SLOVENSKI STANDARD
SIST EN ISO 17640:2011

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Nadomešča:
SIST EN 1714:1999
SIST EN 1714:1999/A1:2003
SIST EN 1714:1999/A2:2004

Neporušitveno preskušanje zvarnih spojev - Ultrazvočno preskušanje - Tehnike, stopnje sprejemlivosti in kriteriji ocenjevanja (ISO 17640:2010)

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

Zerstörungsfreie Prüfung von Schweißverbindungen - Ultraschallprüfung - Techniken, Prüfklassen und Bewertung (ISO 17640:2010)

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

Ta slovenski standard je istoveten z: **EN ISO 17640:2010**

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25.160.40	Varjeni spoji in vari	Welded joints

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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)

This European Standard was approved by CEN on 27 November 2010.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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

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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.

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 1714:1997.

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.

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

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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 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.

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*

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

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

EN 12668 (all parts), *Non-destructive testing — Characterization and verification of ultrasonic examination equipment*

3 Symbols and definitions

3.1 For the purposes of this International Standard, the definitions given in EN 1330-4 and ISO 17635 apply.

3.2 For symbols, their definitions, and units, see Table 1.

Indications shall be considered to be either longitudinal or transverse, depending on the direction of their major dimension with respect to the weld axis, x, in accordance with Figure 2.

Table 1 — Symbols, their definitions, and units

Symbol	Definition	Unit
D_{DSR}	diameter of the disk-shaped reflector	mm
h	extension of the indication in depth direction	mm
l	length of the indication	mm
l_x	projected length of the indication in the x-direction	mm
l_y	projected length of the indication in the y-direction	mm
p	full skip distance	mm
t	thickness of parent material (thinnest part)	mm
x	position of the indication in the longitudinal direction	mm
y	position of the indication in the transverse direction	mm
z	position of the indication in depth	mm

4 Principle

The purpose of this International Standard is to describe general techniques of ultrasonic weld testing, using standard criteria, for the most commonly used welded joints at object temperatures in the range 0 °C to 60 °C. The specific requirements of this International Standard cover the equipment, preparation, performance of the testing, and reporting. The parameters specified, in particular those for the probes, are compatible with the requirements of ISO 11666 and ISO 23279.