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Welded corrosion resistant alloy pipes and tubes

耐蚀合金焊管

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Welded corrosion resistant alloy pipes and tubes

1 Scope

This Standard specifies the order content, size, shape, weight, technical requirements, test methods, inspection rules, packaging, marking and quality certificates of welded corrosion resistant alloy pipes and tubes.

This Standard applies to welded corrosion resistant alloy pipes and tubes (hereinafter referred to as welded pipes) whose alloy designations are NS1101, NS1102, NS1104, NS1402, NS1403, NS3102, NS3304, NS3306, NS6400.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated version applies to this document. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 223.3, Methods for chemical analysis of iron, steel and alloy - The diantipyrylmethane phosphomolybdate gravimetric method for the determination of phosphorus content

GB/T 223.8, Methods for chemical analysis of iron, steel and alloy - The sodium fluoride separation. EDTA titration method for the determination of aluminium content

GB/T 223.11, Iron, steel and alloy. Determination of chromium content - Visual titration or potentiometric titration method

GB/T 223.13, Methods for chemical analysis of iron, steel and alloy - The ammonium ferrous sulfate titration method for the determination of vanadium content

GB/T 223.17, Methods for chemical analysis of iron, steel and alloy - The diantipyrylmethane 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 cupper content

GB/T 223.21, Methods for chemical analysis of iron steel and alloy - The 5-CL-PADAB spectrophotometric method for the determination of cobalt content

GB/T 2975, Steel and steel products. Location and preparation of samples and test pieces for mechanical testing

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

GB/T 6394, Determination of estimating the average grain size of metal

GB/T 7735-2016, Automated eddy current testing of seamless and welded (except submerged arc-welded) steel tubes for detection of imperfections

GB/T 11170, Stainless steel - Determination of multi-element contents. Spark discharge atomic emission spectrometric method (Routine method)

GB/T 15007, Designations of corrosion-resistant alloy

GB/T 15260-2016, Standard Test Method for Intergranular Corrosion of Nickel Alloys by Corrosion of Metals and Alloys

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 37612, Corrosion-resistant alloy wires for welding

GB/T 37792, General technical 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 that orders welded pipes in accordance with this Standard shall include the following information:

a) number of this Standard;

b) product name:

Welded pipes whose nominal outer diameter (D) is not greater than 168.3 mm shall be subjected to a flaring test. The test requirements shall comply with the provisions of GB/T 37792; the sample after flaring shall not have cracks or gaps.

5.5.3 Bend test on welded joints

Welded pipes whose nominal outer diameter (D) is not greater than 168.3 mm shall be subjected to a bend test on welded joints. The test requirements shall comply with the provisions of GB/T 37792; the sample after bending shall not have cracks or gaps.

5.6 Grain size

5.6.1 NS1102 and NS1104-designation welded pipes shall be examined for grain size; the average grain size shall be level 5 or thicker.

5.6.2 According to the requirements of the buyer, if it is specified in the contract, welded pipes of other designations can also be tested for grain size. The average grain size qualified level is determined by the supplier and the buyer.

5.7 Hydraulic test

5.7.1 The welded pipe shall be subjected to a hydraulic test. The test requirements shall be implemented in accordance with the provisions of GB/T 37792. For welded pipes whose nominal outer diameter is not more than 50.8 mm, it's available to use a gas tightness test to replace the hydraulic test. The test requirements shall be in accordance with the provisions of GB/T 37792.

5.7.2 The supplier may use eddy current testing to replace the hydraulic test. For eddy current testing, the artificial defects of the comparative sample tube shall comply with the acceptance level E4H or E4 in GB/T 7735-2016.

5.8 Radiographic testing

5.8.1 Welded pipes whose nominal outer diameter (D) is not greater than 168.3 mm shall be subjected to a full-length weld joint radiographic testing. The radiographic testing is carried out according to the provisions of NB/T 47013.2-2015 or NB/T 47013.11-2015. The level of inspection technology shall be in accordance with Class AB, and the quality level shall meet the requirements of Level II.

5.8.2 According to the requirements of the buyer, if it is negotiated between the buyer and the supplier AND indicated in the contract, it's also available to use other radiographic testing methods or acceptance requirements.

5.8.3 The radiographic testing may be performed before the heat treatment.

5.9 Intergranular corrosion

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