Non-destructive testing - Thermographic testing - Active thermography with laser excitation

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 17501:2022 sisaldab Euroopa standardi EN 17501:2022 ingliskeelset teksti.	This Estonian standard EVS-EN 17501:2022 consists of the English text of the European standard EN 17501:2022.
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 and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 08.06.2022.	Date of Availability of the European standard is 08.06.2022.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

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

ICS 19.100

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

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English Version

Non-destructive testing - Thermographic testing - Active thermography with laser excitation

Essais non destructifs - Analyse thermographique - Thermographie active avec excitation laser

Zerstörungsfreie Prüfung - Thermografische Prüfung - Aktive Thermografie mit Laser-Anregung

This European Standard was approved by CEN on 20 April 2022.

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

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European foreword

This document (EN 17501:2022) has been prepared by 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of an identical text or by endorsement, at the latest by December 2022, and conflicting national standards shall be withdrawn at the latest by December 2022.

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

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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

1 Scope

This document specifies a method and establishes guidelines for non-destructive testing using active thermography with laser excitation.

Active thermography with laser excitation is mainly applicable, but not limited, to different materials (e.g. composites, metals, ceramics) and to:

— the detection of surface-breaking discontinuities, particularly cracks;

— the detection of discontinuities located just below the surface or below coatings with an efficiency that diminishes rapidly with a few mm depth;

— the detection of disbonds and delamination parallel to the examined surface;

— the measurement of thermal material properties, like thermal diffusivity;

— the measurement of coating thickness.

The requirements for the equipment, for the verification of the system, for the surface condition of the test object, for the scanning conditions, for the recording, the processing and the interpretation of the results are specified. This document does not apply to the definition of acceptance criteria.

Active thermography with laser excitation can be applied in industrial production as well as in maintenance and repair (vehicle parts, engine parts, power plant, aerospace, etc.).

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.

EN 12464-1, *Light and lighting - Lighting of work places - Part 1: Indoor work places*

EN 16714-1, *Non-destructive testing - Thermographic testing - Part 1: General principles*

EN 16714-2, *Non-destructive testing - Thermographic testing - Part 2: Equipment*

EN 16714-3, *Non-destructive testing - Thermographic testing - Part 3: Terms and definitions*

EN 17119, *Non-destructive testing - Thermographic testing - Active thermography*

EN ISO 9712, *Non-destructive testing - Qualification and certification of NDT personnel (ISO 9712)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16714-3 and EN 17119 and the following apply.

ISO and IEC maintain terminological 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/