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

GB/T 39242-2020

**Non-destructive testing. Ultrasonic testing. Sensitivity and
range setting**

无损检测 超声检测 灵敏度和范围设定

(English Translation)

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Foreword

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

This standard uses the redrafting method to modify and adopt ISO 16811:2012 "Non-destructive testing ultrasonic testing sensitivity and range setting".

Compared with ISO 16811:2012, the main technical differences and their reasons are as follows.

--- Regarding normative reference documents, this standard has made adjustments with technical differences to adapt to my country's technical conditions and adjustments.

The situation is collectively reflected in Chapter 2 "Normative Reference Documents", and the specific adjustments are as follows.

- Replace ISO 2400 with GB/T 19799.1 which is equivalent to the international standard (see 4.2.1, 5.2, 5.4.1, 5.4.2, 6.4.2);

- Replace ISO 7963 with GB/T 19799.2 which is equivalent to the international standard (see 4.2.1, 5.2, 5.4.1, 6.4.2);

---According to the current domestic technology, the technical content of 3.4.5 "Reshaping

of the probe in use" is added;

---According to ISO 16811:2012 cited EN583-2:2001 Appendix B, supplemented Table B.1 "Requirements for horizontal holes" for DDSR requirements, modified Table B.2;

---Based on theoretical derivation and verification, the formula (C.2), formula (C.3), formula (C.5) and formula (C.6) have been modified.

This standard also made the following editorial changes.

---Adaptively adjusted the chapter number;

--- According to the standard content, the title of 3.4.4 is revised.

This standard was proposed and managed by the National Standardization Technical Committee for Nondestructive Testing (SAC/TC56).

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1 Scope

This standard specifies the baseline range and sensitivity (such as gain adjustment) when using A-scan ultrasonic detectors for manual testing.

The general rule is to ensure that the reflector position and echo height can be measured repeatedly.

This standard applies to single crystal or double crystal single probe contact technology, not applicable to liquid immersion technology and multi-probe technology.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this document.

For undated references, the latest version (including all amendments) applies to this document.

GB/T 19799.1 Non-destructive testing Ultrasonic testing No. 1 calibration test block GB/T 19799.2 Non-destructive testing Ultrasonic testing No. 2 calibration test block EN12668-3 Non-destructive testing. Performance and inspection of ultrasonic testing equipment. Part 3:

Combined system

3.1 Symbols and definitions

Symbols and definitions, see Appendix A.

3.2 The test piece, reference test block and reference reflector the geometric characteristics requirements of common test pieces, reference test blocks and reference reflectors are shown in Appendix B.

3.3 Classification of inspected parts

The time base range and sensitivity settings depend on the geometric characteristics of the inspected part. Table 1 defines 5 categories of inspected parts.