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

GB/T 21237-2026

Replacing GB/T 21237-2018

Wide and heavy plate for oil and natural gas line pipe

石油天然气输送管用宽厚钢板

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7.1 Chemical composition

7.1.1 The chemical composition (smelting and product analysis) of conventional PSL1 and PSL2 steels shall conform to the provisions of Tables 2 and 3.

7.1.2 The chemical composition (smelting and product analysis) of the steel for acid-resistant steel plates shall conform to the provisions of Table A.1.

7.1.3 The chemical composition (smelting and product analysis) of the steel plates used for submarine pipelines shall conform to the provisions of Table B.1.

7.1.4 The chemical composition (smelting and product analysis) of the steel plate for pipe fittings shall conform to the provisions of Table C.1.

7.1.5 The chemical composition (smelting and product analysis) of the steel for the steel plate resistant to large deformation shall conform to the provisions of Table D.1.

7.1.6 The chemical composition (melting and product analysis) of the steel plate used for induction heating bending shall conform to the provisions of Table E.1.

7.1.7 The chemical composition (smelting and product analysis) of the steel plates used for steel pipes in the station shall conform to the provisions of Table F.1.

7.1.8 When the thickness of the steel plate is greater than

25.0 mm, its chemical composition may be determined by negotiation between the supplier and the buyer.

7.1.9 The supplier may provide only smelting analysis and carbon equivalent based on the smelting analysis, but shall ensure that the product analysis requirements are met. When the user requires additional information... When providing product analysis results, the details shall be determined through consultation between both parties.

7.1.10 Upon the buyer's request, and after consultation between the supplier and the buyer and as specified in the contract, it may be provided that the grades fall between two consecutive grades specified in this document. The chemical composition of intermediate grades shall be in accordance with the agreement and harmonized with the provisions of the two consecutive grades specified in this document.

7.2 Carbon Equivalent

7.2.1 Carbon equivalent shall be calculated as follows:

7.2.3 The carbon equivalent of acid-resistant steel plates shall conform to the requirements of Table A.1.

7.2.4 The carbon equivalent of steel plates used for submarine pipelines shall comply with the provisions of Table B.1.

7.2.5 The carbon equivalent of the steel plate used for pipe fittings shall conform to the requirements of Table C.2.

7.2.6 The carbon equivalent of steel plates resistant to large deformation shall conform to the requirements of Table D.1.

7.2.7 The carbon equivalent of the steel plate used for induction heating bends shall conform to the requirements of Table E.1.

7.2.8 The carbon equivalent of the steel plates used for steel pipes in the station yard shall comply with the provisions of Table F.1.

7.3.1 Tensile and Bending Properties

7.3.1.1 For intermediate grades that fall between two consecutive grades specified in this document and whose total elongation strength is higher than L290/X42, their... Tensile and bending properties shall be determined through negotiation between the supplier and the buyer.

7.3.1.2 The tensile and bending properties of conventional PSL1 and PSL2 steel plates shall conform to the provisions of Tables 5 and 6.

7.3.1.3 The tensile and bending properties of acid-resistant steel plates shall conform to the requirements of Table A.2.

7.3.1.4 The tensile and bending properties of steel plates used for submarine pipelines shall conform to the requirements of Table B.2.

7.3.1.5 The tensile and bending properties of steel plates used for pipe fittings shall conform to the requirements of Table C.3.

7.3.1.6 The transverse and longitudinal tensile and bending properties of steel plates

resistant to large deformation shall conform to the provisions of Table D.2 and Table D.3.

7.3.1.7 The tensile and bending properties of the steel plates used for induction heating bending shall conform to the requirements of Table E.2.

7.3.1.8 The tensile and bending properties of steel plates used for steel pipes in the station shall conform to the requirements of Table F.2.

7.3.1.9 In Tables 5 and 6, the minimum elongation after fracture when the gauge length is 50 mm is calculated according to formula (3).

7.3.2 Charpy (V-notch) impact

7.3.2.1 For conventional PSL2 steel plates, the Charpy (V-notch) impact test results shall conform to the requirements of Table 7.

7.3.4.2 The hardness (HV10) of acid-resistant steel plates should not exceed 240.

7.3.4.3 The hardness of steel plates used for submarine pipelines shall conform to the requirements of Table B.4.

7.3.4.4 As determined by the supplier and the buyer through negotiation and specified in the contract, the hardness of the steel plate used for pipe fittings shall meet the requirements of Table C.4.

7.3.4.5 The maximum permissible hardness of steel plates resistant to large deformation shall be determined through negotiation between the supplier and the buyer.

7.3.4.6 The hardness of the steel plate used for induction heating bending should conform to the requirements of Table E.2.

7.3.4.7 The hardness of the steel plates used for steel pipes in the station shall conform to the requirements of Table F.2.

7.3.4.8 For the hardness test of steel plates, a transverse section specimen shall be taken at one-quarter of the width, polished, and then tested in accordance with the provisions of GB/T 4340.1. The HV10 value should be measured, and the quality certificate should indicate the average value, but no single value should exceed the allowable value specified in the standard. The measurement points are shown in Figure 1. The number of checkpoints should be at least 9.

7.4 Metallography

7.4.1 Grain size The grain size requirements for PSL2 steel plates shall conform to the specifications in Table

10.If the supplier can guarantee this, and with the buyer's consent, grain size testing may be waived.