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

GB/T 21736-2025

Replacing GB/T 21736-2008

**Technical specifications of energy-saving combustion
equipment for heat treatment**

热处理燃烧加热节能设备技术条件

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

1. Structure and drafting rules for standardization documents" Drafting. This document replaces GB/T 21736-2008 "Technical conditions for energy-saving heat treatment combustion heating equipment" and is consistent with GB/T 21736-2008. In addition to structural adjustments and editorial changes, the main technical changes are as follows:

- a) The scope has been changed (see Chapter 1, Chapter 1 of the.2008 edition);
- b) The terms "primary energy", "secondary energy", "greenhouse gas", "heat utilization coefficient of fuel furnace", "unit heat consumption index", and "exhaust gas" have been deleted. and its definitions (see 3.1, 3.2, 3.3, 3.5, 3.7, 3.8 of the.2008 edition), adding the terms "combustion heating equipment", "burner", "combustion Thermal efficiency of the system, "air coefficient" and their definitions (see 3.2, 3.4, 3.5, 3.6), change the term "calorific value" to "calorific value" (see 3.1, 3.4 of the.2008 edition), change "thermal efficiency of furnace" to "thermal efficiency of combustion heating equipment" (see 3.3, 3.6 of the.2008 edition);
- c) Changed "Fuel Selection" and "Heat Treatment Furnace Selection" to "Composition and Requirements of Combustion and Heating Equipment", and added "Combustion and Heating Equipment" Design and manufacturing requirements (see Chapter 4, 4.3, Chapter 4, Chapter 5 of the.2008 edition), deleted the fuel selection, furnace bottom strength and Unit heat consumption of workpieces (see

4.1 to 4.4, 5.1, and

5.2 of the.2008 edition);

d) Change "Necessary conditions for energy-saving heat treatment furnaces" to "Energy-saving technical requirements" (see Chapter 5, Chapter 6 of the.2008 edition), based on According to different furnace types, "unit product energy consumption" (see 5.2), "temperature uniformity and system accuracy" (see 5.4), and "surface temperature rise" are added. (see 5.5), "empty furnace heating time" (see 5.6) and "empty furnace power loss ratio" (see 5.7);

e) The thermal efficiency of combustion heating equipment has been modified (see 5.3, 6.1 of the.2008 edition);

f) The relationship between air preheating temperature and fuel saving rate has been modified (see Table 1, Table 1 of the.2008 edition);

1 Scope

GB/T 21736-2025 is the Chinese national standard on technical specifications of energy-saving combustion equipment for heat treatment, in the field of manufacturing engineering. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 29 August 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 March 2026. Classification: ICS 25.200, CCS J36. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the composition and requirements of heat treatment combustion heating equipment, energy-saving technical requirements, reliability requirements, safety, health and environmental protection Require. This document applies to the design, manufacture and use of combustion heating energy-saving equipment that uses natural gas as the main heat source.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB 2894 Safety colors and safety signs

GB/T 7232 Terminology for Metal Heat Treatment

GB/T 9452 Determination of effective heating area of heat treatment furnace

GB/T 13324 Terminology of heat treatment equipment

GB 15735 Safety and hygiene requirements for metal heat treatment production processes

GB 17820 Natural Gas

GB/T 19944 Calculation and determination methods for fuel consumption in heat treatment production

GB/T 27946 Limits of Hazardous Substances in the Air of Heat Treatment Workplaces

GB/T 30822 Technical requirements for heat treatment environmental protection

GB/T 30824 Test method for temperature uniformity of gas-fired heat treatment furnaces

GB/T 30825 Heat treatment temperature measurement

GB/T 32151.19 Greenhouse gas emissions accounting and reporting requirements Part

3 Terms and Definitions

The terms and definitions defined in GB/T 7232, GB/T 13324 and GB/T 17820 and the following apply to this document.

3.1 Calorific value The amount of heat released when a unit volume (or mass) of fuel is completely burned. Note

1.The calorific value is divided into high calorific value and low calorific value. Among them, high calorific value is the sum of the heat of fuel combustion and the heat of condensation of water vapor (total heat of combustion). The low calorific value is the difference between the total heat of combustion and the heat of condensation (only the combustion value of the fuel). The low calorific value is 10% lower than the high calorific value. about. Note

2.The unit of calorific value of gas fuel is kilojoule per standard cubic meter (kJ/Nm³).

19 Heat treatment enterprises

GB/T 32541 Heat treatment quality control system

GB/T 38819 Technical requirements and evaluation of green heat treatment

GB 50116 Design Specification for Automatic Fire Alarm Systems