



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

GB/T 38682-2020

Corrosion-Resistant Alloy Bars

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1 Scope

This Standard specifies the order content, size, shape, weight, technical requirements, test methods, inspection rules, packaging, marking and quality certificates of welded nickel-iron-chromium alloy pipes for fluid service.

This Standard is applicable to NS1101, NS1102, NS1104 welded nickel-iron-chromium corrosion-resistant alloy pipes for fluid service (hereinafter referred to as welded pipes).

Thereof, the use temperature of NS1101 welded pipe is generally no greater than 590°C; while the use temperature of NS1102 and NS1104 welded pipe is generally greater than 590°C.

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 document.

GB/T 223.3 Methods For Chemical Analysis of Iron, Steel and Alloy - The Diantipyryl Methane Phosphomolybdate Gravimetric Method for the Determination of Phosphorus Content

GB/T 223.9 Iron Steel and Alloy - Determination of Aluminum Content - Chrome Azurol S Photometric Method

GB/T 223.11 Iron, Steel and Alloy - Determination of Chromium Content - Visual Titration or Potentiometric Titration Method

GB/T 223.17 Methods for Chemical Analysis of Iron, Steel and Alloy - The Diantipyrilmethane Photometric Method for the Determination of Titanium Content

GB/T 223.18 Methods for Chemical Analysis of Iron, Steel and Alloy - The Sodium Thiosulfate Separation Iodimetric Method for the Determination of Copper Content

GB/T 223.25 Methods for Chemical Analysis of Iron, Steel and Alloy - The Dimethylglyoxime Gravimetric Method for the Determination of Nickel Content

GB/T 223.60 Methods for Chemical Analysis of Iron, Steel and Alloy - 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 37612 Corrosion-Resistant Alloy Wires for Welding

GB/T 37792 General Specification for Welded Corrosion Resistant Alloy Pipes and Tubes

NB/T 47013.2-2015 Nondestructive Testing of Pressure Equipment - Part 2.

Radiographic Testing

NB/T 47013.5-2015 Nondestructive Testing of Pressure Equipment - Part 5.

Penetrant Testing

NB/T 47013.11-2015 Nondestructive Testing of Pressure Equipment - Part 11.

Standard Practice for X-Ray Digital Radiography

3 Order Content

The contract or order placed according to this Standard shall include at least the following.

- a) The number of this Standard;
- b) Product name;
- c) Unified digital code or alloy designation;
- d) The delivered quantity (total weight or total length);
- e) Dimension and accuracy (see Clause 4);
- f) Delivery status (see 5.3);
- g) Special requirements (see 5.10).

4 Size, Shape, Weight and Allowable Deviation

The size, shape, weight and allowable deviation of the welded pipe shall conform to the

provisions of GB/T 37792.

provisions of the acceptance Level E4H or E4 in GB/T 7735-2016.

5.8.1 Welded pipes with a nominal outer diameter greater than 168.3mm shall be

subjected to full-length radiographic test of the weld seam. Radiographic test is carried out in accordance with the provisions of NB/T 47013.2-2015 or NB/T 47013.11-2015.

The test technical level shall comply with Class-AB and the quality class shall comply with Class-II.

5.8.2 According to the requirements of the purchaser, after consultation between the

supplier and the purchaser, and indicated in the contract, other radiographic test methods and acceptance requirements may also be used.

5.9.1 The surface quality of the welded pipe shall comply with the provisions of GB/T

37792.

5.9.2 After grinding the surface defects on the welded pipe, they shall be subjected to

liquid penetration inspection, and the inspection results shall meet the requirements of Grade-II in NB/T 47013.5-2015.

5.9.3 For the welded pipe manufactured by double-sided automatic welding method, the internal and external weld seams shall be aligned with the base metal or have a uniform reinforcement not exceeding 3mm.

5.9.4 For the welded pipe manufactured by the single-sided automatic welding method, the external welding seam shall be aligned with the base metal or have a uniform reinforcement not exceeding 3 mm; and the reinforcement of internal welding seam shall meet the following requirements.

- a) For the welded pipe with a nominal outer diameter of less than 219mm, it shall be no more than 10% of the wall thickness, and no more than 1.5mm;
- b) For the welded pipes with a nominal outer diameter no less than 219mm but no more than 508mm, it shall be no more than 15% of the wall thickness, and no more than 2mm;
- c) For the welded pipe with a nominal outer diameter greater than 508mm, it shall be no greater than 20% of the wall thickness, and no greater than 3mm.

5.10 Special requirements

According to the requirements of the purchaser, after consultation between the supplier and the purchaser, and the indicated in the contract, the welded pipes with the following

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