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

GB 3531-2014

**[GB/T 3531-2014] Steel plates for low temperature pressure
vessels**

(English Translation)

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Foreword

Sub-clauses 5.1.2, 6.4.4, 6.5.2, 8.3 of this Standard are recommendatory; the rest are mandatory.

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard replaces GB 3531-2008 Low alloy steel plates for low temperature pressure vessels.

Compared with GB 3531-2008, the main technical modifications are as follows.

- modified the standard's name to "Steel plates for low temperature pressure vessels";
- added three designations. 15MnNiNbDR, 08Ni3DR and 06Ni9DR;
- tightened the control of phosphorus, sulfur (the harmful elements) in steel;
- improved the low temperature impact absorption energy of each designation.

This Standard was proposed by China Iron and Steel Industry Association.

This Standard shall be under the jurisdiction of National Technical Committee on Steels of Standardization Administration of China (SAC/TC 183).

Main drafting organizations of this Standard. Chongqing Iron & Steel Co., Ltd., Metallurgical Industry Information Standards Institute, China General Machinery Engineering Corporation, Hunan Valin Xiangtan Iron and Steel Co., Ltd., Wuhan Iron and Steel (Group) Company, Nanjing Iron and Steel Co., Ltd.

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Versions of standard substituted by this Standard are.

- GB 3531-1983, GB 3531-1996, GB 3531-2008.

Steel plates for low temperature pressure vessels

1 Scope

This Standard specifies the order content, expression method of designation, size, shape, weight and allowable deviation, technical requirements, test methods, inspection rules, packaging, marks and quality certificate of steel plates for low temperature pressure vessels.

This Standard is applicable to the steel plates of which the thickness is 5 mm ~ 120 mm for production of -196°C ~ < -20°C low temperature pressure vessels.

2 Normative references

The following referenced documents are indispensable for the application 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.

GB/T 222, Method of sampling steel for determination of chemical

composition and permissible variations for product analysis

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 223.9, Iron steel and alloy - Determination of aluminium content - Chrom azurol S photometric method

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

GB/T 223.12, Methods for chemical analysis of iron, steel and alloy - The sodium carbonate separation-diphenyl carbazide photometric method for the determination of chromium content

GB/T 223.14, Methods for Chemical Analysis of Iron, Steel and Alloy - The N-Benzoyl-N-Phenylhydroxylamine Extraction Photometric 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 223.19, 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 223.40, Iron, Steel and Alloy - Determination of Niobium Content by the Sulphochlorophenol S Spectrophotometric Method

GB/T 223.49, Methods for chemical analysis of iron, steel and alloy - Extraction separation-chlorophosphonazo mA spectrophotometric method

for the determination of the total rare earth content

GB/T 223.53, Methods for chemical analysis of iron, steel and alloy - The flame atomic absorption spectrophotometric method for the determination of copper content

GB/T 223.54, Methods for chemical analysis of iron, steel and alloy - The flame atomic absorption spectrophotometric method for the determination of nickel 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 223.68, 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 223.76, Methods for chemical analysis of iron, steel and alloy - The flame atomic absorption spectrometric method for the determination of

- a) reference to this Standard;
- b) product name;
- c) designation;
- d) delivery state;
- e) size;