International Standard

ISO 16946

Non-destructive testing — Ultrasonic testing — Specification for a step wedge standard block

Essais non destructifs — Contrôle par ultrasons — Spécifications relatives au bloc étalon à gradins

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Foreword

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This document was prepared by Technical Committee ISO/TC 135, *Non-destructive testing*, Subcommittee SC 3, *Ultrasonic testing,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 138, *Non-destructive testing,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 16946:2017), which has been technically revised.

The main changes are as follows:

— the term “calibration block” is replaced by “standard block”;

— Figure 1 is modified;

— a link to a CAD file of the step wedge standard block is added;

— the structure of Clause 4 is aligned with ISO 2400 and ISO 7963.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

A step wedge standard block makes it possible, during practical testing, to check the setting of the time base and the setting of the sensitivity of the ultrasonic equipment in a simple manner.

A step wedge standard block is not intended to check an ultrasonic instrument but can be used to check some characteristics of the ultrasonic instrument.

Other existing blocks are:

— Calibration block No. 1, specified in ISO 2400.

— Calibration block No. 2, specified in ISO 7963.

— Calibration block for phased array testing, specified in ISO 19675.

NOTE In the next revisions of ISO 2400, ISO 7963 and ISO 19675, the term “calibration block” will be replaced by the term “standard block”.

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Non-destructive testing — Ultrasonic testing — Specification for a step wedge standard block

1 Scope

This document specifies the requirements for the dimensions, material, and manufacture of a steel step wedge standard block for the setting of an ultrasonic instrument.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2400, *Non-destructive testing — Ultrasonic testing — Specification for calibration block No. 1*

ISO 5577, *Non-destructive testing — Ultrasonic testing — Vocabulary*

EN 10025-2, *Hot rolled products of structural steels — Part 2: Technical delivery conditions for non-alloy structural steels*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5577 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Manufacture

4.1 Steel

The step wedge standard block shall be manufactured from steel grade S355J0, specified in EN 10025-2, or from steel of an equivalent grade.

4.2 Dimensions

a) The dimensions of the step wedge standard block shall be as shown in Figure 1.

NOTE A CAD file of the step wedge standard block can be downloaded from https://standards.iso.org/iso/16946/ed-3/en.

b) The tolerances are ±0,1 mm for the length and the width of the step wedge standard block.

c) The tolerances are −0,02 mm for the step thickness up to 12,5 mm and −0,1 mm for larger step thicknesses.

d) All external surfaces shall be machined to a surface roughness value R_a not greater than 0,8 µm.

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