
**Neporušitvene preiskave - Ultrazvočne preiskave - 3. del: Tehnika
prezvočenja (prevzet EN 583-3:1997 z metodo platnice)**

Non destructive testing - Ultrasonic examination - Part 3: Transmission technique

Essais non destructifs - Contrôle ultrasonore - Partie 3: Technique par
transmission

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Zerstörungsfreie Prüfung - (Ultraschallprüfung Teil 3): Durchschallungstechnik

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Deskriptorji: neporušitvene preiskave, ultrazvočne frekvence, ultrazvočni preskusi, prezvočenje, splošni podatki, metoda pregleda, metoda merjenja, primerjalna analiza

ICS 19.100

Referenčna številka
SIST EN 583-3:1999 (en)

Nadaljevanje na straneh od II do III in 1 do 12

NACIONALNI UVOD

Standard SIST EN 583-3, Neporušitvene preiskave - Ultrazvočne preiskave - 3. del: Tehnika prezvočenja, prva izdaja, 1999, ima status slovenskega standarda in je z metodo platnice prevzet evropski standard EN 583-3, Non destructive testing - Ultrasonic examination - Part 3: Transmission technique, 1997-05, v angleškem jeziku.

NACIONALNI PREDGOVOR

Evropski standard EN 583-3:1997 je pripravil tehnični odbor Evropske organizacije za standardizacijo CEN/TC 138 Neporušitvene preiskave.

Odločitev za prevzem tega standarda po metodi platnice je dne 1999-04-15 sprejel tehnični odbor USM/TC PKG Preskušanje kovinskih gradiv.

Ta slovenski standard je dne 1999-05-04 odobril direktor USM.

OPOMBI

- Povsod, kjer se v besedilu standarda uporablja izraz "evropski standard", v SIST EN 583-3:1999 to pomeni "slovenski standard".
- Nacionalni uvod in nacionalni predgovor nista sestavni del standarda.

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EUROPEAN STANDARD

EN 583-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 1997

ICS 19.100

Descriptors: non-destructive tests, ultrasonic frequencies, ultrasonic tests, transmission, generalities, inspection methods, measurements, comparison analysis

English version

Non destructive testing - Ultrasonic examination - Part 3: Transmission technique

Essais non destructifs - Contrôle ultrasonore - Zerörungsfreie Prüfung - Ultraschallprüfung
- Partie 3: Technique par transmission - Teil 3: Durchschallungstechnik

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This European Standard was approved by CEN on 1997-04-10. 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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard 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 November 1997, and conflicting national standards shall be withdrawn at the latest by November 1997.

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 imperfections perpendicular to the surface.
- EN 583-5 Non destructive testing - Ultrasonic examination - Part 5: Characterization and sizing of imperfections.
- ENV 583-6 Non destructive testing - Ultrasonic examination - Part 6: Time-of-flight diffraction technique as a method for detection and sizing of imperfections.

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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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EN 583-3:1997

1 Scope

This part of the standard specifies the principles of transmission techniques.

Transmission techniques can be used for:

- detection of imperfections;
- determination of attenuation.

The general principles required for the use of ultrasonic examination of industrial products are described in part 1 of this standard.

The transmission technique is used for examination of flat products, e.g. plates and sheets.

Further, it is used for examinations e.g.:

- where the shape, dimensions or orientation of possible imperfections are unfavourable for direct reflection;
- in materials with high attenuation;
- in thin products.

2 Normative references

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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.

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

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

3 Definitions

For the purposes of this standard the definitions in EN 1330-4 apply.

4 Principles of the examination

4.1 Basic techniques and set-up

In its simplest application two probes, one emitting and the second receiving, are placed so that the receiving probe receives the sound transmitted through the object. This can be achieved with straight beam probes or angle beam probes, see figures 5 to 8.

Alternatively, the examination can be carried out using a single probe where the sound is reflected on a surface of an object on the opposite side of the examination object or on the opposite surface of the examination object (back wall), see figures 1 to 4. See also table 1.

Table 1: Techniques and typical set-ups used in transmission technique

wave mode	continuous waves	pulsed waves
wave type	longitudinal or transverse	longitudinal or transverse
number of transducers	2	1 or 2
angle of incidence	normal	normal or oblique
evaluation of	amplitude of transmitted sound	amplitude or time of flight of transmitted pulse or echo

The decrease in amplitude of the transmitted signal can be used to indicate the presence of a discontinuity located in the sound path, or to indicate material attenuation. In addition, the position of the transmitted signal along the timebase of the instrument can be used to indicate material thickness.

Examination can be carried out with either continuous or pulsed ultrasonic waves, except when the technique is used for thickness measurement where only pulsed ultrasonic waves apply.

Straight beam or angle beam probes can be used depending on the scope of the examination.

A probe can be coupled to the product by means of a couplant, a squirter, by immersing the product or by applying a wheel probe.