

ICS 27.010
CCS F01



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

GB 21350-2023

Replacing GB 21350-2013

**The norm of energy consumption per unit production of
wrought copper and copper alloy**

铜及铜合金加工材单位产品能源消耗限额

Issued on: May 23, 2023

Implemented on: June 1, 2024

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

Table of Contents

1	Scope
2	Normative references
3	Terms and definitions
4	Product categories...
5	Levels of allowance of energy consumption...
6	Technical requirements
6.1	General rules
6.2	Copper and copper alloy tubes
6.3	Copper and copper alloy bars and wires
6.4	Copper and copper alloy sheets, strips, and foils
6.5	Copper drawing stocks for electrical purposes
7	Statistical scope and calculation methods
7.1	Statistical scope
7.1.1	Production system
7.2	Calculation method
25	References...

Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020 Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents. This document replaces GB 21350-2013 The norm of energy consumption per unit products of copper and copper-alloy tube, GB 29137-2012 The norm of energy consumption per unit products of copper and copper-alloy wire, GB 29443-2012 The norm of energy consumption per unit product of copper and copper-alloy rod and bar, GB 29442-2012 The norm of energy consumption per unit products of copper and copper-alloy sheet, strip, foil, and GB 32046-2015 The norm of energy consumption per unit products of copper drawing stock for electrical purpose; compared with GB 21350-2013, GB 29137-2012, GB 29442-2012, GB 29443-2012 and GB 32046-2015, except for structural adjustments and editorial changes, the main technical changes are as follows:

a) The "advanced value", "access value" and "limit value" are changed to "Level 1", "Level 2" and "Level 3" (see Table 2, Table 3, Table 4, Table 5, Table 6, Table 7, Table 8, Table 9, and Table 10; see Chapter 4 of GB 21350-2013, Chapter 4 of GB 29137-2012, Chapter 4 of GB 29442-2012, Chapter 4 of GB 29443-2012, and Chapter 4 of GB 32046-2015);

- b) The "allowance of energy consumption for hot working procedure", "allowance of energy consumption for cold working procedure", "allowance of energy consumption for finishing process" and "allowance of energy consumption for annealing process" in "allowance of energy consumption per unit throughput in an incomplete work company" are merged and changed to the "allowance of comprehensive energy consumption per unit throughput in processing procedures" (see Table 2; see Table 3, Table 5 and Table 7 of GB 21350-2013);
- c) The requirements for "allowance of energy consumption per unit throughput in a complete work company" and "allowance of energy consumption per unit throughput in an incomplete work company" are unified (see Table 2; see Chapter 4 of GB 21350-2013);
- d) "Unit energy consumption in melting and casting procedures" and "unit energy consumption in processing procedures" are changed to "allowance of comprehensive energy consumption for unit output of product in the melting and casting procedures" and "allowance of comprehensive energy consumption for unit output of product in processing procedures" (see Table 2, Table 3, Table 4, Table 5, Table 6, Table 7, Table 8, and Table 9; see Chapter 4 of GB 21350-2013, Chapter 4 of GB 29137-2012, Chapter 4 of GB 29442-2012, and Chapter 4 of GB 29443-2012);
- e) The index requirements for "allowance of comprehensive energy consumption for unit output of product in the melting and casting procedures", "allowance of comprehensive energy consumption for unit output of product in processing procedures" and "allowance of comprehensive energy consumption for unit output of product in whole procedures" are changed (see Table 2, Table 3, Table 4, Table 5, Table 6, Table 7, Table 8, and Table 9; see Chapter 4 of GB 21350-2013, Chapter 4 of GB 29137-2012, Chapter 4 of GB 29442-2012, and Chapter 4 of GB 29443-2012);
- f) "Allowance of all comprehensive energy consumption" is deleted (see Chapter 4 of GB 21350-2013, Chapter 4 of GB 29137-2012, Chapter 4 of GB 29442-2012, and Chapter 4 of GB 29443-2012);
- g) The index requirements for "Level 1", "Level 2" and "Level 3" of allowance of energy consumption for high copper tubes, high copper bars by the extrusion method, high copper wires, and high copper sheets, strips and foils by the hot rolling method are added (see table 2. Table 3, Table 4, and Table 7);
- h) The footnotes "the allowance of energy consumption of finned tubes is 1.1 times the corresponding value in the table" and "the allowance of energy consumption of tubes with an outer diameter not larger than 4 mm is 1.2 times the corresponding value in the table" are added to the table (see Table 2);
- i) The footnote "the allowance of energy consumption of products with the specifications of $0.2\text{ mm} < \Phi \leq$

