

ICS 97.040.20
CCS Y 71



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

GB/T 16154-1996

**General technical specification for civil water heating coal
stove**

(English Translation)

Issued on: July 13, 2018

Implemented on: August 1, 2019

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

Foreword
1 Scope
2 Normative references
3 Terms and definitions
4 Model representation
5 Technical requirements
5.1 Basic requirements
5.2 Thermal performance indicators
5.3 Furnace air pollutant emission limit
5.4 Manufacturing requirements
5.5 Safe use requirements
6 Test methods

Foreword

5.2.1, 5.2.2, 5.3, 5.4.7, 5.5 of this standard are mandatory, and the rest are recommended.

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB 16154-2005 "General technical conditions for civil water heaters." This standard is compared with GB 16154-2005, except the main technical changes outside the editorial revision are as follows.

- Removed the speed of fire (see 5.1.3.2 of the 2005 edition);
- Redefine the rated heat supply and thermal efficiency (see 3.4 and 3.5, 2005 and 3.5 and 3.6);
- Increased thermal efficiency and firepower intensity indicators (see 5.2.2 and 5.2.3, 2005 edition and 5.1.3.2);
- Increased the "air pollutant emission limit of furnaces" (see 5.3);
- Added content for safe use requirements (see 5.5).

This standard is proposed and managed by the Ministry of Agriculture and Rural Affairs of the People's Republic of China.

This standard was drafted. China Rural Energy Industry Association, Beijing Zhongyan Environmental Energy Technology Testing Center, Hebei Xinhua New Boiler Manufacturing

Co., Ltd., Shandong Duole Heating Equipment Co., Ltd., Beijing Laowan Biomass Energy Technology Co., Ltd., Shijiazhuang City Chunyan Heating Equipment Co., Ltd., Hebei Guanglei Furnace Co., Ltd., Gaobeidian City Qinqin Heating Equipment Factory, Renqiu City Innovation Heating Equipment Co., Ltd., Zhangzhou Fangzheng Furnace Co., Ltd.

1 Scope

This standard specifies the model representation method, technical requirements, test methods, inspection rules, etc. of the civil water heater.

This standard is applicable to clean coal such as briquette, washing coal, etc., with rated heat supply less than 50kW, rated working pressure as normal pressure, and circulation.

The system is not more than 10m in height, and the outlet water temperature is not higher than 85°C. The civil water heating coal stove with cooking function can refer to carried out.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB 567 rupture disc safety device GB/T 16155 Civil water heating coal stove performance test method NY/T 1703 Civil Water Heater Heating System Installation and Acceptance Specifications

3 Terms and definitions

The following terms and definitions apply to this document.

Protect and secure the outer casing of components such as hot water jackets, furnace tiles and insulation materials.

A component made of refractory material for holding coal and forming a combustion chamber.

4 Model representation

4.1

Representation in uppercase Chinese Pinyin letters and Arabic numerals.

4.2

The model consists of five parts.

a) The first part indicates the main use of the civil water heater;

- b) The second part indicates the type of fuel;
- c) The third part indicates the rated heat supply;
- d) The fourth part indicates the improvement of the serial number;
- e) The fifth part indicates that the furnace has an anecdote function.

4.3

The symbols and meanings of the various components of the model are as follows.

- a) Part 1. Use the pinyin letter N to indicate.

N--- indicates the civil water heater.

- b) Part II; expressed in Chinese Pinyin letters F or Q.

F--- indicates burning honeycomb coal;

Q--- means burning other briquette or clean coal.

- c) Part III. The nominal heat supply is expressed in Arabic numerals, with one digit after the decimal point.

- d) Part IV. The improved serial number of the stove is indicated by Roman numerals. Add a short "-" between the third and fourth parts.

- e) Part 5. Use the Pinyin letter C to indicate an anecdote function.

Example.

N indicates the civil water heater Q means burning other briquette or clean coal 12 indicates that the rated heat supply is 12kW-III indicates the improved serial number of the stove C indicates that the furnace has an anecdote function it indicates that the stove is a plumbing type, burning other briquette or clean coal, the rated heat supply is 12kW, and the improved serial number is type III, which has an anecdote function.

5.1.1 Structure

The structure of the stove should be reasonable in design, good in sealing, easy to operate, safe and reliable.

5.1.2 Appearance

Beautiful appearance, smooth surface, no burrs.

5.1.3 Auxiliary accessories

The auxiliary machine and accessories of the stove should meet the corresponding national product standards.

5.1.4 Safety device

5.1.4.1

The furnace should be equipped with rupture discs.

5.1.4.2

The bursting pressure should not exceed 0.2 MPa, and the inner diameter of the discharge hole should not be less than 25 mm.

5.1.4.3

The rupture discs shall comply with the provisions of GB 567.

5.2 Thermal performance indicators

5.2.1

The rated heat supply is not less than the nominal value.

5.2.2

Thermal efficiency η . $\eta \geq 65\%$. 5.2.3 If there is an anecdote function, its cooking intensity P_c . bituminous coal $P_c \geq 1.5\text{kW}$, anthracite, briquette $P_c \geq 1.0\text{kW}$.

5.2.4

The fire sealing capacity should be greater than 10h.

5.3 Furnace air pollutant emission limit

The air pollutant emission limits of the stove are shown in Table 1.

Table 1 Limits of atmospheric pollutant emission concentration of stoves

Flue gas pollutant emission index Particulate matter/(mg/m³) ≤ 50 Sulfur dioxide/(mg/m³) ≤ 100 NO_x/(mg/m³) ≤ 150 Carbon monoxide /% ≤ 0.2 Smoke blackness (Lingeman blackness)/grade ≤ 1

5.4 Manufacturing requirements

5.4.1

Casting parts should be smooth and free from defects such as cracks, pores and blisters.

5.4.2

Welded parts shall be flat and uniform, without defects such as burn through, slag inclusions, pores, and incomplete penetration.