vent should not be greater than 100mm.

D = (1~1,1)d

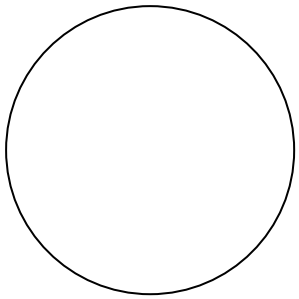
D — inner diameter of 3-way tube

d — inner diameter of gas pipe

Length = 5D + 5D

Figure 8 Testing device of heat input and heat efficiency

1 – stirrer
2 – nut
3 – handle



Remarks:

a) D is the diameter of aluminium pot in mm; H is the height of aluminium pot in mm.

b) Materials of parts: The stirring plate is made of 1mm-thick aluminium plate. The handle is made of Φ galvanized steel.

Figure 9 Stirrer

Baking plate
Glass-fibre thermo plate
Temperature testing point (7 points)

Remarks:

a) The gap between two overlapped glass-fibre thermo plates is sealed by sealing tape;

b) The surface of the glass-fibre thermo plates are painted in black.

Figure 10 Temperature-test plate for testing temperature distribution of oven

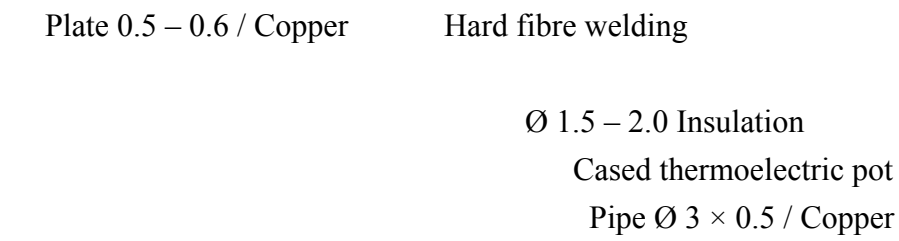


Figure 11 Thermocouple for testing the temperature of oven

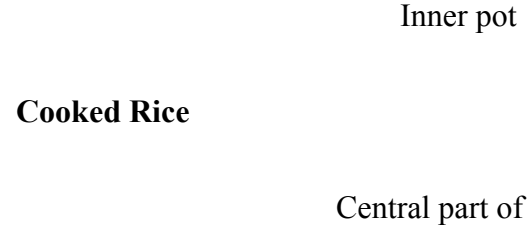
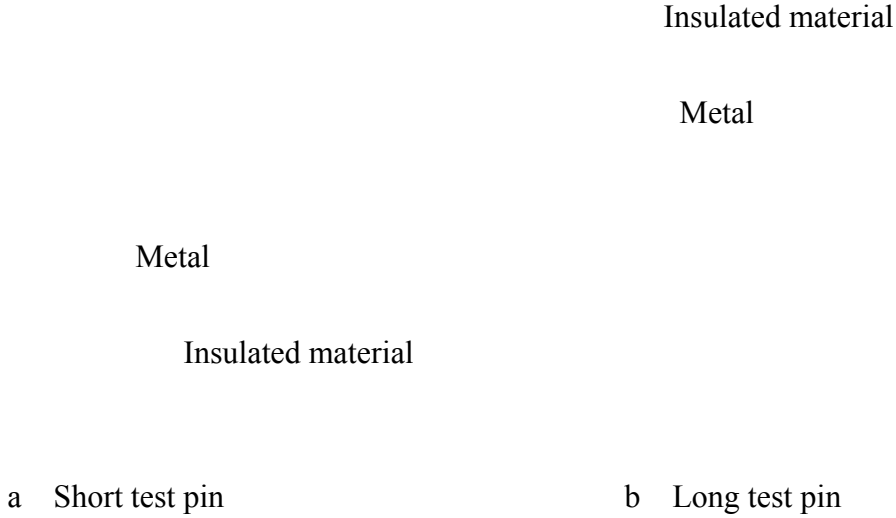
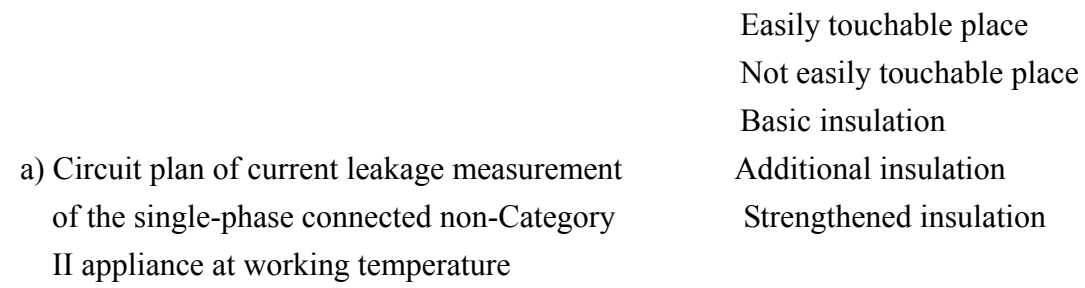


