

ICS 25.160.20

CCS J 33



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

GB/T 39281-2020

**Wire electrodes, wires, rods and deposits for gas shielded arc
welding of high strength steels**

Issued on: November 19, 2020

Implemented on: June 1, 2021

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

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Foreword

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

This standard uses the redrafting method to amend and adopt ISO 16834.2012 "Classification of welding materials for high-strength steel gas shielded arc welding wires and deposited metals".

Compared with ISO 16834.2012, this standard has many adjustments in structure. Appendix A lists this standard and ISO 16834.2012

A list of changes in chapter numbers.

Compared with ISO 16834.2012, this standard has technical differences. Appendix B gives a list of corresponding technical differences and their reasons.

This standard also made the following editorial changes.

--- Modify the standard name to "High-strength steel solid wire for gas shielded arc welding";

---Added Appendix C (informative appendix) welding wire model comparison.

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1 Scope

This standard specifies the types, technical requirements, test methods, retest and supply of high-strength steel solid wires and filler wires for gas shielded arc welding.

Goods, technical conditions, etc.

This standard is applicable to molten metal gas shielded arc welding and tungsten inert where the minimum tensile strength requirement value of deposited metal is greater than 570MPa

High-strength steel solid welding wire and filler wire (hereinafter referred to as "welding wire") for gas shielded arc welding.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this document.

For undated references, the latest version (including all amendments) applies to this document.

GB/T 2650 Welded 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 3323.1 Non-destructive testing of welds. Radiographic testing. Part 1.X and gamma ray film technology

GB/T 18591 Guide for the measurement of welding preheat temperature, interpass temperature and preheat maintenance temperature (GB/T 18591-2001,

ISO 13916.1996, IDT)

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

GB/T 25775 Technical Conditions for Supply of Welding Materials Product Type, Size, Tolerance and Marking

GB/T 25778 Guidelines for Procurement of Welding Materials

GB/T 37910.1-2019 Non-destructive testing of welds, radiographic inspection acceptance level Part 1. Steel, nickel, titanium and their alloys

GB/T 39255-2020 Shielding gas for welding and cutting (ISO 14175.2008, MOD)

3.1 Model division

The type of welding wire is classified according to the welding method, the mechanical properties of the deposited metal, the state after welding, the type of shielding gas and the chemical composition of the welding wire.

Refer to Appendix C for the comparison of solid welding wire types between this standard and other related standards.

3.2 Model preparation method

The welding wire model consists of five parts.

1) Part 1. Use the letter "G" to indicate solid wire for MIG welding, and "W" for tungsten inert gas shielded wire

Solid filler wire for arc welding;

2) The second part. indicates the code for the tensile strength of the deposited metal under the conditions of welding and post-weld heat treatment, see Table 1;

3) The third part. indicates the test temperature code when the impact absorption energy (KV2) is not less than 27J, see Table 2;

4) Part 4. Represents the code of the protective gas type, and the code of the protective gas type is in accordance with the provisions of GB/T 39255; when the first part is