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

GB/T 31553-2025

Replacing GB/T 31553-2015

External-heating hot blast cupola furnaces

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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. This document replaces GB/T 31553-2015 "External Hot Air Cupola Furnace". Compared with GB/T 31553-2015, the only changes are structural adjustments and editing. Aside from the sexual alterations, the main technical changes are as follows:

---The classification of external hot blast cupola furnaces based on furnace lining, duty cycle, heat source of hot blast, and heat exchanger method has been removed (see.2015). Versions 4.2, 4.3, 4.4, and 4.5);

---The basic parameters of the cupola have been changed (see Table 1, Table 1 in the.2015 version);

---The minimum thickness requirement for steel plates used in some cupola furnace specifications has been removed (see Table 2,.2015 edition of Table 2);

---Some specifications and quantities of bolts for cupola flanges have been removed (see Table 3,.2015 edition of Table 3);

---Some specifications regarding cupola furnace shell inner diameter tolerances and roundness tolerances have been removed (see Table 4,.2015 edition of Table 4);

---The "Manufacturing Requirements Clause" has been amended (see 5.2.1.12, 6.3.10 of the.2015 version);

---The tapping temperature and total carbon consumption rate of molten iron for some cupola furnace specifications have been removed (see Table 5, Table 5 in the.2015 edition);

---The "Performance Requirements" have been changed (see 5.4, 6.5 in the 2015 version);

---The "Safety and Environmental Requirements" have been changed (see 5.5,

6.6 in the 2015 edition). 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 by the China Machinery Industry Federation. This document is under the jurisdiction of the National Technical Committee on Standardization of Foundry Machinery (SAC/TC186). This document was drafted by: Qingdao Qingli Environmental Protection Equipment Co., Ltd., Shenyang Yate Heavy Equipment Manufacturing Co., Ltd., and Qingdao Zhongzhida Environmental Protection. Smelting Equipment Co., Ltd., Fujian Yuanzhiwei Import & Export Co., Ltd., Jinan Foundry & Forging Institute Inspection and Testing Technology Co., Ltd., Nan'an Zhongji Standardization Research Institute Co., Ltd., Fujian Minxuan Technology Co., Ltd., Jiangyin Foundry Equipment Factory Co., Ltd., China Automotive Industry Association Cheng Co., Ltd., Zhiheng (Tianjin) Industrial Co., Ltd., Qingdao Antai Heavy Industry Machinery Co., Ltd., Qingdao Kaijie Heavy Industry Machinery Co., Ltd., Qingdao Benot Magnetic & Electric Technology Co., Ltd., Weihai Gongyou Foundry Machinery Co., Ltd., and Shandong Jiechuang Machinery Co., Ltd. The main drafters of this document are: Yu Kuotao, Sun Xin, Jia Chunyang, Duan Yudong, Xu Guipeng, Bao Yanqing, Ke Zhenzhen, Zhu Bin, Duan Jinting, and Xia Xinhai. Liu Hongliang, Ren Yubao, Liu Yantao, Su Liguang, Zhu Shijia, Chi Yingjie, Hou Yongzhen. The release history of this document and the document it replaces is as follows:

1 Scope

GB/T 31553-2025 is the Chinese national standard covering the cupola with externally heated blast - the blast temperature and the coke saving it brings, the melting rate and the iron temperature, the refractory life, and the dust and gas cleaning that the furnace has to be sold with. Issued on 31 October 2025, it has been in force since 1 May 2026, replacing GB/T 31553-2015.

This document specifies the type, basic parameters, and technical requirements of external hot blast cupola furnaces, describes the corresponding test methods, and stipulates the inspection procedures. Rules, marking, packaging, transportation and storage. This document applies to the manufacture of external hot blast cupola furnaces.

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 713.2-2023 Steel plates and strips for pressure equipment - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 25370 and JB/T 12245, as well as the following terms and definitions, apply to this document.

3.1 The combustion-supporting gas is heated in the external combustion chamber and then fed into the cupola furnace inside the furnace.