0.8 mm is

1 Scope

GB 21350-2023 is the Chinese national standard on the norm of energy consumption per unit production of wrought copper and copper alloy, in the field of energy and heat transfer engineering. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 23 May 2023 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 June 2024. Classification: ICS 27.010, CCS F01. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document stipulates the levels of allowance, technical requirements, statistical scope, and calculation methods for energy consumption per unit throughput of wrought copper and copper alloy products (hereinafter referred to as energy consumption). This document applies to the calculation and assessment of per unit throughput energy consumption of manufacturing enterprises that wrought copper and copper alloy ingots (billets), tubes, rods, wires, sheets, strips, foils, and the copper drawing stocks for electrical purposes, as well as energy consumption control for new and expansion projects. This document is not applicable to the calculation and assessment of energy consumption of wrought copper and copper alloy products produced by special processes such as powder metallurgy, vacuum casting, multi-stage aging, etc.

2 Normative references

The following documents contain the provisions which, through normative reference in this document, constitute the essential provisions of this document. For the dated referenced documents, only the versions with the indicated dates are applicable to this document; for the undated referenced documents, only the latest version (including all the amendments) is applicable to this document.

GB/T 2589 General rules for calculation of the comprehensive energy consumption

GB/T 12723 General principles for establishing allowance of energy consumption per unit throughput

3 Terms and definitions

The terms and definitions defined in GB/T 2589 and GB/T 12723 apply to this document.

6.1 General rules

6.1.1 For comprehensive enterprises, assessments shall be conducted separately by varieties [ingot (billet), tube, bar, wire, sheet, strip, foil, copper drawing stock for electrical purposes].

6.1.2 Enterprises that only produce a single type of product, or in which the output of a certain type of product exceeds 80% of the total product output, will be assessed based on the comprehensive energy consumption for unit output of that type of product.

6.1.3 Manufacturing enterprises with only melting and casting procedures or processing procedures shall be assessed based on the unit energy consumption of the melting and casting procedures or processing procedures; manufacturing enterprises with BOTH melting and casting procedures AND processing procedures shall be assessed based on the comprehensive energy consumption for unit output of this product in whole procedures.

6.2 Copper and copper alloy tubes

6.2.1 The allowance of energy consumption per unit throughput of existing copper and copper alloy tube processing enterprises shall comply with Level 3 in Table 2.

6.2.2 The access value of energy consumption per unit throughput of newly built, renovated, and expanded copper and copper alloy tube processing enterprises shall comply with Level 2 in Table 2.

6.3 Copper and copper alloy bars and wires

6.3.1 The allowance energy consumption per unit throughput of existing copper and copper alloy bar processing enterprises shall comply with Level 3 in Table 3 and Table 5. The allowance energy consumption per unit throughput of existing copper and copper alloy wire processing enterprises shall comply with Level 3 in Table 4 and Table 6.

6.3.2 The access value of energy consumption per unit throughput of newly built, renovated, and expanded copper and copper alloy bar processing enterprises shall comply with Level 2 in Table 3 and Table 5. The access value of energy consumption per unit throughput of newly built, renovated, and expanded copper and copper alloy wire processing enterprises shall comply with Level 2 in Table 4 and Table 6.

6.4 Copper and copper alloy sheets, strips, and foils

6.4.1 The allowance of energy consumption per unit throughput of existing copper and copper alloy sheet, strip, and foil processing enterprises shall comply with Level 3 in Table 7, Table 8, and Table 9.

6.4.2 The access value of energy consumption per unit throughput of newly built, renovated, and expanded copper and copper alloy sheet, strip and foil processing