



NSAI
Standards

Irish Standard
I.S. EN 14127:2011

Non-destructive testing - Ultrasonic thickness measurement

I.S. EN 14127:2011

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWIFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces:
EN 14127:2004

This document is based on:
EN 14127:2011

Published:
9 February, 2011

This document was published under the authority of the NSAI and comes into effect on: 9 February, 2011

ICS number:
19.100

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

English Version

Non-destructive testing - Ultrasonic thickness measurement

Essais non destructifs - Mesurage de l'épaisseur par ultrasons

Zerstörungsfreie Prüfung - Dickenmessung mit Ultraschall

This European Standard was approved by CEN on 25 December 2010.

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 CEN-CENELEC Management Centre or to any CEN member.

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.

CEN members are the national standards bodies of 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

	Page
Foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Measurement modes	5
5 General requirements.....	7
5.1 Instruments	7
5.2 Probes.....	7
5.3 Couplant	7
5.4 Reference blocks	7
5.5 Test objects	7
5.6 Qualification of personnel	8
6 Application of the technique	8
6.1 Surface conditions and surface preparation	8
6.2 Technique	8
6.2.1 General.....	8
6.2.2 Measurement during manufacture.....	9
6.2.3 In-service measurement of residual wall thickness.....	9
6.3 Selection of probe.....	9
6.4 Selection of instrument.....	10
6.5 Materials different from the reference	10
6.6 Special measuring conditions.....	10
6.6.1 General.....	10
6.6.2 Measurements at temperatures below 0 °C	11
6.6.3 Measurements at elevated temperatures	11
6.6.4 Hazardous atmospheres	11
7 Instrument setting.....	11
7.1 General.....	11
7.2 Methods	12
7.2.1 General.....	12
7.2.2 Digital thickness instruments.....	12
7.2.3 A-scan Instruments	12
7.3 Check of settings	13
8 Influence on accuracy	14
8.1 Operational conditions.....	14
8.1.1 Surface conditions.....	14
8.1.2 Surface temperature.....	14
8.1.3 Metallic coating	15
8.1.4 Non-metallic coating	15
8.1.5 Geometry	16
8.2 Equipment	17
8.2.1 Resolution	17
8.2.2 Range	17
8.3 Evaluation of accuracy.....	18
8.3.1 General.....	18
8.3.2 Influencing parameters	18
8.3.3 Method of calculation	18

9	Influence of materials	18
9.1	General	18
9.2	Inhomogeneity	18
9.3	Anisotropy	18
9.4	Attenuation	18
9.5	Surface conditions	18
9.5.1	General	18
9.5.2	Contact surface	19
9.5.3	Reflecting surface	19
9.5.4	Corrosion and erosion	20
10	Test report	20
10.1	General	20
10.2	General information	20
10.3	Inspection data	21
Annex A	(informative) Corrosion in vessels and piping	22
A.1	General	22
A.2	Measurement of general corrosion	22
A.2.1	Instrument	22
A.2.2	Probes	22
A.2.3	Setting of the instrument	22
A.2.4	Measuring	23
A.3	Measurement of corrosion with pitting	23
A.3.1	Instrument	23
A.3.2	Probes	23
A.3.3	Setting of the instrument	23
A.3.4	Measuring	23
Annex B	(informative) Instrument settings	29
Annex C	(informative) Parameters influencing accuracy	31
C.1	Parameters influencing accuracy	31
C.2	Methods of calculation	33
Annex D	(informative) Measuring technique selection	36
Bibliography	40

Foreword

This document (EN 14127:2011) 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 August 2011, and conflicting national standards shall be withdrawn at the latest by August 2011.

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.

This document supersedes EN 14127:2004, which has been editorially revised, in order to take into account the new edition of EN 1330-4:2010.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-