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GB/T 7734-2015

Substitutes GB/T 7734-2004

Method for Ultrasonic Testing of Clad Steel Plates

复合钢板超声检测方法

Issued on: December 10, 2015 **Implemented on: November 1, 2016**

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Standardization Administration of PRC.

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Forward

This Standard was drafted as per the rules specified in GB/T 1.1-2009.

This Standard replaces GB/T 7734-2004 *Method for Ultrasonic Testing of Clad Steel Plates.* Compared with GB/T 7734-2004, this Standard's major changes on technical contents are as follows:

--- This Standard's testing range is limited to "test on the combination quality of the clad surface";

--- For scanning mode, fix of 100% scanning as per the requirements is added;

--- Similarity of ultrasonic acoustic property is limited to less than ±25% of acoustic attenuation difference;

--- In unbound defect classification, the provisions of "single defect indication length may not be recorded" and "there shall not be more than two unbound areas that don't be recorded at a square meter" are added.

This Standard was proposed by China Iron and Steel Association.

This Standard shall be under the jurisdiction of National Standardization Technical Committee of Steel (SAC/TC 183).

Drafting organizations of this Standard: Central Iron and Steel Research Institute, Eddysun (Xiamen) Electronic Co., Ltd., China Metallurgical Information and Standardization Institute, and NCS Testing Technology Co. Ltd..

Chief drafting staffs of this Standard: Zhang Weijian, Fan Hong, Lin Junming, Dong Li, Liu Tao, Shen Haihong, Zhang Ke, and Jia Huiming.

The previous editions replaced by this Standard are as follows:

--- GB 7734-1978, GB/T 7734-2004.

Method for Ultrasonic Testing of Clad Steel Plates

1 Scope

This Standard specifies the general requirements, testing methods, comparison specimen, testing equipment and commissioning of the method for ultrasonic testing of clad steel plates; the evaluation and classification of the unbounded portion, and etc.

This Standard is applicable to test for combination quality of clad surface between explosive welding clad steel plate and the rolling clad steel plate with substrate thickness of more than 4mm. The ultrasonic testing of the clad steel plate with other specifications can also refer to this Standard.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this Standard.

GB/T 2970-2016 Method for Ultrasonic Testing of Thicker Steel Plates

JB/T 10061 Commonly Used Specification for A-mode Ultrasonic Flaw Detector Using Pulse Echo Technique

3 General Requirements

3.1 Surface of the tested plate is required to be flat, smooth, uniformly thick, and not to have liquid droplets, grease, corrosion, or other contaminants.

3.2 Internal texture of the tested plate is required not to generate the interference echo that may influence the test during the testing process.

3.3 Testing site is required to avoid the bright light, strong magnetic field, strong vibration, corrosive gas, severe dust, the factors of which may influence the stability of ultrasonic flaw detector, and the reliable observation of the testing personnel.

3.4 Plate's ultrasonic testing personnel is required to hold the Level I and above qualification certificate of ultrasonic flaw detection, while the personnel signing the

>100	Difference with substrate thickness of clad steel plate is no more than ±20%

6 Testing Equipment and Commissioning

6.1 Testing equipment

6.1.1 Testing equipment consists of flaw detector, probe, and other necessary auxiliary device.

6.1.2 Flaw detector: the performance of flaw detector shall conform to the provisions of JB/T 10061.

6.1.3 Probe: single or dual crystal straight probe can be selected. The performance of dual crystal straight probe shall meet the requirements of Appendix A in GB/T 2970-2016.

6.2 Testing condition

6.2.1 Testing time

The test of rolled clad steel plate can be implemented when the clad steel plate is prepared; while the initial test of explosive welding clad steel plate can be implemented when the clad steel plate is molded, and the final test can be implemented after the thermal treatment, leveling, shearing or cutting actions.

6.2.2 Testing surface

Generally, the testing surface shall be the original manufacture surface, which shall be clean and tidy and not influence the test results.

6.2.3 Selection of testing surface

According to the acoustic impedance, surface state, and shape of clad steel plate, the test is determined to be carried out from one side of the clad steel plate or of the substrate; however, when the thickness of clad steel plate is 3mm and less, then the test must be carried out from one side of the clad steel plate.

6.3 Commissioning of flaw detector

6.3.1 Determination and adjustment of test sensitivity

The determination of test sensitivity shall be subject to the comparison specimen. The selection of test sensitivity, probe frequency, and diameter shall refer to Table 3.

8 Evaluation of Results

The classification evaluation shall be implemented as per the test results of the clad steel plate; the supplier can treat or maintain the disqualified clad steel plate, re-test after the maintenance; only when it is tested qualified, can it be conducted for classification evaluation.

9 Test Report

Test report shall contain the following contents:

a) Model, specification, thickness and quantity;

b) Flaw detector model, probe type and specification, and testing surface;

c) Testing standard, and sensitivity determination method;

d) Test results, and classification;

e) Test date, signatures from the operator and personnel signing the report, and etc.

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