

ICS 77.140.99

CCS H 59



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

GB/T 15007-2017

Replacing GB/T 15007-2008

Designations of corrosion-resistant alloys

耐蚀合金牌号

Issued on: September 7, 2017

Implemented on: June 1, 2018

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine;
Standardization Administration of the PRC**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard replaces GB/T 15007-2008 "Corrosion-resistant alloy grade." This standard compared with GB/T 15007-2008 main changes are as follows:

- Increasing the "pure nickel", "nickel-copper alloy" two series (see 2.2,.2008 version 2.2);
- Remove the "According to the main strengthening characteristics of the alloy" classification (2008 version 2.3);
- Increasing the "pure nickel", "nickel - copper alloy", "Corrosion resistant alloy composite plate (or tube)" brand representation (see 3.1,3.4);
- Added NS1104, NS1105, NS1106, NS1404, NS1405, NS1502, NS2401, NS3312, NS3313, 16 deformed corrosion resistant grades such as NS4102, NS4103, NS4301, NS5200, NS5201, NS6400 and NS6500 Table 1, Table 1 of the.2008 edition);
- Added HNS1402, HNS1403, HNS3101, HNS3103, HNS3106, HNS3152, HNS3154, HNS3201, HNS3202, HNS3304, HNS3306, HNS3312, HNS5206, HNS6406 and other 14 welding Corrosion-resistant alloy grades (see Table 2);
- Increasing the preparation of uniform numbering (see 3.5);
- Modify, add "deformation of corrosion-resistant alloy finished chemical composition allowable deviation" (see Table 4,.2008 edition of Table 3);
- Modify, add the deformation of the main characteristics of corrosion-resistant alloys and uses, and increased the use of welding deformation of the common anti-corrosion alloy welding side Law, main features and uses (see Appendix A, Appendix A of the.2008 edition);
- Modify, add the deformation of corrosion-resistant alloys and domestic and foreign brands control, an increase of welding with corrosion resistant alloy and domestic and foreign brands control (See Appendix B, Appendix B of the.2008 edition);
- Increased the physical properties of some of the deformation of corrosion resistant alloy

(see Appendix C). This standard is proposed by China Iron and Steel Association. This standard by the National Standardization Technical Committee Steel (SAC/TC183) centralized. This standard was drafted unit. Baosteel Special Steel Co., Ltd., Metallurgical Industry Information Standards Institute, Iron and Steel Research Institute, Yongxing special stainless steel shares Co., Ltd., Harbin Will Welding Co., Ltd. The main drafters of this standard. Ma Tianjun, Li Xiaodong, Luan Yan, Lang Yu-ping, Wang Jianyong, Xu Yong, Dai Qiang, Song Zhigang, Wu Minghua. This standard replaces the standards previously issued as.

--- GB/T 15007-1994, GB/T 15007-2008. Corrosion-resistant alloy grades

1 Scope

China's national list of corrosion-resistant alloys - the designations, the unified digital codes and the chemical composition of the alloys used where stainless steel is not enough. It specifies the designations and the chemical composition of corrosion-resistant alloys. These are the nickel-based and iron-nickel-based alloys, and the boundary between them and the stainless steels is not sharp in composition but is very sharp in what they are bought for. A stainless steel resists corrosion because chromium forms a passive oxide film; when the environment is aggressive enough to break that film down - concentrated reducing acids, hot chlorides, mixed acids, wet chlorine, high-temperature sulfidising gases - the steel fails and something with far more nickel and molybdenum is required. Those alloys cost several times what stainless does and are specified only where nothing else survives: in flue gas desulfurisation, in acid plants, in offshore and sour service, in pulp bleaching, in pharmaceutical and fine chemical reactors, and in heat-treating and petrochemical furnace internals. Because they are chosen against a specific corrosive service rather than for general use, the composition is the whole specification, and small differences decide everything: molybdenum for resistance to reducing acids and pitting, chromium for oxidising conditions, copper for sulfuric acid, tungsten, niobium and titanium for stabilisation, and tight carbon limits to keep the grain boundaries free of chromium carbides. This document is what every product standard for corrosion-resistant alloy plate, tube, bar, forging and wire refers to instead of listing the alloys itself. Issued on 7 September 2017 and in force since 1 June 2018, it replaces GB/T 15007-2008.

This standard established the corrosion resistance of the classification and naming of the general principles of the naming system. This standard applies to the corrosion-resistant alloy grades and the chemical composition of the general provisions of the chemical composition.

2 Categories

2.1 According to the basic shape of the alloy, the alloy is divided into deformation of corrosion-resistant alloys and cast corrosion-resistant alloys.

2.2 According to the basic composition of the alloy elements, the alloy is divided into.

- a) Iron-nickel based alloys - alloys with a nickel content of 30% to 50% and a sum of nickel content and iron content of not less than 60%
- b) nickel-base alloys - alloys with a nickel content of not less than 50%
- c) Pure nickel. Nickel (Cobalt plus) minimum 99.0% metal;
- d) Nickel-copper alloys - Alloys with a nickel content of not less than 50% and a sum of the nickel content and the copper content of not less than 90%.

3.1 Deformation and corrosion resistant alloy

3.1.1 Use the prefix "NS" of the Chinese phonetic alphabet ("N", "S" as the first letter of "Hanyu Pinyin" respectively) Take four Arabic numerals.

3.1.2 Symbol "NS" after the first digit indicates the classification number, that is. NS1 xxx - said that the main solution-strengthened iron-nickel-based alloys; NS2 xxx - said the main age-hardening iron-nickel-based alloys; NS3 xxx - said that the main solid solution strengthening nickel-based alloys; NS4 xxx - said the main age-hardening nickel-based alloys; NS5 xxx - that of pure nickel; NS6 xxx - said nickel-copper alloy.

3.1.3 Iron-nickel-based alloys and nickel-base alloys, the second digit after the symbol "NS" indicates different alloy serial numbers, the third and fourth digit tables Show different alloy grades sequence number. Less than two alloy number with the number "0" padded, "0" on the second digit indicates the classification number and Between the gold number. The second digit indicates the different alloy series, ie. NS x 1 xx - denotes a nickel-chromium system; NS x 2 xx - denotes a nickel-molybdenum system; NS x 3 xx - represents a nickel-chromium-molybdenum system; NS x 4 xx - represents a nickel-chromium-molybdenum-copper system; NS x 5 xx - represents a nickel-chromium-molybdenum-nitrogen system; and NS x 6 xx-represents a nickel-chromium-molybdenum-copper-nitrogen system.

3.1.4 pure nickel and nickel-copper alloy, symbol "NS" after the second, third and fourth digits that different grades of alloy grades. If and Internationally preferred brands that there is a corresponding relationship between the methods should be given priority to the international numbering method used to express the last three digits.

3.2 Deformation and corrosion resistance welding alloy The prefix "NS" is preceded by the "H" symbol ("H" is the first letter of the Chinese word pinyin) Take four Arabic numerals. The figures indicate the same meaning and deformation of corrosion-resistant alloy, and the use of deformation and corrosion-resistant alloy grades number.