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

GB/T 13814-2025

Replacing GB/T 13814-2008

**Covered electrodes for manual metal arc welding of nickel and
nickel alloys**

镍及镍合金焊条

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document replaces GB/T 13814-2008 Nickel and Nickel Alloy Welding Rods. Compared with GB/T 13814-2008, except for the structural adjustment and In addition to the logical changes, the main technical changes are as follows.

- a) Added ENi6056, ENi6172, ENi6045, ENi6055, ENi6093B, ENi6132, ENi1069B, ENi Chemical composition and tensile property requirements for 12 models, including 1362, ENi6007, ENi6035, ENi6058 and ENi6117B (See 5.3 and 5.4);
- b) Some chemical composition requirements have been modified (see 5.3, 4.4 of the 2008 edition);
- c) The provisions for sample preparation of deposited metal chemical composition and arbitration test methods have been changed (see 6.3, 5.2 of the 2008 edition);

- d) The requirements for the thickness of the weld overlay isolation layer have been changed (see 6.4.1, 5.1.1 of the 2008 edition);
- e) The test specimen preparation requirements have been changed (see 6.4.2, see 5.3.1 of the 2008 edition);
- f) The tensile test requirements have been changed (see 6.4.3, see 5.3.2 of the 2008 edition);
- g) Added the rules on amendment (see Chapter 7);
- h) The inspection rules have been changed (see Chapter 8, see Chapter 6 of the 2008 edition);
- i) The requirements for "packaging, marking and quality certificate" have been deleted (see Chapter 7 of the 2008 edition);
- j) Added the requirements for "Technical Supply Conditions" (see Chapter 9).

This document is modified to adopt ISO 14172:2023 "Welding materials - Classification of electrodes for manual metal arc welding of nickel and nickel alloys".

Compared with ISO 14172:2023, this document has many structural adjustments. The structural number changes between the two documents are shown in the table below. See Appendix A; This document has many technical differences compared to ISO 14172:2023.

A list of these technical differences and their reasons is given in Appendix B. The following editorial changes have been made to this document.

--- To coordinate with the existing standard, the name of the standard is changed to "Nickel and Nickel Alloy Welding Rods";

---The chemical composition code of Ni6062, NiCr15Fe8NbMo, is changed to NiCr15Fe8Nb. There is no requirement for Mo content;

--- Deleted Appendix A (informative) welding material naming system, and expressed the relevant content in 4.2 and Appendix C.1;

--- Deleted the DIN1736:1985 model comparison in Appendix C (informative) welding rod model comparison, updated AWSA5.11/ Models of A5.11M.2018 and JISZ3224:2010;

1 Scope

This document specifies the types, technical requirements, test methods, rounding rules, inspection rules and supply technical conditions of nickel and nickel alloy welding rods.

This document applies to nickel and nickel alloy electrodes for stick arc welding (hereinafter referred to as "electrodes").

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 2652 Destructive tests on welds of metallic materials - Longitudinal tensile test of weld metal in fusion welded joints (GB/T 2652-2022, ISO 5178:2019, IDT)

GB/T 3323.1 Non-destructive testing of welds - Radiographic testing - Part 1: Film techniques using X-ray and gamma rays (GB/T 3323.1-2019, ISO 17636-1:2013, MOD)

GB/T 3375 Welding terminology

GB/T 5185 Welding and related process code (GB/T 5185-2005, ISO 4063:1998, IDT)

GB/T 8170-2008 Rules for rounding off values and expression and determination of limit values

GB/T 25774.1-2023 Inspection of welding materials Part 1: Preparation of test specimens for mechanical properties of steel, nickel and nickel alloy deposited metal (ISO 15792-1:2020, MOD)

GB/T 25775 Technical conditions for supply of welding consumables - Product types, dimensions, tolerances and markings (GB/T 25775-2010, ISO 544:2003, MOD)

GB/T 25777 Welding materials - Preparation of deposited metal chemical analysis samples (GB/T 25777-2010, ISO 6847:2000, IDT)

GB/T 25778 Welding Consumables Procurement Guide (GB/T 25778-2010, ISO 14344:2010, MOD)

GB/T 37910.1-2019 Acceptance levels for non-destructive testing of welds by radiographic testing - Part 1: Steel, nickel, titanium and their alloys (ISO 10675-1:2016, MOD)

3 Terms and Definitions

The terms and definitions defined in GB/T 3375 and GB/T 5185 apply to this document.

4.1 Model Classification

Welding rod models are classified according to the chemical composition of the deposited metal. Instructions for use of welding rods are given in Appendix C. This document and other relevant standards for welding rods See Appendix D for model comparison.