GB

NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

ICS 27.010

CCS F 01

GB 30720-2025

Replacing GB 30531-2014 and GB 30720-2014

Minimum Allowable Values of Energy Efficiency and Energy Efficiency Grades for Gas Cooking Appliances

燃气灶具能效限定值及能效等级

Issued on: February 28, 2025 **Implemented on: March 1, 2026**

Issued by: State Administration for Market Regulation;

Standardization Administration of the People's Republic of China.

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Foreword

This document was drafted in accordance with the rules provided in GB/T 1.1-2020 *Directives for Standardization - Part 1: Rules for the Structure and Drafting of Standardizing Documents*.

This document serves as a replacement for GB 30720-2014 *Minimum Allowable Values of Energy Efficiency and Energy Efficiency Grades for Domestic Gas Cooking Appliances* and GB 30531-2014 *Minimum Allowable Values of Energy Efficiency and Energy Efficiency Grades for Commercial Gas Cooking Appliances*. In comparison with GB 30720-2014 and GB 30531-2014, apart from structural adjustments and editorial modifications, the main technical changes are as follows:

a) The scope of application of the Standard is modified (see Chapter 1; Chapter 1 of GB 30720-2014 and Chapter 1 of GB 30531-2014);

b) The definition and requirements of “evaluating values of energy conservation” are deleted (see 3.2 of GB 30720-2014 and 3.2 of GB 30531-2014);

c) The energy efficiency grade requirements for domestic gas cooking appliances and commercial gas cooking appliances are modified (see 4.1; 4.2 of GB 30720-2014 and 4.2 of GB 30531-2014);

d) The test methods are modified (see Chapter 5; Chapter 5 of GB 30720-2014 and Chapter 5 of GB 30531-2014);

e) The inspection rules are deleted (see Chapter 6 of GB 30720-2014 and Chapter 6 of GB 30531-2014).

Please be noted that certain content of this document may involve patents. The institution issuing this document does not undertake the responsibility of identifying these patents.

This document was proposed by and shall be under the jurisdiction of Standardization Administration of the People’s Republic of China.

The issuing of the previous versions:

---First issued in 2014 as GB 30720-2014 *Minimum Allowable Values of Energy Efficiency and Energy Efficiency Grades for Domestic Gas Cooking Appliances*;

---This is the first revision, which incorporates the content of GB 30531-2014 *Minimum Allowable Values of Energy Efficiency and Energy Efficiency Grades for Commercial Gas Cooking Appliances*.

Minimum Allowable Values of Energy Efficiency and Energy Efficiency Grades for Gas Cooking Appliances

1 Scope

This document specifies the energy efficiency grades, technical requirements and test methods for gas cooking appliances.

This document is applicable to domestic gas stoves and integrated stoves with a rated heat load of not greater than 5.23 kw using town gas (hereinafter collectively referred to as "domestic gas cooking appliances"), and is also applicable to cooking stoves with a rated heat load of not greater than 60 kw, large pot stoves with a rated heat load of not greater than 80 kw, water-tank type and steam-generating type steam boxes and steam generators with a rated heat load of not greater than 80 kw (hereinafter collectively referred to as "commercial gas cooking appliances").

This document does not apply to gas cooking appliances used in means of transportation.

NOTE: the rated heat load of domestic gas stoves and integrated stoves refers to the heat load of a single combustor; the rated heat load of cooking stoves, large pot stoves, steam boxes and steam generators refers to the heat load of a single combustion unit.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB 16410 Domestic Gas Cooking Appliances

GB 35848-2024 Commercial Gas-burning Appliance

3 Terms and Definitions

The terms and definitions defined in GB 16410 and GB 35848, and the following are applicable to this document.

3.1 minimum allowable values of energy efficiency for gas cooking appliances

Under the test conditions specified in this document, the minimum thermal efficiency that a gas cooking appliance is allowed to achieve.

6---the separator air guide cylinder;

7---the separator outer cylinder;

8---fill with insulation material;

9---the separated water outlet;

10---the enclosure;

11---the water-steam baffle;

12---the water storage chamber.

Figure A.1 -- Schematic Diagram of the Structure of Water-steam Separator

A.2 Test Methods

Follow the steps below to conduct the test.

a) During the test, the water-steam separator shall be vertically placed on a movable bracket; the shortest possible insulation pipe shall be used to connect the steam outlet of the steam-generating type steam box (steam generator) and the steam inlet 3 of the water-steam separator; during operation, if the steam outlet 1 of the water-steam separator is not smoothly flowing, it shall be connected to the micro-pressure steam inlet 2 instead.

b) When conducting the efficiency test in accordance with the provisions of GB 35848, the separated water outlet 9 shall be simultaneously closed.

c) At the end of the test, use an electronic scale to weigh the water released from the water storage chamber 12 and, in accordance with Formula (A.1), calculate the thermal efficiency, where the correction factor f is calculated in accordance with Formula (A.2). Repeat the thermal efficiency test twice. When the result difference is less than 2%, take the average value of the two groups of test values as the final test result.

$$\eta = \frac{(M_1 - M_2) \times (t_2 - t_1) \times c_p + (M_1 - M_2 - m) \times q}{(V_2 - V_1) \times H_i \times f} \times 100\% \quad \cdots\cdots\cdots\cdots (A.1)$$

Where,

η---the thermal efficiency;

M_1---the initial reading of the electronic scale at the beginning of the thermal efficiency test, expressed in (kg);

M_2---the final reading of the electronic scale at the end of the thermal efficiency test, expressed in (kg);

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