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

GB/T 37501-2019

**Brass wires for unidirectional travelling wire electrical
discharge machining on numerically controlled machine tools**

数控机床用单向走丝电火花加工用黄铜线

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard was proposed by the China Nonferrous Metals Industry Association. This standard is under the jurisdiction of the National Nonferrous Metals Standardization Technical Committee (SAC/TC243). This standard is drafted by: Ningbo Bode Hi-Tech Co., Ltd., Nonferrous Metals Technology and Economic Research Institute, Wuhu Chujiang Alloy Copper Co., Ltd., Wuhu Hengxin Copper Group Co., Ltd. The main drafters of this standard. Chen Xiaojun, Zhong Jie, Yang Lijuan, Meng Xianqi, Lu Hening, Wan Linhui, Han Zhiwei, Zhang Yun, Di Feng, Gan Changjun, Qian Guangfu, Cheng Xuyi, Wang Chuancan.

One-way wire electric spark for CNC machine tools Processing brass wire

1 Scope

China's national standard for the brass wire used as the electrode in unidirectional travelling wire EDM. It specifies the product classification, the technical requirements, the test methods and the inspection rules. Wire EDM cuts by erosion rather than by cutting: a thin wire is held under tension between guides, a voltage is struck between it and the workpiece through a dielectric, and thousands of sparks a second remove metal wherever the gap is small enough. Because the wire is consumed as it works, it is fed continuously from a spool and discarded - which is what unidirectional means, and why the wire is a consumable bought by weight rather than a tool. Brass is used because zinc vaporises readily and carries heat away from the wire, letting it survive higher discharge energy without breaking. A wire break stops the machine and usually spoils the cut, so tensile strength and dimensional uniformity along the whole spool matter more than anything else in the specification.

This standard specifies the product classification, technical requirements, test methods and inspection rules for brass wire for one-way wire EDM machining for CNC machine tools. And the contents of the sign, packaging, transportation, storage and quality certificate and order form (or contract). This standard is applicable to the circular brass wire (hereinafter referred to as the wire) used in the one-way wire EDM machine for CNC machine tools.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article. Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 228.1-2010 tensile testing of metallic materials - Part 1

GB/T 351 metal material resistivity measurement method

GB/T 2828.1. Sampling procedures for sampling by sampling - Part 1 . Batch-to-batch sampling plan, searched by AQL

GB/T 5121 (all parts) Copper and copper alloy chemical analysis methods

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

GB/T 8170 Numerical Rounding Rules and Representation and Determination of Limit Values

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

GB/T 10573 non-ferrous metal filament tensile test method

GB/T 26303.2 Methods of measuring the dimensions of copper and copper alloys - Part 2. bars, wires, profiles YS/T 482 Copper and copper alloys - Methods YS/T 483 copper and copper alloy analysis method X-ray fluorescence spectrometry (wavelength dispersion type) YS/T 668 copper and copper alloy physical and chemical detection sampling method YS/T 815 copper and copper alloy mechanical properties and process properties sample preparation method

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 CNC machine tool numericallycontrolledmachines A machine tool that controls the machining process with a numerical control system.

3.2 One-way wire unidirectionaltravelingwire The wire always runs in one direction during EDM.

3.3 Electric discharge machining electro-dischargemachining In a certain medium, the workpiece material is melted, vaporized and removed by the pulse spark discharge between the workpiece and the workpiece electrode. The surface is processed by material deposition.