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PEOPLE'S REPUBLIC OF CHINA**

**GB/T 3606-2025**

Replacing GB/T 3606-2001

**Domestic biogas stove**

家用沼气灶

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## 1 Scope

This document specifies the product classification, technical requirements, marking and packaging of domestic biogas stoves, and describes the test methods.

This document applies to domestic biogas stoves in which the nominal heat input of a single burner is not greater than 3.86 kW.

## 3 Terms and definitions

3.1 domestic biogas stove: a non-commercial burning appliance that uses biogas as fuel, supports the cooking vessel on its own pan support and heats the vessel directly with the flame of the burning biogas. Note: in what follows a domestic biogas stove is called simply a stove.

3.2 embedded biogas stove: a biogas stove set into a cooking worktop. Note: in what follows an embedded biogas stove is called simply a built-in stove.

3.3 standard conditions: the state of dry biogas at a temperature of 15 degrees Celsius and an absolute pressure of 101.3 kPa.

3.4 net Wobbe number: the ratio of the net calorific value of the biogas to the square root of its relative density.

3.5 nominal heat input, nominal heat flow: the design value of the heat input of the stove declared by the manufacturer, at the nominal biogas supply pressure and using test biogas at standard conditions.

3.6 actual heat input, actual heat flow: the product of the net calorific value of the test gas and the measured biogas flow under test conditions.

3.7 biogas supply pressure: the relative static pressure measured at the biogas inlet connection of the stove while the stove is running.

3.8 nominal biogas pressure: the design value of the biogas supply pressure fixed by the manufacturer from the actual delivery pressure of the biogas pipeline and the requirements of the standard.

3.9 burner: the device that makes the biogas burn stably.

3.10 main burner: the burner used for cooking or for preparing hot water when the stove is

running.

3.11 permanent ignition burner: the small burner that lights the main burner with its flame and does not go out while the stove is working or on standby.

## 4 Product classification

4.1.1 By number of burners, stoves are divided into single burner stoves and double burner stoves.

4.1.2 By structural form, they are divided into table stoves and built-in stoves.

4.2 The model designation is made up of the product code, the number of burners, the structural form, the ignition method and the manufacturer's own serial number. The product code is the capital letters HZZ. The number of burners is given in Arabic numerals, 1 for a single burner stove and 2 for a double burner stove. The structural form is given by a capital letter, T for a table stove and Q for a built-in stove. The ignition method is given by a capital letter, D for electronic ignition and M for pulse ignition. The manufacturer's own serial number is given in letters or Arabic numerals. Thus HZZ2-TD-AB denotes a domestic biogas double burner table stove with electronic ignition.

## 5 Technical requirements

5.1.1 The nominal supply pressure at the stove inlet is 0.8 kPa, generally for a single burner stove, or 1.6 kPa, generally for a double burner stove.

5.1.2 For a stove used at high altitude, the effect of altitude on the actual heat input shall be taken into account.

5.1.3 An automatic pressure stabiliser should be fitted upstream of the stove.

5.1.4 A stove used on a centralised biogas supply shall be fitted with a flame failure device, the technical requirements following GB 16410-2020.

5.1.5 The biogas source shall be dewatered and desulphurized before use; the quality shall satisfy a methane content greater than 50 percent and a hydrogen sulfide content less than 20 mg per cubic metre.

5.2.1 The gas tightness of the stove shall satisfy the following: from the biogas inlet to the biogas valve, the leakage at a pressure of 4.2 kPa shall be not greater than 0.07 L per hour; for an automatic control valve at 4.2 kPa, not greater than 0.55 L per hour; and with the burner lit at 1.5 times the nominal pressure, there shall be no leakage anywhere from the biogas inlet to the burner ports.

5.2.2 The heat input shall satisfy the following: the deviation between the corrected actual heat input of each burner and the nominal heat input shall be within plus or minus 10 percent; the ratio of the total corrected actual heat input to the sum of the corrected actual

heat inputs of the individual burners shall be not less than 90 percent; and a double burner stove shall have one main burner whose corrected actual heat input is not less than 3.26 kW.

5.2.3 The combustion behaviour shall comply with Table 1, which fixes, item by item: flame transfer, ignition within 4 s with no explosive ignition; lightback, none; combustion noise, not greater than 65 dB(A); extinction noise, not greater than 85 dB(A); the CO concentration in the dry flue gas at a theoretical air factor of one, expressed as a volume fraction, not greater than 0.05 percent for an indoor type stove and not greater than 0.08 percent for an outdoor type; yellow flame contact, the electrode shall not be in frequent contact with a yellow flame; the combustion stability of the permanent ignition burner, no extinction and no lightback; and the combustion stability when an oversize pan is used, again no extinction and no lightback. A note refers the nitrogen oxide content of the flue gas and its test method to Annex A.

5.2.4 The temperature rise shall not exceed the values of Table 2, which fixes, for the parts the hand must touch during operation, 35 degrees Celsius for metal and coated metal and 45 degrees Celsius for non-metallic materials; 20 degrees Celsius for the case of a dry battery; 20 degrees Celsius for the hose connector; 50 degrees Celsius for the valve body; 50 degrees Celsius for the igniter case; and 100 degrees Celsius for the wooden wall at the side and rear of the stove and the surface of the wooden table beneath it, both when the lower limit pan is used and when the oversize pan is used.

5.2.5 The electric ignition device shall light the burner at least nine times out of ten, with no explosive ignition.

5.2.6 The thermal efficiency shall be not less than 55 percent for a table stove and not less than 50 percent for a built-in stove.

5.2.7 The durability shall comply with Table 3, which requires that the biogas plug valve, after 30 000 operations, still passes the gas tightness test and remains usable, and that the electric ignition device, after 30 000 operations, still ignites satisfactorily and remains usable.

5.2.8 After the vibration test on the packed stove, the gas tightness shall still comply with 5.2.1.

5.2.9 After the drop test on the packed stove by the method of GB/T 1019-2008, the gas tightness shall still comply with 5.2.1.

5.2.10 After the stacking compression test on the packed stove by the method of GB/T 1019-2008, the difference between the height of the package after the test and its height before shall be less than 1 cm per metre.

5.3.1.1 The parts of the stove shall be safe and durable, and shall not break or deform in a way that affects use during transport or in normal operation.