

ICS 25.160.20

CCS J 33



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

GB/T 12470-2018

**Solid wire electrodes, tubular cored electrodes and
electrode/flux combinations for submerged arc welding of
creep-resisting steels**

Issued on: March 15, 2018

Implemented on: October 1, 2018

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

Foreword

1 Scope

2 Normative references

3.1 Solid wire classification

3.2 Wire-flux combination classification

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 12470-2003 "Low-alloy steel welding wire and flux for submerged arc welding." Compared with GB/T 12470-2003, the main

To modify the content as follows.

--- The standard name was changed to "Submerged arc welding hot-gauge steel solid wire, flux cored wire and welding wire - flux combination classification requirements";

--- This revision only retains the heat-strength steel welding wire in the original standard. Other welding wires are adjusted to their respective tensile strength ranges.

GB/T 5293 "Classification Requirements for Combinations of Solid Wires, Flux Cored Wires, and Wires-Flux Combinations for Non-alloyed Steels and Fine Grained Steels for Submerged Arc Welding" and

GB/T 36034 "Classification Requirements for Combination of Solid Wires, Flux Cored Wires, and Wires - Flux for High-strength Steels for Submerged Arc Welding";

--- For the five wire grades retained in the original standard, the classification of metallurgical grades and chemical composition requirements are in accordance with GB/T 3429-2015 "Welding

Adjusted with steel wire rods, and prepared the wire type respectively;

--- According to ISO 24598.2012, 21 wire types have been added, according to domestic usage habits, according to GB/T 221-2008 "Steel

The iron product brand representation method provides metallurgical brand number classification;

--- Removed the technical requirements of the flux, the relevant content will be adjusted to GB/T 36037 "submerged arc welding and electrosag flux";

---According to ISO 24598.2012, the requirements for classification of flux cored wire-flux combinations have been increased;

---According to ISO 24598.2012, an increase of solid wire-flux combination deposited metal chemical composition requirements;

--- According to ISO 24598.2012, the classification method, mechanical performance requirements, etc. have been adjusted accordingly.

This standard uses the redrafted method to modify the use of ISO 24598.2012 "Soldering welding material welding hot-strength steel solid wire, flux cored welding

Wire and Wire/Flux Combination Classification (English version).

This standard compares with ISO 24598.2012 in terms of structure, according to classification, technical requirements, test methods, re-inspection and supply technology

Prepare the pieces.

The technical differences between this standard and ISO 24598.2012 and its causes are as follows.

--- With regard to normative references, this standard has made adjustments with technical differences to adapt to China's technical conditions and adjust the situation.

The focus is reflected in Chapter 2, "Normative References," and the specific adjustments are as follows.

* Added references GB/T 2650, GB/T 2652 and GB/T 3323;

* Equivalent to the use of international standards GB/T 25777, GB/T 18591 instead of ISO 6847, ISO 13916;

* Use GB/T 25774.1, GB/T 25775, and GB/T 25778 which are modified to adopt international standards instead of ISO 15792-1.

ISO 544, ISO 14344;

* Delete ISO 80000-1.2009.

---According to the actual conditions in China, the classification of the corresponding metallurgical brand numbers in comparison with solid wire types has been added.

--- Added technology for solid wire types such as SUCM2, SU1CM2, SU1CM3, SU1CMV and SU1CMH

Claim.

---Retained GB/T 12470-2003 wire size and surface quality of the technical requirements.

--- ray inspection requirements in GB/T 12470-2003 have been retained to apply our

country's technical requirements.

This standard also made the following editorial changes.

--- The standard name was changed to "Submerged arc welding heat steel solid wire, flux cored wire and welding wire - flux combination classification requirements";

--- Added Appendix A solid wire model/grade comparison (informative annex);

--- Added Appendix B flux types (informative annex).

This standard is proposed and managed by the National Welding Standardization Technical Committee (SAC/TC55).

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The previous versions of the standard replaced by this standard are.

--- GB/T 12470-1990, GB/T 12470-2003.

Submerged arc welding with hot steel solid wire, flux cored wire and

Wire - flux combination classification requirements

1 Scope

This standard stipulates the classification, technical requirements, and test methods for solid-gauge wire, flux cored wire and wire-flux combination for submerged arc welding.

Re-inspection and supply technical conditions and other content.

This standard applies to submerged arc welding heat-steel solid wire, flux cored wire and wire - flux combination of classification requirements.

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 version (including all amendments) applies to this document.

GB/T 2650 welding joint impact test method (GB/T 2650-2008, ISO 9016.2001, IDT)

GB/T 2652 Weld and deposited metal tensile test method (GB/T 2652-2008, ISO 5178.2001, IDT)

GB/T 3323 Metal Fusion Welding Joints Radiography

GB/T 18591 Measurement Guide for Welding Preheating Temperature, Inter-Road Temperature and Preheating Maintaining Temperature (GB/T 18591-2001, idtISO 13916.1996)

GB/T 25774.1 Inspection of welding materials - Part 1. Preparation and inspection of mechanical properties of steel, nickel and nickel alloy deposited metals

Inspection (GB/T 25774.1-2010, ISO 15792-1.2000, MOD)

GB/T 25775 welding material supply technical conditions product type, size, tolerances and marks (GB/T 25775-2010,

ISO 544.2003, MOD)

GB/T 25777 welding material deposited metal chemical analysis sample preparation method (GB/T 25777-2010, ISO 6847.2000,

IDT)

GB/T 25778 Welding Material Purchase Guide (GB/T 25778-2010, ISO 14344.2010, MOD)

Category 3

3.1 Solid wire classification

Solid wire types are divided according to chemical composition, in which the letters "SU" indicate solid arc welding of submerged arc welding, "SU" after the numbers and letters

Combinations represent the classification of their chemical composition. See Appendix A for comparison of model/plate numbers between solid wires.

Examples of solid wire models in this standard are as follows.

Example 1.

SU1CM

Submerged arc welding solid wire

Indicates chemical composition

3.2 Wire-flux combination classification

3.2.1 solid wire - flux combination classification according to mechanical properties, flux