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

GB/T 16270-2009

Replacing GB/T 16270-1996

**High strength structural steel plates in the quenched and
tempered condition**

高强度结构用调质钢板

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1 Scope

This document specifies the designation, the dimensions, shape, weight and permissible deviations, the technical requirements, the test methods, the inspection rules, and the packaging, marking and quality certificate for high strength structural steel plates supplied in the quenched and tempered condition.

It applies to high strength structural steel plate of thickness not exceeding 150 mm, delivered in the quenched and tempered condition - that is, after quenching followed by tempering.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this national standard. For dated references, subsequent amendments (excluding corrigenda) or revisions do not apply; parties to agreements based on this document are nevertheless encouraged to consider whether the latest editions apply. For undated references, the latest edition applies.

GB/T 222 Permissible tolerances for chemical composition of steel products · GB/T 223.5 Chemical analysis of steel and alloy - Reduced molybdosilicate spectrophotometric method for acid-soluble silicon · GB/T 223.9 Iron, steel and alloy - Determination of aluminium

content - Chrom azurol S photometric method · GB/T 223.11 Chemical analysis of iron, steel and alloy - Ammonium persulfate oxidation volumetric method for chromium · GB/T 247 Steel plates and strips - Packaging, marking and quality certificate · GB/T 709 Dimension, shape, weight and tolerance for hot-rolled steel plates and sheets · GB/T 2970 Steel plates - Method for ultrasonic testing · GB/T 17505 Steel and steel products - General technical delivery requirements · YB/T 081 Rules of rounding off for numerical values in ferrous metallurgy standards

3 Denomination methods of designation

The designation of the steel is made of three parts, in this order: the first letter of the Chinese pinyin representing the yield strength, the numerical value of the minimum yield strength, and the quality grade symbol - C, D, E or F.

4 Information required when ordering

The purchaser shall state the required information at the time of order.

5 Size, shape, weight and allowable deviation

5.1 The dimensions, shape, weight and permissible deviations of the steel plate shall comply with GB/T 709.

6 Technical requirements

6.1.1 The steel designation, the chemical composition on cast analysis and the carbon equivalent value CEV shall comply with Table 1.

6.2 The steel shall be made by the basic oxygen process or by electric furnace smelting.

6.3 The plate shall be delivered in the quenched and tempered condition - quenching followed by tempering.

6.4.1 The mechanical and processing properties of the plate shall meet the requirements of Table 2.

6.4.3 Where the plate is less than 12 mm thick, subsidiary specimens shall be used for the Charpy pendulum impact test. For thicknesses above 8 mm and below 12 mm the subsidiary specimen shall be 10 mm x 7.5 mm x 55 mm, and the result shall be not less than 75 % of the specified value.

6.5.1 Flaws, blisters, scabs, folds, inclusions and similar defects shall not be present on the plate surface, and lamination shall not be present in the plate. Where such defects occur, dressing is permitted.

6.6.1 Where agreed between purchaser and supplier and stated in the contract, each plate

may be subjected to ultrasonic testing in accordance with GB/T 2970; the testing standard and the acceptance grade shall be stated in the contract.

6.6.2 Where agreed between purchaser and supplier and stated in the contract, other special requirements may be placed on the plate.

7 Test methods

7.1 For each batch of plate, the inspection items, the number of specimens, the sampling methods and the test methods shall comply with Table 3.

7.2 The appearance of the plate shall be examined visually.

8 Inspection rules

Inspection and acceptance of the plate is the responsibility of the supplier's technical quality supervision department. The purchaser is entitled to check and inspect any of the items specified in this document or in the contract.

8.3 Where a Charpy pendulum impact result fails to meet the requirement, three further specimens shall be taken as one group from the same batch and tested.

8.4 Re-inspection and disposition of the plate shall comply with GB/T 17505.

9 Packaging, mark and quality certificate

The packaging, marking and quality certificate of the plate shall comply with GB/T 247.

10 Rounding off of numerical values

The rounding off of numerical values shall comply with YB/T 081.

11 Approximate contrast of domestic-foreign designations

The approximate correspondence between the designations of this document, those of the previous edition, and foreign or international designations is given in Appendix A.

Appendix A (informative) - Approximate contrast of domestic-foreign designations

The approximate correspondence between the designations of this document, those of the previous edition, and foreign or international designations is given in Table A.1.