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

GB/T 11880-2024

Replacing GB/T 11880-2008

**Die blocks for die forging hammers and large mechanical
forging presses**

模锻锤和大型机械锻压机用模块

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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 is required. This document replaces GB/T 11880-2008 "Technical Specifications for Die Forging Hammers and Large Mechanical Forging Presses" and is consistent with GB/T 11880-2008. In addition to structural adjustments and editorial changes, the main technical changes are as follows: The requirements for the chemical composition deviation of the module have been changed, the area interval division has been adjusted, and the Mo, V, and W components have been expanded. Scope (see Table 1, Table 2 in the 2008 edition); Modified the module heat treatment requirements, and specified the corresponding hardness values according to different raw materials (see 4.3.1, 2008 edition) 3,9); The cross-sectional dimensions have been increased, with 4 new widths and 4 new heights (see Table 4); - The

requirements for forging process have been changed (see 4.2, 3.6 of the.2008 edition); - The requirements for internal quality have been changed (see 4.3.3, 3.7, 3.8, 3.10 of the.2008 edition); - Added test methods for chemical composition, metal flow lines, macrostructure, non-metallic inclusions, surface quality and size (see Table 5); The ultrasonic testing method has been changed (see Table 5, 4.5 of the.2008 edition); - The batching rules have been changed to apply to all inspection items (see 6.1, 4.3 of the.2008 edition); - Added the requirements for sampling quantity and sampling location for each inspection item (see 6.2); - Added retest and judgment rules (see 6.3). - Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document is proposed and coordinated by the National Technical Committee for Mould Standardization (SAC/TC 33). This document was drafted by: Hubei Sanhuan Forging Co., Ltd., China Machinery Engineering Institute Group Beijing Electromechanical Research Institute Co., Ltd., Minnan Polytechnic College, Changshu Longteng New Energy Equipment Technology Co., Ltd., Zhongte Tailai Die Technology Co., Ltd., Liyang Jinkun Forging Co., Ltd., Shenzhen AVIC Technology Testing Institute Co., Ltd., Zhaoyang Technology (Wuhan) Co., Ltd., Zhejiang Xinzhe Mould Co., Ltd., Henan Yaxing Precision Forging Co., Ltd. Co., Ltd., Shandong Shunfa Heavy Industry Co., Ltd., Jinan Hengxin Forging Co., Ltd., Jinan Jiade Forging Co., Ltd., Zhejiang Modoback Technology Co., Ltd., Shandong Shengli Forging Co., Ltd., Zhejiang Ruitai Suspension System Technology Co., Ltd., Anhui Jianghuai Automobile Group Co., Ltd. Co., Ltd. and Guilin Electrical Science Research Institute Co., Ltd. The main drafters of this document are. Zhang Yunjun, Jiang Chao, Yan Wenduan, Huo Xiaofei, Lu Weiwei, Xu Wenbo, Wu Xibo, Wang Tiegang, Lou Laizhe, Ban Xingjian, Zhang Yang, Wang Guofang, Zhai Panpan, Lu Zhiwei, Gao Guangming, Wu Jianxiang, Zhang Guanghe, Yan Laiping, Ruan Linfan, Liu Chunyu and Wang Chong. The previous versions of this document and the documents it replaces are as follows: First published in 1989 as GB/T 11880-1989; - The first revision was in.2008 as GB/T 11880-2008; This is the second revision. - Modules for die forging hammers and large mechanical forging presses

1 Scope

China's national standard for the die blocks used in die forging hammers and large mechanical forging presses - the very large forged steel blocks into which the impression of a forging die is sunk. A die block is an unusual product: it is a single piece of alloy steel weighing several tonnes, it is one of the most severely loaded tools in industry, and its failure stops a forging line and destroys the die that was cut into it, which represents far more value than the block itself. It specifies the raw material, the forging process and the

finished product requirements for the die blocks of die forging hammers and large mechanical forging presses, and describes the corresponding test methods, inspection rules, marking, packaging, transport and storage. The structure of the standard - raw material, then process, then product - is the right one for this article, because on a block of this size the properties at the centre cannot be established by testing the finished piece and have to be secured by controlling how it was made. The requirements therefore cover the steel grade and its chemical composition, the melting and the cleanliness, the forging with its reduction ratio and the working of the ingot centre, the heat treatment on which the through-thickness properties depend, and only then the properties of the finished block: the hardness and its uniformity across the working face and into the depth, the mechanical properties including the impact toughness that determines whether the block cracks under hammer blows rather than deforming, and the internal soundness established by ultrasonic examination, which on a piece this large is the only way of knowing what is inside it. The dimensions, the machining allowances and the surface condition close the requirements. Issued on 29 September 2024 and in force since 1 April 2025, it replaces GB/T 11880-2008.

This document specifies the raw materials, forging process and finished product requirements for die forging hammers and large mechanical forging presses, and describes the corresponding tests Methods, inspection rules, marking, logo, packaging, transportation and storage are specified. This document applies to the manufacture of alloy steel forging modules for die forging hammers and large mechanical forging presses (including screw presses).

Note. In order to avoid confusion, "modules for die forging hammers and large mechanical forging presses" in this document are referred to as "modules".

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. in this document.

GB/T 223 Iron, steel and alloys (all parts)

GB/T 226 Acid etching test method for macrostructure and defects of steel

GB/T 231.1 Brinell hardness test for metallic materials Part

3 Terms and definitions

The terms and definitions defined in GB/T 8541 apply to this document.

4.1 Raw materials

4.1.1 Module raw materials should be processed by electric arc furnace, electric arc furnace vacuum degassing, electric arc furnace electric slag remelting, vacuum arc remelting, and refining outside the furnace. The specific smelting method shall be specified in the supply and demand contract.

4.1.2 The riser removal of the steel ingot used for the forging module should be 25%~30%, and the bottom removal should be 7%~10%. After removal, the steel ingot should not shrink.