
**Non-destructive testing — Ultrasonic
testing — Transmission technique**

*Essais non destructifs — Contrôle par ultrasons — Technique par
transmission*



This document is a preview generated by EVIS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2012

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principles of the examination	1
4.1 Basic techniques and set-up	1
4.2 Capability of detection of imperfections	3
4.3 Requirements for geometry and access	4
4.4 Effects of variations in coupling, angulation and alignment of probe	4
5 Examination technique	4
5.1 General	4
5.2 Sensitivity setting	4
5.3 Scanning	4
5.4 Evaluation of imperfections	4
5.5 Determination of attenuation coefficient	5

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 16823 was prepared by Technical Committee ISO/TC 135, *Non-destructive testing*, Subcommittee SC 3, *Ultrasonic testing*.

Introduction

This International Standard is based on EN 583-3:1997, *Non-destructive testing — Ultrasonic examination — Part 3: Transmission technique*.

The following International Standards are linked.

ISO 16810, *Non-destructive testing — Ultrasonic testing — General principles*

ISO 16811, *Non-destructive testing — Ultrasonic testing — Sensitivity and range setting*

ISO 16823, *Non-destructive testing — Ultrasonic testing — Transmission technique*

ISO 16826, *Non-destructive testing — Ultrasonic testing — Examination for discontinuities perpendicular to the surface*

ISO 16827, *Non-destructive testing — Ultrasonic testing — Characterization and sizing of discontinuities*

ISO 16828, *Non-destructive testing — Ultrasonic testing — Time-of-flight diffraction technique as a method for detection and sizing of discontinuities*

Non-destructive testing — Ultrasonic testing — Transmission technique

1 Scope

This International 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 ISO 16810.

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

The following referenced documents are indispensable for the application 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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5577 and 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 Table 2, e) to h).