Figure 12 Test of temperature control device of rice cooker



a Short test pin b Long test pin

Figure 13 Test pins



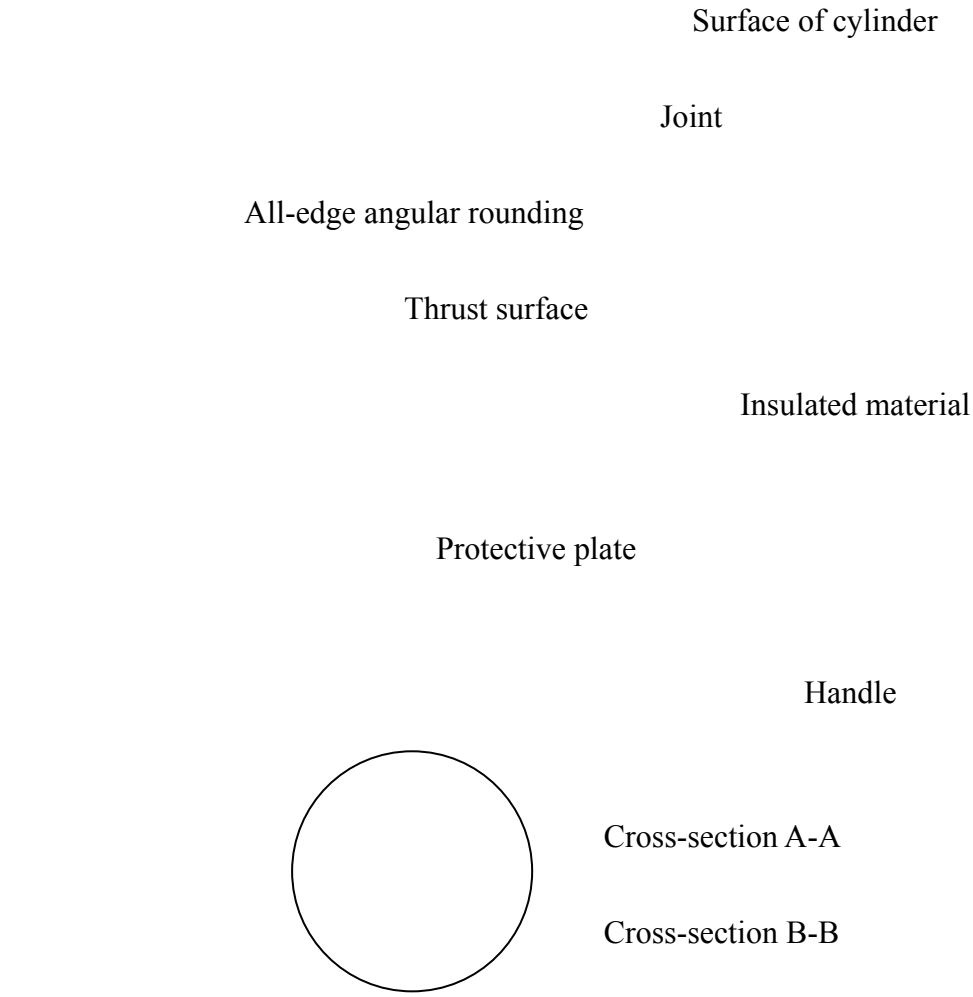
a) Circuit plan of current leakage measurement of the single-phase connected non-Category II appliance at working temperature

Measurement end

b) Circuit plan of current leakage measurement of electromagnetic stove head	c) Circuit plan of current leakage measurement of the single-phase connected Category II appliance at working temperature

d) Circuit plan of current leakage measurement device

Figure 14 Circuit plan of current leakage measurement



Materials: Metal, except those specified additionally.

Length is in the unit of mm.

For the size without common error specified, its tolerance is:

For angle: $^{0}_{-10'}$

For length size: For ≤ 25mm, $^{0}_{-0.05}$

For > 25mm, ± 0.2

Two combined points should be allowed to be on the same plane.

