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

GB/T 37797-2019

Precision alloys - Designation

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Table of Contents

- 1 Scope
- 2 Normative references
- 3 Classification and definition
- 4 Brand representation
- 4.2 The first digit indicates the type of precision alloy, ie. 1

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard was proposed by the China Iron and Steel Association. This standard is under the jurisdiction of the National Steel Standardization Technical Committee (SAC/TC183). This standard was drafted. Metallurgical Industry Information Standards Institute, Iron and Steel Research Institute, Northeast Special Steel Group Co., Ltd., Antaike Technology Co., Ltd., Beijing Shougang Jitaian New Materials Co., Ltd., Beijing Beili Functional Materials Co., Ltd., Baosteel Special Steel Co., Ltd., China National Institute of Launch Vehicle Technology, China Shipbuilding Industry Corporation Seventh Research Institute. The main drafters of this standard. Yan Yan, Yan Yuming, Zhang Jinglin, Xu Xiaoping, Li Jun, Tang Yushi, Ren Fuquan, Shen Yi, Yu Yipeng, Xi Lintao, Li Dongdong, Liu Xiaodong, Wang Xinhe. Precision alloy grade

1 Scope

China's national standard establishing the principles for classifying precision alloy systems and naming their grades. Precision alloys are those bought for a specific physical property rather than for strength: the soft magnetic alloys used in transformer and sensor cores, the permanent magnet alloys, the elastic alloys whose modulus does not change with temperature, the expansion alloys made to match the thermal expansion of glass or ceramic for a seal, the thermocouple and resistance alloys, and the shape memory alloys. What they have in common is that the property is produced by a precise composition and an equally precise thermal and mechanical history, and that a small departure in either destroys it. A designation system for them therefore has to encode the family and the property class rather than only the composition, which is what distinguishes this from an ordinary alloy naming standard.

This standard establishes the general principles for the classification of precision alloy systems and the naming of grades. This standard applies to the naming of precision alloy grades and the general provisions of the chemical composition of each grade.

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 edition (including all amendments) applies to this document.

GB/T 4461 hot bimetal strip

3 Classification and definition

According to the main physical properties of the alloy, the precision alloys are divided into six categories.

- a) soft magnetic alloy. ferromagnetic or ferrimagnetic alloy with a coercivity lower than several hundred amperes per meter;
- b) deformed permanent (hard) magnetic alloy. a ferromagnetic or ferrimagnetic alloy having a coercive force greater than 1000 A/m;
- c) Elastomeric alloys. alloys with specific elastic properties;
- d) an expanded alloy. an alloy having a specific coefficient of thermal expansion of the line;
- e) thermal bimetal. a composite material consisting of two or more layers of metals or alloys having different coefficients of thermal expansion of the wire;
- f) Precision resistance alloy. The absolute value of the temperature coefficient of resistance and the resistance alloy with small absolute value of copper thermoelectromotive force and good stability.

4 Brand representation

4.1 Precision alloy grades are combined with Arabic numerals and the Chinese phonetic alphabet "J" (the first letter of the "fine" Chinese phonetic alphabet "jing") The method indicates that the representation method (except hot bimetal, see GB/T 4461) is as follows:

4.2 The first digit indicates the type of precision alloy, ie. 1

---soft magnetic alloy; 2

---deformed permanent (hard) magnetic alloy; 3

---elastic alloy; GB/T 37797-2019 Precision alloys - Designation ICS

58 National Standards of People's Republic of China Precision alloy grade
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