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Metal flow line sampling inspection for steel die forgings

钢质模锻件金属流线取样要求及评定

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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. 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 Forging Standardization Technical Committee (SAC/TC 74). This document was drafted by: Hubei Sanhuan Forging Co., Ltd., Huazhong University of Science and Technology, Jiangsu Pacific Precision Forging Technology Co., Ltd., Dongfeng Forging Co., Ltd., China Machinery Engineering Institute Group Beijing Electromechanical Research Institute Co., Ltd., Wuhan University of Technology, Zhejiang Suote Heavy Industry Technology Co., Ltd. Co., Ltd., Hubei University of Arts and Sciences, Hubei Sanhuan Axle Co., Ltd., Guangdong Shaozhu Forging Co., Ltd., Fangsheng Axle (Liuzhou) Co., Ltd. Company, Zhengzhou Jingyida Auto Parts Co., Ltd., Jiangsu Longcheng Precision Forging Group Co., Ltd., Qianchao Senwei Co., Ltd., Jiangsu Feikong Co., Ltd. Co., Ltd., Jiangsu Weiyong Machinery Co., Ltd., Luoyang Intelligent Agricultural Equipment Research Institute Co., Ltd., Jingdezhen Mingxing Aviation Forging Co., Ltd. Ltd., Gaoan Lux Machinery Co., Ltd., Zhejiang Wanding Precision Technology Co., Ltd., Baotou Beiben Heavy Duty Truck Axle Box Co., Ltd., Chongqing Engineering Vocational and Technical College, Handan Fengchi Precision Manufacturing Co., Ltd., and Chongqing Xinchenghangrui Technology Co., Ltd. The main drafters of this document are. Zhang Yunjun, Yang Jie, Wang Xinyun, Deng Lei, Xia Hanguan, Wu Yujian, Lin Yutong, Hua Lin, Wang Min, Wu Huawei, Zhou Faming, Zhang Chengting, Sun Chao, Jin Liuyang, Zhuang Xiaowei, Gong Aijun, Huang Tingbo, Zhang Tailiang, Wang Yunfei, Jiang Tongfei, Zhu Huian, Xia Jianxiang, Qiu Yang, Xu Hao, Zhang Jungai, Deng Hongxin,

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1 Scope

China's national method for the metal flow line sampling inspection of steel die forgings. Forging's advantage over machining from bar is that the grain flow follows the part's shape, so the fibres run along the loaded direction instead of being cut across it. That is not an assumption to be taken on trust: whether the flow lines actually follow the shape depends on the die design, the billet, the preforms and how the material filled, and a forging can be dimensionally perfect and have flow lines that turn out of the surface at a fillet - which is where it will crack. The inspection reveals the flow by sectioning a sample and macro-etching it, and the standard covers the sample preparation, the test method, the evaluation of what is seen, the retention of results and the report. It applies to the evaluation of steel die forgings and defines what the term means for its purposes.

This document specifies the sample preparation, test methods, testing and evaluation, result retention and inspection for metal flow line sampling of steel die forgings. Report. This document applies to the evaluation of metal flow line sampling and inspection results of steel die forgings (hereinafter referred to as "forgings").

Note. The metal flow lines mentioned in this document refer to the forging flow lines of forgings.

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 226 Acid etching test method for macrostructure and defects of steel

GB/T 8541 Forging Terminology

GB/T 13298 Metal microstructure inspection methods

3 Terms and definitions

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

3.1 Eddy current The metal flow lines are inconsistent with the outer contour of the forging, and a vortex-shaped closed reflux phenomenon occurs.

Note. See Figure 1. Figure

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