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**BS EN ISO 18490:2015**



**BSI Standards Publication**

# **Non-destructive testing — Evaluation of vision acuity of NDT personnel**

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This British Standard is the UK implementation of EN ISO 18490:2015.

The UK participation in its preparation was entrusted to Technical Committee WEE/46, Non-destructive testing.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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## EUROPÄISCHE NORM

June 2015

ICS 03.100.30; 11.040.70; 19.100

English Version

## Non-destructive Testing - Evaluation of vision acuity of NDT personnel (ISO 18490:2015)

Essais non destructifs - Evaluation de l'acuité visuelle du personnel END (ISO 18490:2015)

Zerstörungsfreie Prüfung - Bestimmung der Sehfähigkeit von ZfP-Personal (ISO 18490:2015)

This European Standard was approved by CEN on 12 March 2015.

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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.

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

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

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## Foreword

This document (EN ISO 18490:2015) has been prepared by Technical Committee CEN/TC 138 "Non-destructive testing", the secretariat of which is held by AFNOR, in collaboration with Technical Committee ISO/TC 135 "Non-destructive testing".

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of an identical text or by endorsement, at the latest by December 2015, and conflicting national standards shall be withdrawn at the latest by December 2015.

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.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### Endorsement notice

The text of ISO 18490:2015 has been approved by CEN as EN ISO 18490:2015 without any modification.

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## 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 meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: [Foreword — Supplementary information](#).

ISO 18490 was prepared by European Committee for Standardization (CEN) in collaboration with ISO/TC 135, *Non-destructive testing, SC 7, Personnel Qualification*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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## **Introduction**

Standards for NDT Personnel qualification and certification require that the visual acuity of inspection personnel is verified as being appropriate to their function. By meeting the near vision acuity level defined in this International Standard, such requirements of ISO 9712 and EN 4179 will be met. The purpose of this International Standard is to provide a detailed, standardised procedure for the evaluation of near vision acuity for such personnel under defined lighting conditions.

The test is not medical in nature and is intended to objectively ensure adequate near vision perception without reliance on reading ability or text identification. Because it is extremely difficult to demonstrate any equivalency in near vision tests, this International Standard has been prepared in order that an international system may be used without any need to demonstrate equivalence and is the recommended method of determining near vision acuity for NDT Personnel.

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# Non-destructive testing — Evaluation of vision acuity of NDT personnel

## 1 Scope

This International Standard specifies the form of the optotype, the quality requirements for the chart, the test procedure, and the acceptance level for near vision acuity of NDT personnel. It also addresses the qualification requirements for personnel permitted to carry out the test.

This International Standard only addresses near vision acuity under defined conditions similar to those encountered during routine NDT inspection. It does not address an individual's overall visual acuity and users are advised to consider the need for a general eye examination by specialist medical personnel to ensure general vision acuity is appropriate for job function.

This International Standard does not address colour vision requirements.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 9712, *Non-destructive testing — Qualification and certification of NDT personnel*

EN 4179<sup>1)</sup> *Aerospace series — Qualification and approval of personnel for non-destructive testing*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 9712 and EN 4179 and the following apply.

### 3.1

#### **optotype**

E shaped character of defined proportions and of various sizes that are used to verify near vision acuity

### 3.2

#### **eyewear**

any form of lens or protective transparent material placed or used between the human eye and the work piece during routine NDT inspection operations

## 4 Chart print quality

It is recognized that charts produced locally will have varying print quality and resolution. The chart design, including the two separate blocks of characters, and the procedure has been developed to ensure that meeting the defined level will demonstrate compliance. Failure to meet the defined level of acuity, in some cases, may be due to the quality of the test chart produced. Care should be exercised to ensure that the quality of the test chart is appropriate and where personnel fail to meet the required level, the quality of the chart should be reviewed before declaring that an individual has inadequate near vision.

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1) Under a Memorandum of Understanding, this is identical to NAS 410: Certification and Qualification of Non destructive Test Personnel.