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

GB/T 30852-2014

Conductive copper and copper alloy profiles for traction motors

牵引电机用导电铜及铜合金型材

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**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 of this standard. Liu, Ling Yuan, Wu Shunhai, Miao national, Cai Ji Hua, Yang Zhenzhong, Xuyou Fei, Huang Xiaoyun, Xu steady change, Ding Lu Zhen. Traction motor with a conductive copper and copper alloy profiles

1 Scope

China's national product standard for the conductive copper and copper alloy profiles 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 profiles, and it applies to all kinds of conductive copper and copper alloy profiles used in traction motors in the transport sector, including high speed rail. A traction motor is one of the most severely worked electrical machines built. It sits under a vehicle, is thermally cycled every time the train accelerates and brakes, is shaken continuously by the track, and has to deliver very high torque from a package constrained by the space between the wheels. The conductive profiles in it are the bars and sections that form the rotor cage or the commutator connections and the machine's main current paths, and they have to satisfy two requirements that pull against each other: high electrical conductivity, which favours pure soft copper, and high mechanical strength and resistance to softening, which favours an alloy. Pure copper of the required conductivity anneals and loses strength at temperatures a traction motor reaches routinely, and a bar that has softened deforms under centrifugal and thermal stress and eventually cracks at a joint. The alloyed and precipitation-hardened coppers cover that gap at some cost in conductivity, which is why the standard covers both and specifies conductivity, mechanical properties and softening resistance together. It also specifies the non-destructive testing that matters for a part whose failure requires the motor to be removed from the vehicle. Issued on 24 July 2014 and in force since 1 February 2015.

This standard specifies the traction motor with a conductive copper and copper alloy profiles product classifications, requirements, test methods, inspection rules and signs, including Equipment, transportation, storage, quality certificates and contracts (or orders) and so on. This standard applies to the transport sector (including high-speed rail) all kinds of traction conductivity copper and copper alloy profiles used in the motor.

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 232 metallic materials - Bend test

GB/T 351 metal material resistivity measurement method

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

GB/T 3310 copper and copper alloy rod ultrasonic flaw detection method

GB/T 4338 high-temperature metallic materials - Tensile testing

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

GB/T 26303.2 copper and copper alloy processing material Dimensions detection methods - Part 2. rods, wire, profiles 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 profile, the state should meet the requirements in Table 1. Profile specifications shall be in accordance with Table 2. Product width a , b , height h and a length l , as shown in FIG.

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