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

GB/T 19799.4-2026

Replacing GB/T 39432-2020

**Non-destructive testing - Ultrasonic testing block - Part 4:
Standard block for step wedge**

无损检测 超声检测试块 第4部分：阶梯标准试块

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 4 of GB/T 19799 "Nondestructive Testing - Ultrasonic Testing Blocks". GB/T 19799 has published the following...

part.

---Part 1: Standard Test Block No. 1;

---Part 2: Standard Test Block No. 2;

---Part 3: Standard Test Blocks for Curved Surface Testing;

---Part 4: Stepped Standard Test Blocks this document replaces GB/T 39432-2020 "Nondestructive Testing - Ultrasonic Testing - Stepped Specimen Blocks" and is consistent with GB/T 39432-2020.

Compared to previous versions, aside from structural adjustments and editorial changes, the main technical changes are as follows.

a) Requirements for changing terms and definitions have been revised (see Chapter 3, Chapter 3 of the 2020 edition);

b) Added requirements for verifying material homogeneity and measuring vertical sound velocity on rectangular test blocks (see 4.3);

c) The preparation of the semi-finished test block was modified, ultrasonic testing was used to confirm that the semi-finished test block had no internal discontinuities, and the ultrasonic longitudinal wave was measured before finishing.

Requirements for the speed of sound (see 4.3, Chapter 7 of the 2020 edition);

d) The requirements for determining the longitudinal wave velocity in the Declaration of Conformity have been changed [see 5b), 9b of the 2020 edition].

This document adopts ISO 16946:2024 "Nondestructive testing - Ultrasonic testing - Standard test block".

The following minimal editorial changes have been made to this document.

---To adapt to domestic technology applications, the standard name has been changed to "Nondestructive Testing Ultrasonic Testing Blocks Part 4: Stepped Standard Test Blocks"

---Added notes on the domestic material grades corresponding to the test block preparation materials (see 4.1).

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the National Technical Committee on Standardization of Nondestructive Testing (SAC/TC56).

Introduction

Ultrasonic testing blocks are divided into standard blocks, comparison blocks, and test blocks.

GB/T 19799, "Ultrasonic Test Blocks for Nondestructive Testing," aims to standardize ultrasonic test blocks. GB/T 19799 is proposed to consist of four parts.

constitute.

---Part 1: Standard Specimen No. 1. The purpose is to specify the dimensions, materials, and manufacturing requirements of Standard Specimen No. 1.

---Part 2: Standard Specimen Block No. 2. The purpose is to specify the dimensions, materials, manufacturing requirements, and usage of the standard specimen block No. 2.

Methods for setting up and verifying ultrasonic testing equipment.

---Part 3: Standard Surface Testing Blocks. The purpose is to specify the dimensions, materials, and fabrication requirements of standard surface testing blocks.

The method of using test blocks to verify the performance of curved surface probes and the sound velocity of materials.

---Part 4: Stepped Standard Specimen. The purpose is to specify the dimensions, materials, and fabrication requirements for stepped standard specimens.

This document is Part 4 of GB/T 19799, which specifies the technical requirements for

stepped standard test blocks. This review is based on GB/T 39432-2020.

Revising and establishing the GB/T 19799 ultrasonic testing block standard system will promote the standardization of ultrasonic testing blocks and ensure product quality and service.

Non-destructive testing ultrasonic test block Part 4: Stepped Standard Test Blocks

1 Scope

This document specifies the dimensions, materials, and fabrication of the steel stepped standard test block (hereinafter referred to as the test block) used for adjusting ultrasonic testing equipment.

Require.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

ISO 2400 Non-destructive testing - Ultrasonic testing standard block No. 1 Note. GB/T 19799.1-2026 Nondestructive testing - Ultrasonic testing blocks - Part 1: Standard block No. 1 (ISO 2400:2025, IDT) ISO 5577 Non-destructive testing - Ultrasonic testing - Vocabulary Note. GB/T 12604.1-2020 Nondestructive Testing Terminology - Ultrasonic Testing (ISO 5577:2017, MOD) EN10025-2 Hot-rolled structural steel products - Part 2: Technical delivery conditions for non-alloy structural steel products

3 Terms and Definitions

The terms and definitions defined in ISO 5577 apply to this document.

4.1 Steel

The test blocks should be made of steel grade S355J0 or equivalent steel as specified in EN10025-2.

4.2 Dimensions

a) The dimensions of the stepped standard test block should conform to Figure 1;

Note: The CAD file for the stepped standard test block can be downloaded from

<https://standards.iso.org/iso/16946/ed-3/en>.

- b) The tolerance for the length and width of the stepped standard test block is ± 0.1 mm;
- c) When the step thickness is not greater than 12.5 mm, the thickness limit deviation is -0.02 mm; when the step thickness is greater than 12.5 mm, the thickness limit deviation is -0.02 mm.

The tolerance limit is -0.1 mm;

- d) All outer surfaces of the stepped standard test block shall be machined to a roughness (Ra) not greater than 0.8 μm ;