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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 23905-2009

Non-destructive testing - Blocks for ultrasonic testing

无损检测 超声检测用试块

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Standardization Administration of the PRC

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Foreword

Appendix A of this standard and Appendix B is an informative annex. The standard non-destructive testing by the National Standardization Technical Committee (SAC/TC56) and focal points. This standard was drafted. Shandong Jining Mould Factory (Ji Ning Ruixiang mold limited liability company), Shanghai Institute of Materials, Shanghai engineering material Material Evaluation Laboratory, Shanghai Suzhou US detection equipment Kodak Co., Ltd. Shanghai on wood electromagnetic Equipment Co., Ltd. Shanghai Pan Asia No Loss Detection Technology Co., Ltd. The main drafters of this standard. Weizhong Rui, Jin Yufei, Mi Zhongyu, Li Li, Zhao Xiong Shu ice. NDT ultrasonic testing with test block

1 Scope

China's national standard for the reference blocks used in ultrasonic testing. It specifies the types, the materials, the dimensions, the manufacture, the verification and the marking of ultrasonic reference blocks. Ultrasonic testing is comparative and it cannot be done without blocks. The instrument has no absolute scale: what it displays is an echo amplitude and a time, and turning those into a defect size at a depth requires the equipment, the probe and the material to be characterised first against known reflectors at known positions. That is what a block is - a piece of material of controlled acoustic properties containing machined reflectors whose geometry is defined, against which the range is calibrated, the sensitivity is set, the probe's beam index and angle are found and its beam profile is measured. Everything an operator subsequently reports is referred back to that setting, so a block that is wrong makes every result from it wrong in the same direction, invisibly. Hence a standard for the blocks themselves rather than a paragraph in each test method. It covers the calibration blocks used to set range and angle, the reference blocks carrying side-drilled holes, flat-bottomed holes and notches for sensitivity setting and for distance-amplitude correction, and the specialised forms. And it specifies what makes them valid: the material

and its acoustic velocity and attenuation, which must match the material being tested closely enough; the freedom of the block itself from discontinuities; the dimensional tolerances on the reflectors, which are tight because the reflector size is the reference; the surface finish; and the verification and re-verification of blocks in service, since they wear and corrode. Issued on 26 May 2009 and in force since 1 December 2009.

This standard specifies the use of ultrasonic test block (referred to as the ultrasonic test block) classification testing, technical requirements and test methods. This standard applies to type test and ultrasound test blocks factory inspection. This standard can also be ordered as a user acceptance basis. This standard applies to steel test block test block can refer to other materials to use.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 699-1999 quality carbon structural steel

GB/T 12604.1 Terminology for nondestructive testing Ultrasonic testing (GB/T 12604.1-2005,

ISO 5577.2000, Non-destructivetesting-Ultrasonicinspection-Vocabulary, IDT)

GB/T 19001 quality management system requirements (GB/T 19001-2008, ISO 9001.2008, IDT)

GB/T 27025 testing and calibration laboratories General requirements (GB/T 27025-2008, ISO / IEC 17025.2005, IDT)

GB/T 23900 material NDT ultrasonic velocity measurement

GB/T 23908 NDT direct contact ultrasonic pulse echo detection method Immersed ultrasonic pulse longitudinal wave reflection detection method

GB/T 23912 Nondestructive Testing

3 Terms and Definitions

GB/T 12604.1 and established the following terms and definitions apply to this standard.

3.1 Artificial surface of the opening test block is not continuous, the cross-sectional shape of a rectangular, U-shaped and V-shaped (see Figure 1).

a) rectangular slots

b) U-shaped notch

c) V-shaped notch Sectional shape Figure 1 notch Category

4 Ultrasonic test block can be classified as follows:

a) By using the function, ultrasonic test block can be divided into.

--- Standard test blocks (or calibration block);

--- Reference blocks (or test block). NOTE. By definition GB/T 12604.1-2005, the standard test blocks (or calibration block) refers to a predetermined chemical composition, surface roughness, heat treatment Geometry and mass of material that can be used to assess and calibrate ultrasonic testing equipment; reference block (or test block) refers to the subject member (subject Workers