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Steel plate, sheet and strip for pressure equipments - Part 2: Non-alloy and alloy steel with specified temperature properties

承压设备用钢板和钢带 第2部分：规定温度性能的非合金钢和合金钢

(English Translation)

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Steel plate, sheet and strip for pressure equipments - Part 2: Non-alloy and alloy steel with specified temperature properties

1 Scope

This document specifies the designation representation, order information, dimension, shape, weight, technical requirements, test methods, inspection rules, packaging, marking and quality certificate of low alloy steel plates with specified low temperature properties for pressure equipment.

This document is applicable to the manufacturing of steel strips and coil cutting steel plates with a thickness of not greater than 25.4 mm at a service temperature of not lower than - 20°C, as well as single rolled steel plates with a thickness of 3 mm ~ 250 mm.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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|-------------|---|
| GB/T 223.3 | <i>Methods for chemical analysis of iron, steel and alloy - The diantipyrylmethane phosphomolybdate gravimetric method for the determination of phosphorus content</i> |
| GB/T 223.9 | <i>Iron, steel and alloy - Determination of aluminum content - Chrome azurol S photometric method</i> |
| GB/T 223.11 | <i>Iron steel and alloy - Determination of chromium content - Visual titration or potentiometric titration method</i> |
| GB/T 223.12 | <i>Methods for chemical analysis of iron, steel and alloy - The sodium carbonate separation - diphenyl carbazide photometric method for the determination of chromium content</i> |
| GB/T 223.14 | <i>Methods for chemical analysis of iron, steel and alloy - The N-benzoyl-N-phenylhydroxylamine extraction photometric method for the determination of vanadium content</i> |
| GB/T 223.17 | <i>Methods for chemical analysis of iron, steel and alloy - The diantipyrylmethane photometric method for the determination of titanium content</i> |
| GB/T 223.18 | <i>Methods for chemical analysis of iron, steel and alloy - The sodium thiosulfate separation iodimetric method for the determination of copper content</i> |

- GB/T 223.19 *Methods for chemical analysis of iron, steel and alloy - The neocuproine-chloroform extraction photometric method for the determination of copper content*
- GB/T 223.23 *Iron, steel and alloy - Determination of nickel content - The dimethylglyoxime spectrophotometric method*
- GB/T 223.26 *Iron, steel and alloy - Determination of molybdenum content—The thiocyanate spectrophotometric method*
- GB/T 223.31 *Iron, steel and alloy - Determination of arsenic content - Distillation-molybdenum blue spectrophotometric method*
- GB/T 223.37 *Iron, steel and alloy - Determination of nitrogen content - Indophenol blue spectrophotometric method after distillation separation*
- GB/T 223.40 *Iron, steel and alloy - Determination of niobium content by the sulphochlorophenol S spectrophotometric method*
- GB/T 223.47 *Methods for chemical analysis of iron, steel and alloy - The carrier precipitation-molybdenum blue photometric method for the determination of antimony content*
- GB/T 223.50 *Methods for chemical analysis of iron, steel and alloy - The phenylfluorone-CTMAB direct photometric method for the determination of tin content*
- GB/T 223.53 *Methods for chemical analysis of iron, steel and alloy - Flame atomic absorption spectrometric method for the determination of copper content*
- GB/T 223.60 *Methods for chemical analysis of iron, steel and alloy - The perchloric acid dehydration gravimetric method for the determination of silicon content*
- GB/T 223.62 *Methods for chemical analysis of iron, steel and alloy - The butyl acetate extraction photometric method for the determination of phosphorus content*
- GB/T 223.63 *Methods for chemical analysis of iron, steel and alloy - The sodium (potassium) periodate photometric method for the determination of manganese content*
- GB/T 223.67 *Iron steel and alloy - Determination of sulfur content - Methylene blue spectrophotometric method*
- GB/T 223.68 *Methods for chemical analysis of iron, steel and alloy - The potassium iodate titration method after combustion in the pipe furnace for the determination of sulfur content*
- GB/T 223.69 *Iron, steel and alloy - Determination of carbon contents - Gas-volumetric method after combustion in the pipe furnace*
- GB/T 223.75 *Iron, steel and alloy - Determination of boron content - Methanol distillation-curcumin photometric method*
- GB/T 223.76 *Methods for chemical analysis of iron, steel and alloy - The flame atomic absorption spectrometric method for the determination of vanadium content*
- GB/T 223.77 *Methods for chemical analysis of iron, steel and alloy - The flame*

	<i>atomic absorption spectrometric method for the determination of vanadium content</i>
GB/T 223.80	<i>Iron, steel and alloy - Determination of trace bismuth and arsenic contents - Hydride generation-atomic fluorescence spectrometric method</i>
GB/T 223.82	<i>Steel and iron - Determination of hydrogen content - Thermal conductivity/infrared method after fusion under inert gas</i>
GB/T 228.1	<i>Metallic materials - Tensile testing - Part 1: Method of test at room temperature</i>
GB/T 228.2	<i>Metallic materials - Tensile testing - Part 2: Method of test at elevated temperature</i>
GB/T 229	<i>Metallic materials - Charpy pendulum impact test method</i>
GB/T 232	<i>Metallic materials - Bend test</i>
GB/T 713.1	<i>Steel plate, sheet and strip for pressure equipments - Part 1: General requirements</i>
GB/T 2975	<i>Steel and steel products - Location and preparation of samples and test pieces for mechanical testing</i>
GB/T 4336	<i>Carbon and low-alloy steel - Determination of multi-element contents - Spark discharge atomic emission spectrometric method (routine method)</i>
GB/T 5313	<i>Steel plate with through-thickness characteristics</i>
GB/T 6803	<i>Test method for drop-weight test to determine nil-ductility transition temperature of ferritic steels</i>
GB/T 8650	<i>Evaluation of pipeline and pressure vessel steels for resistance to hydrogen-induced cracking</i>
GB/T 20066	<i>Steel and iron - Sampling and preparation of samples for the determination of chemical composition</i>
GB/T 20123	<i>Steel and iron - Determination of total carbon and sulfur content - Infrared absorption method after combustion in an induction furnace (routine method)</i>
GB/T 20124	<i>Steel and iron - Determination of nitrogen content - Thermal conductimetric method after fusion in a current of inert gas (routine method)</i>
GB/T 20125	<i>Low-alloy steel - Determination of multi-element contents - Inductively coupled plasma atomic emission spectrometric method</i>
NB/T 47013.3	<i>Nondestructive testing of pressure equipments - Part 3: Ultrasonic testing</i>

3 Terms and definitions

For the purposes of this document, the terms and definitions given in GB/T 713.1 apply.

4 Designation expression

The designation of carbon steel and low alloy high strength steel is expressed by the yield strength value, the initial Pinyin "Q" of the yield strength "Qu" and the initial Pinyin "R" of the pressure vessel "Rong", such as Q345R.

The designation of molybdenum steel and chrome-molybdenum steel are expressed by the average carbon content, letters of alloy elements and the first letters of Chinese phonetic alphabet for "vessel" of pressure vessels. For example, 15CrMoR.