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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 30853-2014

Copper and copper alloy forged rings for traction motors

牵引电机用铜及铜合金锻环

Issued on: July 24, 2014 **Implemented on: February 1, 2015**

Issued by: General Administration of Quality Supervision, Inspection and Quarantine;
Standardization Administration of the PRC

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Foreword

This standard is in accordance with GB/T 1.1-2009 given rules drafted. This standard by the national non-ferrous metals Standardization Technical Committee (SAC/TC243) centralized. This standard was drafted. Ningbobowei Alloy Material Co., Ltd., Henan Source Technologies Development Co., Ltd., CSR Zhuzhou motor has Limited, the new speed Yongji Electric Appliance Co., Ltd. The main drafters. Zhang, Ling Yuan, Wu Shunhai, Miao nationals, Liu, Cai JI Hua, Yang Zhenzhong, Xuyou Fei, Huang Xiaoyun, Li Hongqing, Zhang Xiaolong. Traction motor with copper and copper alloy forging ring

1 Scope

China's national product standard for the copper and copper alloy forged rings used in traction motors. It specifies the product classification, the requirements, the test methods, the inspection rules, and the marking, packaging, transport, storage, quality certificate and contract or order content for these rings, and it applies to the various copper and copper alloy forged rings used in traction motors in the transport sector, including high speed rail. The forged ring is the end ring of an induction traction motor's rotor cage: the component that joins every rotor bar to every other at each end of the rotor and completes the circuit in which the induced current flows. It is a demanding part for reasons that are mechanical before they are electrical. It carries the full induced current, so it must be highly conductive; it is the outermost rotating mass in the rotor, so it carries its own centrifugal load at speed and must be strong at temperature; it is joined to every bar, so it must braze or weld reliably and not embrittle in the process; and it is thermally cycled through the machine's whole duty. It is also made by forging rather than machining from bar, which is what gives it a continuous circumferential grain flow instead of grain cut through by a tool. That grain flow is the reason the standard exists in this form: a forged ring's properties depend on how it was forged, they vary through its section, and they cannot be inferred from the composition of the material it started as. The standard therefore specifies the properties on the finished ring, together with ultrasonic examination to the forging standard GB/T 1786 and testing for hydrogen embrittlement. Issued on 24 July 2014 and in force since 1 February 2015.

This standard specifies the traction motor with copper and copper alloy forging ring product

classifications, requirements, test methods, inspection rules and signs, packaging, transportation Transport, storage, quality certificates and contracts (or orders) content. This standard applies to the transport sector (including high-speed rail) traction motor with a variety of copper and copper alloy forging ring.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document. RT Test Method. Test Part 1

GB/T 228.1-2010 metal material tensile

GB/T 231.1 metallic materials Brinell hardness test - Part 1. Test methods

GB/T 351 metal material resistivity measurement method

GB/T 1786 Wrought pie ultrasonic inspection

GB/T 2828.1 Sampling procedures for inspection - Part 1. batch inspection sampling plan acceptance quality limit (AQL) retrieval

GB/T 3048.2 wire and cable electrical performance test methods - Part 2. Metal resistivity test

GB/T 4340.1 metallic materials - Vickers hardness test - Part 1. Test methods

GB/T 5121 (all parts) of copper and copper alloys -

GB/T 5231 and processing of copper and copper alloy grades and chemical composition

GB/T 8888 heavy non-ferrous metal processing products, packaging, labeling, transportation and storage

GB/T 23606 copper embrittlement test methods YS/T 347 copper and copper alloys average grain size measurement method YS/T 478 copper and copper alloy conductivity eddy current testing method YS/T 482 copper and copper alloy analysis photoemission spectroscopy YS/T 483 copper and copper alloy analysis X-ray fluorescence spectrometry (wavelength dispersion) YS/T 668 copper and copper alloy physical and chemical detection sampling method YS/T 815 methods for preparing copper and copper alloy mechanical and technological properties of the sample

JB/T 9218 NDT penetrant testing

3 Product Categories

3.1 grades, status, specifications Grade wood ring, the state should meet the requirements

in Table 1. Ring material shall conform to the specifications in Table 2. Product outer diameter d1, d2 the inner diameter of the product and product thickness h, as shown in FIG.