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

**GB/T 14987-2016**

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**Iron-nickel soft magnetic alloy cold-rolled strips with high  
hardness and high electrical resistance  
(English Translation)**

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## Table of Contents

|                                                 |    |
|-------------------------------------------------|----|
| Foreword...                                     | 3  |
| 1 Scope...                                      | 5  |
| 2 Normative references...                       | 5  |
| 3 Classification and code...                    | 6  |
| 4 Order content...                              | 7  |
| 5 Size and shape...                             | 7  |
| 5.1 Size and allowable deviation...             | 7  |
| 5.2 Shape...                                    | 8  |
| 6 Technical requirements...                     | 8  |
| 6.1 Designation and chemical composition...     | 8  |
| 6.2 Smelting method...                          | 8  |
| 6.3 Delivery status...                          | 8  |
| 6.4 Magnetic properties...                      | 9  |
| 6.5 Resistivity...                              | 10 |
| 6.6 Vickers hardness...                         | 10 |
| 6.7 Surface quality...                          | 11 |
| 7 Test method...                                | 11 |
| 8 Inspection rules...                           | 12 |
| 8.1 Inspection and acceptance...                | 12 |
| 8.2 Batching rules...                           | 12 |
| 8.3 Sampling quantity and sampling location...  | 12 |
| 8.4 Re-inspection and judgment rules...         | 12 |
| 9 Packaging, marking and quality certificate... | 13 |

### Foreword

This standard was drafted in accordance with the rules given in GB/T

1.1-2009.

This standard replaces GB/T 14987-1994 "High permeability alloys with high hardness and high electrical resistance".

As compared with GB/T 14987-1994, the main technical changes of this

standard are as follows.

- CHANGE the standard name into "Iron-nickel soft magnetic alloy cold-rolled strips with high hardness and high electrical resistance";
  - ADD the "order content" (SEE Chapter 4);
  - MODIFY the lower limit of strip thickness to 0.04 mm (SEE 5.1);
  - CHANGE the thickness deviation from negative deviation to positive and negative deviation (SEE 5.1);
  - ENLARGE the maximum width of the strip to 220 mm and 300 mm, respectively (SEE 5.1);
  - IMPROVE the requirement strictness for strip roughness (SEE 5.2.1);
  - DELETE the requirements for the roll inner diameter (SEE 1.4 of 1994 version);
  - ADD the requirements for trimming burrs (SEE 5.2.2);
  - DELETE three designations "1J89", "1J90" and "1J91" (SEE 2.1 of 1994 version);
  - MODIFY the Mn content of 1J88 to 0.3% ~ 0.6% (SEE 6.1);
  - ADD the delivery status of "annealed soft" (SEE 6.3);
  - MODIFY the magnetic performance requirements; UNIFY the magnetic properties physical units into the international unit system (SEE 6.4);
  - ADD the hardness requirements; MAKE specifications respectively based on hard state and soft state (SEE 6.6);
- Iron-nickel soft magnetic alloy cold-rolled strips with high hardness and high electrical resistance

## 1 Scope

This standard specifies the classification and code, order content, size, shape, technical requirements, test methods, inspection rules, packaging, marking and quality certificate of 1J87 and 1J88 iron-nickel soft magnetic alloys.

This standard applies to the 1J87, 1J88 alloy cold rolled strip used to produce

magnetic components with abrasion resistance (hereinafter referred to as alloy strip), such as. audio head sensor chip, ATM machine head, currency detector head, special transformers, and sensors components and so on.

## 2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this Standard.

GB/T 223.5 Methods for chemical analysis of iron, steel and alloy - The reduced molybdosilicate spectrophotometric method for the determination of acid-soluble silicon content

GB/T 223.25 Methods for chemical analysis of iron, steel and alloy - The dimethyglyoxime gravimetric method for the determination of nickel content

GB/T 223.28 Methods for chemical analysis of iron, steel and alloy - The alpha-benzoin oxime gravimetric method for the determination of molybdenum content

GB/T 223.38 Methods for chemical analysis of iron, steel and alloy - Ion exchange separation-gravimetric method for the determination of niobium content

GB/T 223.59 Iron and steel alloys - Determination of phosphorus content - Bismuth phosphomolybdate blue spectrophotometric method and antimony phosphomolybdate blue spectrophotometric method

GB/T 223.63 Methods for chemical analysis of iron, steel and alloy - The sodium periodate (potassium) spectrophotometric method for the determination of manganese content

GB/T 223.79 Iron and steel - Determination of multi-element contents - X-ray fluorescence spectrometry (routine method)

GB/T 223.85 Steel and iron - Determination of sulfur content - Infrared

absorption method after combustion in an induction furnace

GB/T 223.86 Steel and iron - Determination of total carbon content - Infrared

absorption method after combustion in an induction furnace

GB/T 3658 Methods of measurement of AC magnetic properties of magnetically soft materials

GB/T 4340.1 Metallic materials - Vickers hardness test - Part 1. Test method

GB/T 6146 Test method for resistivity of precision resistive alloys

GB/T 13012 Methods of measurement of DC magnetic properties of magnetically soft materials

GB/T 20066 Steel and iron - Sampling and preparation of samples for the determination of chemical composition

GB/T 20123 Steel and iron - Determination of total carbon and sulfur content - Infrared absorption method after combustion in an induction furnace (routine method)

GB/T 20125 Low-alloy steel - Determination of multi-element contents - Inductively coupled plasma atomic emission spectrometric method

YB/T 5242 General rules of packaging, marking, and quality certification for precision alloys

### 3 Classification and code

The alloy is divided as follows based on the delivery status.

- a) Cold-rolled hard state H;
- b) Annealed soft state S.

be measured with the measuring gauge of minimum scale value of 0.001 mm; the alloy strip width shall be measured with the measuring gauge of minimum scale value of 0.01 mm; AND the alloy camber measurement methods. CUT a

**1000 mm length finished strip and PLACE horizontally on the platform;**

ATTACH the steel plate ruler to the concave edge of the strip width side, to