

ICS 77.150.30
CCS H 62

YS

**NONFERROUS METALS INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

YS/T 649-2018

Extruded rod and bar of copper and copper alloys

铜及铜合金挤制棒

(English Translation)

Issued on: October 22, 2018

Implemented on: April 1, 2019

Issued by: Ministry of Industry and Information Technology of PRC

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1 Scope

This standard specifies the requirements, test methods, inspection rules, markings, packaging, transportation, storage, quality certificates and purchase orders (or contracts) for extruded rod and bar of copper and copper alloys.

This standard applies to general-purpose round, rectangular (square), hexagonal extruded rod and bar of copper and copper alloys (hereinafter referred to as bars).

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

GB/T 231.1 Metallic materials - Brinell hardness test - Part 1: Test method

GB/T 2828.1 Sampling procedures for inspection by attributes -Part 1:

Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection

GB/T 3310 Ultrasonic testing method of copper and copper alloy bars

GB/T 5121 (all parts) Methods for chemical analysis of copper

GB/T 5231 Designation and chemical composition of wrought copper and copper alloys

GB/T 8170 Rules of rounding off for numerical values & expression and judgement of limiting values

GB/T 8888 Wrought heavy non-ferrous metal products -Packing, marking, transporting and

storing

GB/T 26303.2 Measuring methods for dimensions and shapes of wrought copper and copper alloy - Part 2: Rod, wire and profile

GB/T 34505-2017 Copper and copper alloy materials - Tensile testing at room temperature

YS/T 336 Method of fracture test for tube and rod of copper and copper alloys, nickel and nickel alloys

YS/T 448 Copper and copper alloys inspection method of macrostructure for cast and wrought products

YS/T 482 Methods for analysis of copper and copper alloys - The atomic emission spectrometry

YS/T 483 Methods for analysis of copper and copper alloys - X-Ray fluorescence spectrometric (wavelength dispersive)

YS/T 668 The sampling method of physical and chemical testing for copper and copper alloys

YS/T 815 Preparation method of test pieces for mechanical and technological properties of copper and copper alloys

3.1.1 Designation, code, status, specification

For the designation, code, status, and specifications of the product, they shall meet the requirements of Table 1 and Table 2.

3.1.2 Marking examples

The product's marking is expressed in the order of product name, standard number, designation or code, status, precision, specification. Examples of markings are as follows:

Example 1: A fixed length round bar made of T2 (T11050), M30 (hot extruded) state, high-precision, 40 mm diameter, 2000 mm length, is marked as:

Round bar YS/T 649-T2 M30 high-Phi40x2000

OR: round bar YS/T 649-T11050 M30 high-Phi40x2000

The surface quality of the bar shall be inspected visually.

5.1 Inspection and acceptance

5.1.1

The supplier's technical supervision department shall conduct inspections, to ensure that the product quality complies with the provisions of this standard and the purchase order (or

contract); meanwhile fill in the quality certificate.

5.1.2

The purchaser shall re-inspect the received product, in accordance with the provisions of this standard and the purchase order (or contract). If the re- inspection result does not conform to the provisions of this standard or the purchase contract, it shall be submitted to the supplier, in written form, to be settled, through negotiation, between the supplier and the buyer. For the objections related to surface quality and dimensional deviation, it shall be filed, within one month from the date of receipt of the product. For the objections related to other properties, it shall be filed, within three months from the date of receipt of the product. If arbitration is required, arbitration sampling shall be conducted jointly by the supplier and the buyer.

5.2 Group-batching

The bars shall be submitted for acceptance in batches. Each batch shall be composed of the products of the same designation, state, specification. The mass of each batch shall not exceed 5000 kg.

5.3 Inspection items

5.3.1

Each batch of bars shall be inspected for chemical composition, external dimensions, internal quality, surface quality.

5.3.2

Each batch of bars shall be inspected for mechanical properties (tensile test or hardness test). Choose either the tensile test or the hardness test. If it is not specified in the contract, the tensile test shall be carried out.

When selecting the tensile test, if the buyer also requires a hardness test AND it is specified in the contract, the hardness test shall also be carried out. The results of the hardness test are for reference only. When the hardness test is selected, if the buyer also requires a tensile test AND it is specified in the contract, a tensile test shall also be carried out. The results of the tensile test are for reference only.

5.4 Sampling

Bar sampling shall meet the requirements of Table 8. The sampling method

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