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GB/T 46850-2025

**Guide on the design and selection of furnaces and burners for
gas fired boilers**

燃气锅炉炉膛及燃烧设备设计选型导则

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the National Technical Committee on Standardization of Boilers and Pressure Vessels (SAC/TC262). This document was drafted by: China Special Equipment Inspection and Research Institute, Xi'an Jiaotong University, Taishan Group Co., Ltd., and Jiangsu Shuangliang Boiler. Limited Liability Company, Harbin Boiler Factory Co., Ltd., Shanghai Industrial Boiler Research Institute Co., Ltd., Shanghai Power Equipment Complete Set Design and Research Institute Limited Liability Company, Tsinghua University, Shanghai University of Science and Technology, Fangkuai Boiler Co., Ltd., Wuxi Xineng Boiler Co., Ltd., Beijing Fujit Boiler Limited Liability Company, Zhejiang Liju Thermal Energy Equipment Co., Ltd., Boruit Thermal Energy Equipment Co., Ltd., Shanghai Boiler Works Co., Ltd., Dongfang Dongfang Boiler Co., Ltd. of China Electric Group, Jianglian Heavy Industry Group Co., Ltd., Shanghai Yanjing Combustion Equipment Testing Co., Ltd., Anhui Special Equipment Inspection Institute of Sichuan Province, Guangxi Zhuang Autonomous Region Special Equipment Inspection and Research Institute, Sichuan Provincial Special Equipment Inspection and Research Institute, Zhejiang Tefu Development Joint-stock company, Zhejiang Juneng Boiler Manufacturing Co., Ltd., Shaanxi Huantong Standard Boiler Co., Ltd., Xuzhou Ruiyu Thermal Energy Equipment Co., Ltd. Yiju Jiaye (Beijing) Engineering Technology Co., Ltd., Fujian Huaxia Lantian Technology Co., Ltd., Shanghai Haufmet Combustion Equipment Co., Ltd. Shenyang Special Equipment Inspection and Testing Institute, Shaanxi Provincial Special Equipment

Inspection and Testing Institute. The main drafters of this document are. Da Yaodong, Zhao Qinxin, Liu Xuemin, Du Yongbo, Yang Huanxin, Wang Dian, Gu Weilun, Lin Xin, Shi Huihui, and Zhang Yang. Xu Hongtao, Lu Haigang, Zhu Yongzhong, Wu Tongjie, Shen Bingyuan, Cao Guangqin, Zhang Jianwen, Liu Yugang, Wang Xiaoping, Chen Guanhai, Deng Shifeng, Yang Biying Wei Yuwei, Liu Yaling, Zhao Kaidong, Lü Yongming, Liu Yongfeng, Sun Jian, Zhang Xinpu, Fu Jun, Liu Xiang, Dong Yongchang, Yu Jiming, Jin Donggen, Liu Bo Yang Gaozhan, Song Jimin, Xu Ran. Design and Selection Guidelines for Gas-fired Boiler Furnaces and Combustion Equipment

1 Scope

GB/T 46850-2025 is the Chinese national standard covering matching a burner to a furnace - the heat release rate and the flame length against the chamber it has to fit in, the excess air and the NO_x that follows from it, the turndown required and the stability at the bottom of the range. First edition, and it belongs with the burner specification GB/T 36699-2026. It was issued on 31 December 2025 and has been in force since 1 July 2026, as a first edition. The document is under the responsibility of the Standardization Administration of China. This page is published from the official record of the 2025 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document specifies the general requirements, design conditions, basic steps, and furnace thermodynamic characteristics for the design and selection of gas-fired boiler furnaces and combustion equipment. The selection of parameters, other requirements related to the design and selection of furnace and combustion equipment are discussed, and the impact of altitude on the design and selection of furnace and combustion equipment is also given. Influence. This document applies to gas-fired boilers that meet one of the following conditions.

- a) Fixed bearings with a normal water level volume greater than or equal to 30L and a rated steam pressure greater than or equal to 0.1MPa (gauge pressure). Pressure steam boiler;
- b) Stationary pressurized hot water systems with an outlet water pressure greater than or equal to 0.1 MPa (gauge pressure) and a rated thermal power greater than or equal to 0.1 MW. boiler;
- c) Organic heat carrier boilers with a rated thermal power greater than or equal to 0.1MW. This document does not apply to cast iron boilers and cast aluminum boilers.

2 Normative references

The contents of the following documents, through normative references within the text,

constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 2900.48 Electrical Terminology - Boiler

GB/T 10410 Gas chromatographic analysis of major components of manufactured gas and liquefied petroleum gas

GB/T 11062 Calculation Methods for Calorific Value, Density, Relative Density and Wobbe Index of Natural Gas

GB/T 12206 Methods for Determination of Calorific Value and Relative Density of Urban Gas

GB/T 12208 Method for Determination of Components and Impurities in Manufactured Gas

GB 13223 Emission Standard of Air Pollutants for Thermal Power Plants

GB 13271 Emission Standard of Air Pollutants for Boilers

GB/T 13610 Compositional Analysis of Natural Gas - Gas Chromatography

GB/T 16507.3 Water-tube boilers - Part

3 Structural design

GB/T 16508.3 Shell Boilers - Part

6 Combustion Systems

GB/T 17410 Organic Heat Carrier Furnace

GB/T 20626.1 Electrical and electronic products for high-altitude environments under special conditions - Part