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# NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

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# **Copper and Copper Alloy Strip for Heat Exchanger**

热交换器用铜及铜合金带材

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# **Table of Contents**

Foreword	3
1 Scope	4
2 Normative References	4
3 Technical Requirements	5
4 Test Methods	8
5 Inspection Rules	9
6 Marking, Packaging, Transportation, Storage and Quality Certificate	. 11
7 Order Form (or contract) Content	. 11

# **Copper and Copper Alloy Strip for Heat Exchanger**

# 1 Scope

This Standard stipulates the technical requirements, test methods, inspection rules, marking, packaging, transportation, storage, quality certificate and order form (or contract) content of copper and copper alloy strip for for heat exchanger.

This Standard is applicable to copper and copper alloy strip for the manufacture of the outer shell and cooling fin of heat exchanger (hereinafter referred to as strip).

## 2 Normative References

The following documents are indispensable to the application of this document. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 351 Metallic Materials - Resistivity Measurement Method;

GB/T 4156 Metallic Materials - Sheet and Strip - Erichsen Cupping Test;

GB/T 4340.1 Metallic Materials - Vickers Hardness Test - Part 1: Test Method;

GB/T 5121 (all parts) Methods for Chemical Analysis of Copper and Copper Alloys;

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, Transportation, Storing and Certificate of Quality;

GB/T 26303.3 Measuring Methods for Dimensions and Shapes of Wrought Copper and Copper Alloys - Part 3: Sheets and Strips;

GB/T 32791 Electromagnetic (eddy-current) Examination Method for Electrical Conductivity of Copper and Copper Alloys;

GB/T 34505-2017 Copper and Copper Alloy Materials - Tensile Testing at Room Temperature;

YS/T 482 Methods for Analysis of Copper and Copper Alloys - The Atomic Emission

## 4.3 Mechanical Properties

- **4.3.1** The tensile test of strip shall comply with the stipulations in GB/T 34505-2017. Tensile sample shall select P01 in Table 3 in GB/T 34505-2017.
- **4.3.2** The Vickers hardness test of strip shall comply with the stipulations in GB/T 4340.1.

#### 4.4 Process Performance

Cupping test of strip shall comply with the stipulations in GB/T 4156.

#### 4.5 Electrical Performance

Electrical performance test of strip shall comply with the stipulations in GB/T 351 or GB/T 32791. Arbitration test shall comply with the stipulations in GB/T 351.

#### 4.6 Surface Quality

Surface quality of strip shall receive visual inspection.

## **5 Inspection Rules**

#### 5.1 Inspection and Acceptance Inspection

- **5.1.1** Strip shall be inspected by the supply side, which shall guarantee that product quality complies with the stipulations of this Standard and the order form (or contract). Moreover, quality certificate shall be filled out.
- **5.1.2** The demand-side shall inspect the received products in accordance with the stipulations in this Standard. If the inspection result does not comply with the requirements of this Standard and the order form (or contract), this shall be proposed to the supply-side in the written form; and solved by the demand-side and the supply-side through negotiation. Objections regarding surface quality and dimensional deviations shall be proposed within 1 month upon receiving the products. Other quality objections shall be proposed within 3 months upon receiving the products. If arbitration is needed, arbitration sampling shall be jointly conducted by the demand-side and the supply-side.

#### 5.2 Group Batch

Strip shall be submitted for acceptance inspection in batches. Each batch shall be constituted of strips of the same designation, status and specification. The weight of each batch (coil, disk, box) shall be not more than 3,500 kg (if that batch is under the same furnace No., then, batch weight may not be restricted).

#### 5.3 Inspection Items

is disqualified in the previous inspection). If the re-inspection result is completely qualified, then, that batch of strips shall be determined as qualified. If the re-inspection result is still disqualified, then, that batch of strips shall be determined as disqualified. The supply-side is allowed to inspect coil by coil and deliver those that are qualified.

# 6 Marking, Packaging, Transportation, Storage and Quality Certificate

Strips' marking, packaging, transportation, storage and quality certificate shall comply with the stipulations in GB/T 8888.

# 7 Order Form (or contract) Content

Order form (or contract) content of materials listed in this Standard shall include the following content:

END
j) Others.
i) Serial No. of this Standard;
h) Packaging requirements (where there are special requirements);
g) Electrical performance (when the demand-side requests);
f) Dimensions and allowable deviations (when there are special requirements)
e) Weight (reel weight and tray weight);
d) Dimensions;
c) Status;
b) Designation;
a) Product name;
wing content.

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