EESTI STANDARD

EVS-EN 583-4:2002

Säästev läbivaatus. Ultraheliuuring. Osa 4: Pinna ristlõike läbivaatuseks

Non-destructive testing - Ultrasonic examination - Part 4: Examination for discontinuities perpendicular to the surface

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EESTI STANDARDIKESKUS

EESTI STANDARDI EESSÕNA	NATIONAL FOREWORD
Käesolev Eesti standard EVS-EN 583-4:2002 sisaldab Euroopa standardi EN 583-4:2002 ingliskeelset teksti. Käesolev dokument on jõustatud 18.10.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 583-4:2002 consists of the English text of the European standard EN 583-4:2002. This document is endorsed on 18.10.2002 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This European Standard defines the principles for tandem- and LLT[1]-examination for the detection of discontinuities perpendicular to the surface. The general principles required for the ultrasonic examination of industrial products are described in EN 583-1. A list of symbols and equations is given in EN 583-2.	**Scope:** This European Standard defines the principles for tandem- and LLT[1]-examination for the detection of discontinuities perpendicular to the surface. The general principles required for the ultrasonic examination of industrial products are described in EN 583-1. A list of symbols and equations is given in EN 583-2.

ICS 19.100

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English version

Non-destructive testing - Ultrasonic examination - Part 4: Examination for discontinuities perpendicular to the surface

Essais non destructifs - Contrôle ultrasonore - Partie 4: Contrôle des discontinuités perpendiculaires à la surface

Zerstörungsfreie Prüfung - Ultraschallprüfung - Teil 4: Prüfung auf Inhomogenitäten senkrecht zur Oberfläche

This European Standard was approved by CEN on 20 October 2001.

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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 Management Centre has the same status as the official versions.

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Contents

Foreword 3

1 Scope 4

2 Normative references 4

3 Terms and definitions 4

4 Tandem examination 4
4.1 General 4
4.2 Time base adjustment 5
4.3 Setting of sensitivity 5
4.4 Determination of examination zones 6
4.5 DGS-diagram for tandem examination 7
4.6 Corrections of sensitivity 7
4.7 Object with concentric surfaces 8

5 LLT-examination 10
5.1 General 10
5.2 Time base adjustment and determination of discontinuity depth 11
5.3 Setting of sensitivity 12
5.4 Determination of examination depth 12
5.5 DGS-diagrams for LLT-examination 14
5.6 Correction of sensitivity 14

Annex A (informative) **Nomograms for determination of tandem distances for convex (Figure A.1) and concave (Figure A.2) scanning surface** 15

Annex ZA (informative) **Clauses of this European Standard addressing essential requirements or other provisions of EU Directives.** 18

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Foreword

This document (EN 583-4:2002) 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 March 2003, and conflicting national standards shall be withdrawn at the latest by March 2003.

This standard consists of the following parts:

EN 583-1, *Non-destructive testing - Ultrasonic examination - Part 1: General principles*

EN 583-2, *Non-destructive testing - Ultrasonic examination - Part 2: Sensitivity and range setting*

EN 583-3, *Non-destructive testing - Ultrasonic examination - Part 3: Transmission technique*

EN 583-4, *Non-destructive testing - Ultrasonic examination - Part 4: Examination for discontinuities perpendicular to the surface*

EN 583-5, *Non-destructive testing - Ultrasonic examination - Part 5: Characterization and sizing of discontinuities*

ENV 583-6, *Non-destructive testing - Ultrasonic examination - Part 6: Time-of-flight diffraction technique as a method for detection and sizing of discontinuities*

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative annex ZA, which is an integral part of this document.

Annex A is informative

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This European Standard defines the principles for tandem- and LLT[1]-examination for the detection of discontinuities perpendicular to the surface.

The general principles required for the ultrasonic examination of industrial products are described in EN 583-1. A list of symbols and equations is given in EN 583-2.

The tandem- or LLT-examination should be used for the detection of planar discontinuities with distance to the surface greater than 15 mm. This standard has been prepared for the examination of metallic materials with a thickness between 40 mm and 500 mm with parallel or concentric surfaces. It can, however, be used for other materials and smaller thickness provided special measures are taken.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 583-1, *Non-destructive testing - Ultrasonic examination - Part 1: General principles.*

EN 583-2, *Non-destructive testing - Ultrasonic examination - Part 2: Sensitivity and range setting.*

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

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions of EN 1330-4 apply.

4 Tandem examination

4.1 General

The examination is normally carried out using two similar 45° angle probes, one probe operating as the transmitter and the other probe as receiver. For wall thicknesses greater than approximately 160 mm, probes with different transducer sizes are preferred in order to ensure approximately the same beam diameters in the examination zone.

The use of probe angles other than 45° may be necessary to comply with particular geometrical conditions. Probe angles that give rise to mode conversions shall be avoided.

The probes are located in a line with their acoustic axis in the same direction. In this way the sound beam from the rear probe will, after reflection from the opposite surface, intersect the sound beam from the front probe at the centre of the examination zone.

Figure 1 shows the relationship between the spacing of the probes (y) and the examination depth of the crosspoint (t_m) and the height of the examination zone (t_z).

[1] LLT means longitudinal-longitudinal-transverse wave.

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