Have movement in the same direction $90^{o}\ ^{+10^{o}}_{0}$

Figure 15 Finger probe

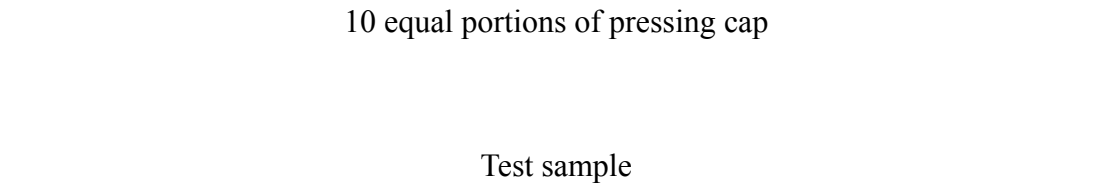


Figure 16 Testing device of gas resistance of washer and spacer

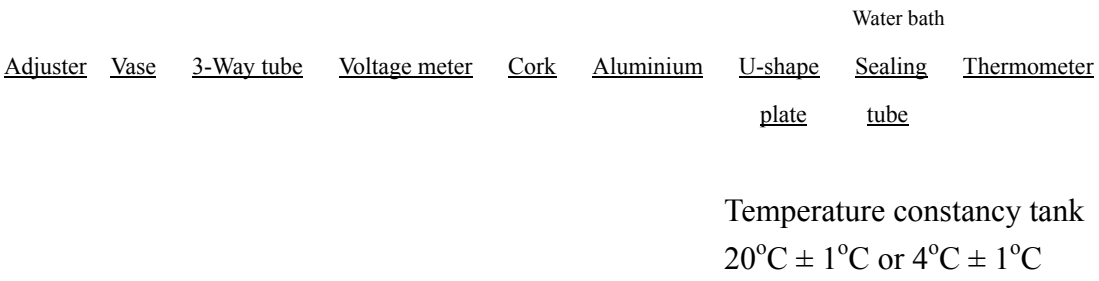
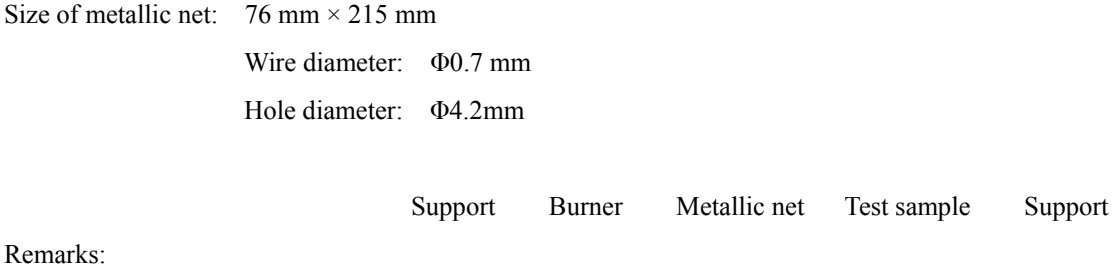


Figure 17 Testing device of grease resistant gas



Remarks:

a The test room should be airless, and the metallic net should be horizontal;

b Liquefied petroleum gas burner should be used. For the burner, please refer to Appendix F in GB 4706.1. The distance between the flame hole and the metallic net should be 13 mm;

