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NSAI Standards

Irish Standard
I.S. EN ISO 17640:2010

Non-destructive testing of welds - Ultrasonic testing - Techniques, testing levels, and assessment (ISO 17640:2010)

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This document replaces:	*This document is based on:*	*Published:*
EN 1714:1997	EN ISO 17640:2010	15 December, 2010

This document was published under the authority of the NSAI and comes into effect on: 7 January, 2011	ICS number: 25.160.40

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 17640

December 2010

ICS 25.160.40

Supersedes EN 1714:1997

English Version

Non-destructive testing of welds - Ultrasonic testing - Techniques, testing levels, and assessment (ISO 17640:2010)

Contrôle non destructif des assemblages soudés - Contrôle par ultrasons - Techniques, niveaux d'essai et évaluation (ISO 17640:2010)

Zerstörungsfreie Prüfung von Schweißverbindungen - Ultraschallprüfung - Techniken, Zulässigkeitsgrenzen und Bewertungskriterien (ISO 17640:2010)

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Foreword

This document (EN ISO 17640:2010) has been prepared by Technical Committee CEN/TC 121 “Welding”, the secretariat of which is held by DIN, in collaboration with Technical Committee ISO/TC 44 "Welding and allied processes".

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of an identical text or by endorsement, at the latest by June 2011, and conflicting national standards shall be withdrawn at the latest by June 2011.

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INTERNATIONAL STANDARD

ISO 17640

Second edition
2010-12-15

Non-destructive testing of welds — Ultrasonic testing — Techniques, testing levels, and assessment

Contrôle non destructif des assemblages soudés — Contrôle par ultrasons — Techniques, niveaux d'essai et évaluation

Reference number
ISO 17640:2010(E)

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Foreword

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ISO 17640 was prepared by the European Committee for Standardization (CEN) Technical Committee TC 121, *Welding*, Subcommittee SC 5, *Testing of welds*, in collaboration with ISO Technical Committee TC 44, *Welding and allied processes*, Subcommittee SC 5, *Testing and inspection of welds*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 17640:2005), which has been technically revised.

Requests for official interpretations of any aspect of this International Standard should be directed to the Secretariat of ISO/TC 44/SC 5 via your national standards body. A complete listing of these bodies can be found at www.iso.org.

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Non-destructive testing of welds — Ultrasonic testing — Techniques, testing levels, and assessment

1 Scope

This International Standard specifies techniques for the manual ultrasonic testing of fusion-welded joints in metallic materials of thickness greater than or equal to 8 mm which exhibit low ultrasonic attenuation (especially that due to scatter) at object temperatures from 0 °C to 60 °C. It is primarily intended for use on full penetration welded joints where both the welded and parent material are ferritic.

Where material-dependent ultrasonic values are specified in this International Standard, they are based on steels having an ultrasonic sound velocity of (5 920 ± 50) m/s for longitudinal waves and (3 255 ± 30) m/s for transverse waves.

This International Standard specifies four testing levels, each corresponding to a different probability of detection of imperfections. Guidance on the selection of testing levels A, B, and C is given in Annex A.

This International Standard specifies that the requirements of testing level D, which is intended for special applications, be in accordance with general requirements. Testing level D can only be used when defined by specification. This includes tests of metals other than ferritic steel, tests on partial penetration welds, tests with automated equipment, and tests at object temperatures outside the range 0 °C to 60 °C.

This International Standard can be used for the assessment of indications, for acceptance purposes, by either of the following techniques:

a) evaluation based primarily on length and echo amplitude of the signal indication;

b) evaluation based on characterization and sizing of the indication by probe movement techniques.

The techniques used shall be specified.

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 5817, *Welding — Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) — Quality levels for imperfections*

ISO 9712, *Non-destructive testing — Qualification and certification of personnel*

ISO 11666:2010, *Non-destructive testing of welds — Ultrasonic testing of welded joints — Acceptance levels*

ISO 23279, *Non-destructive testing of welds — Ultrasonic testing — Characterization of indications in welds*

ISO 17635, *Non-destructive testing of welds — General rules for metallic materials*

EN 473, *Non-destructive testing — Qualification and certification of NDT personnel — General principles*

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