

Non-destructive testing - Ultrasonic testing -  
Specification for step wedge calibration block (ISO  
16946:2017)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 16946:2017 sisaldab Euroopa standardi EN ISO 16946:2017 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 16946:2017 consists of the English text of the European standard EN ISO 16946:2017.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 22.03.2017.	Date of Availability of the European standard is 22.03.2017.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

## ICS 19.100

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:  
Koduleht [www.evs.ee](http://www.evs.ee); telefon 605 5050; e-post [info@evs.ee](mailto:info@evs.ee)

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage [www.evs.ee](http://www.evs.ee); phone +372 605 5050; e-mail [info@evs.ee](mailto:info@evs.ee)

English Version

Non-destructive testing - Ultrasonic testing - Specification  
for step wedge calibration block (ISO 16946:2017)

Essais non destructifs - Essais par ultrasons -  
Spécifications relatives aux blocs d'étalonnage à  
gradins (ISO 16946:2017)

Zerstörungsfreie Prüfung - Ultraschallprüfung -  
Beschreibung des Stufenkeil-Kalibrierkörpers (ISO  
16946:2017)

This European Standard was approved by CEN on 5 February 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

## European foreword

This document (EN ISO 16946:2017) has been prepared by Technical Committee ISO/TC 135 “Non-destructive testing” in collaboration with Technical Committee CEN/TC 138 “Non-destructive testing” the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2017, and conflicting national standards shall be withdrawn at the latest by September 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 16946:2015.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### Endorsement notice

The text of ISO 16946:2017 has been approved by CEN as EN ISO 16946:2017 without any modification.

<b>Contents</b>		<b>Page</b>
<b>Foreword</b> .....		<b>iv</b>
<b>Introduction</b> .....		<b>v</b>
<b>1</b>	<b>Scope</b> .....	<b>1</b>
<b>2</b>	<b>Normative references</b> .....	<b>1</b>
<b>3</b>	<b>Terms and definitions</b> .....	<b>1</b>
<b>4</b>	<b>Dimensions</b> .....	<b>1</b>
<b>5</b>	<b>Alternative dimensions</b> .....	<b>2</b>
<b>6</b>	<b>Material</b> .....	<b>2</b>
<b>7</b>	<b>Preparation</b> .....	<b>2</b>
<b>8</b>	<b>Marking</b> .....	<b>3</b>
<b>9</b>	<b>Declaration of conformity</b> .....	<b>3</b>
<b>Bibliography</b> .....		<b>4</b>

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html)

This document was prepared by Technical Committee ISO/TC 135, *Non-destructive testing*, Subcommittee SC 3, *Ultrasonic testing*.

This second edition cancels and replaces the first edition (ISO 16946:2015), of which it constitutes a minor revision with the following changes:

- a) the normative references have been updated;
- b) [Figure 1](#) has been updated in respect of the tolerances for length and width.

## Introduction

A step wedge calibration block is not meant to check an ultrasonic instrument. A step wedge calibration block makes it possible, during practical testing, to check simply, from time to time, the setting of the time base and the sensitivity of the ultrasonic equipment.

Calibration block No. 1 is specified in ISO 2400.

Calibration block No. 2 is specified in ISO 7963.

Requests for official interpretations of any aspect of this document are to be directed to the Secretariat of ISO/TC 135/SC 3 via your national standards body, a complete listing of which can be found at [www.iso.org](http://www.iso.org).

# Non-destructive testing — Ultrasonic testing — Specification for step wedge calibration block

## 1 Scope

This document specifies the dimensions, material, and manufacture of a step wedge steel block for the calibration of ultrasonic instruments.

## 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 5577, *Non-destructive testing — Ultrasonic inspection — Vocabulary*

EN 1330-4, *Non-destructive testing — Terminology — Part 4: Terms used in ultrasonic testing*

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 and EN 1330-4 apply.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

## 4 Dimensions

The dimensions of the block are given in [Figure 1](#).

The tolerances are  $\pm 0,1$  mm for the length and the width of the block and  $-0,02$  mm for the step thickness.

All external surfaces shall be machined to an Ra value not greater than  $0,8 \mu\text{m}$ .