c Bending position for test sample to be close to the metallic net

Figure 18

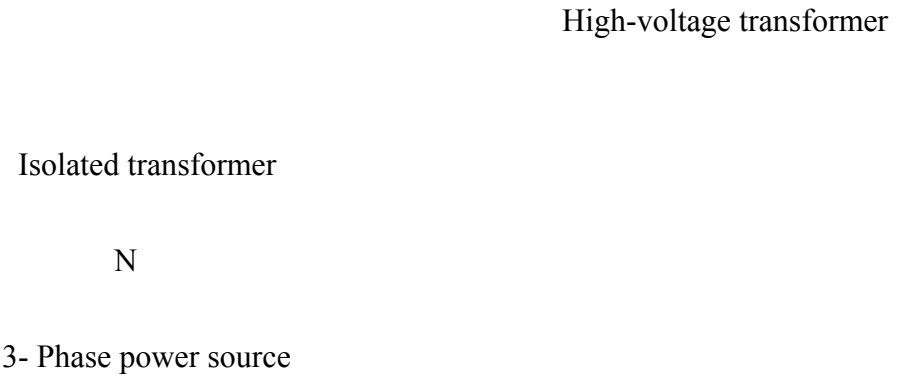
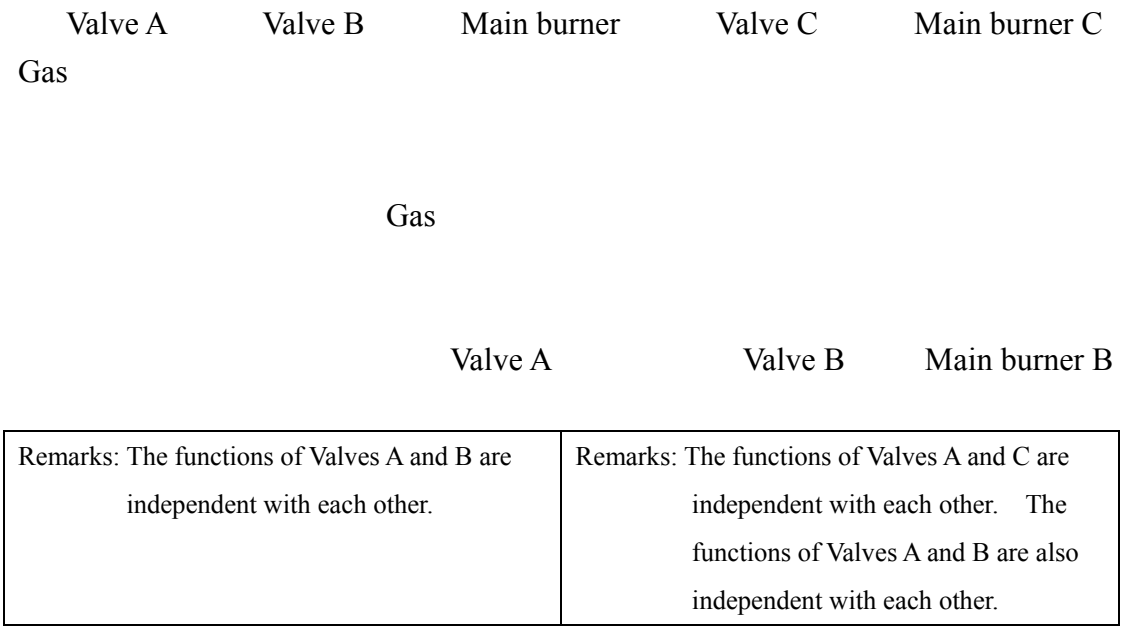


Figure 19　Circuit plan of electrical strength test under working temperature



Remarks: The functions of Valves A and B are independent with each other.	Remarks: The functions of Valves A and C are independent with each other. The functions of Valves A and B are also independent with each other.

Figure 20　Illustration of gas channel

Appendix A

(Informative Appendix)

Gradation requirements of nitrogen oxide [$No_{x\ (\alpha=1)}$] content in the burning fume of domestic gas cooking appliances

A1 Gradation requirements of nitrogen oxide [$No_{x\ (\alpha=1)}$] content in the burning fume of domestic gas cooking appliances (please refer to Table A1)

Table A1 Gradation of nitrogen oxide emission

Gradation of $No_{x\ (\alpha=1)}$ Emission	Limited Concentration of $No_{x\ (\alpha=1)}$ (ppm)	
	Natural Gas, Artificial Gas	Liquefied Petroleum Gas
1	150	180
2	120	150
3	90	110
4	60	70
5	40	50

A2 Instruments for use in test

It is suggested that the instruments for use in test are the chemical luminescent typed, electrochemical typed or infrared-ray fume analyzing instruments. Range: 0~0.05%; minimum graduation: 0.001%.

A3 Test condition: Use 0-2 gas.

A4 Test status: Based on the status given in Subsection 6.5 of the Standard.

A5 Test method

A5.1 After the cooking appliance has worked for 15 minutes, use a fume sampler to take sample. From the fume sample taken, measure the nitrogen oxide content in fume. The nitrogen oxide content in fume being taken should be 1% to 4%.

A5.2 The fume sampler should be prepared according to Figure 3. The material should be stainless steel. The sampling tube should be made of teflon or other materials which do not absorb nitrogen oxide.

A5.3 The position of the fume sampler should be based on Figure 3.

A5.4 The calculation of nitrogen oxide content in fume should be based on equation (A1) (during the fume analysis, the nitrogen oxide content in the indoor air should also be measured):

$$NO_{x(a=1)} = \frac{NO'_x - NO''_x - (O_2' / 20.9)}{1 - (O_2' / 20.9)} \quad \text{..... (A1)}$$

In the equation:

$NO_{x(a=1)}$ — surplus air coefficient α = 1, nitrogen oxide content in dry fume, V%;

NO'_x — nitrogen oxide content in fume sample, V%;

NO''_x — nitrogen oxide content in indoor air, V%;

O_2' — oxide content in fume sample, V%.

A5 Evaluation of grades

Compare the calculated $No_{x\ (\alpha=1)}$ value with the value in Table A1, and determine the grade of the nitrogen oxide emission of the product.