

Non-destructive testing of welds — Ultrasonic testing of welded joints — Acceptance levels

The European Standard EN 1712:1997, with the incorporation of amendments A1:2002 and A2:2003, has the status of a British Standard

ICS 25.160.40

National foreword

This British Standard is the English language version of EN 1712:1997, including amendments A1:2002 and A2:2003.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**. Tags indicating changes to CEN text carry the number of the amendment. For example, text altered by CEN amendment A1 is indicated by **A1** **A1**.

As agreed by CEN/TC 121/SC 5 resolution 134/2000 and in accordance with amendment A1:2002, the term “examination” has been replaced by “testing” throughout the document.

The UK participation in its preparation was entrusted by Technical Committee WEE/46, Non-destructive testing, to Technical Subcommittee WEE/46/-/13, Ultrasonic examination, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

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Summary of pages

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English version

Non-destructive testing of welds — Ultrasonic testing of welded joints — Acceptance levels

(includes amendments A1:2002 and A2:2003)

Contrôle non destructif des assemblages soudés —
Contrôle par ultrasons des assemblages soudés —
Niveaux d'acceptation
(inclut l'amendement A1:2002 et A2:2003)

Zerstörungsfreie Prüfung von
Schweißverbindungen —
Ultraschallprüfung von Schweißverbindungen —
Zulässigkeitsgrenzen
(enthält Änderung A1:2002 und A2:2003)

This European Standard was approved by CEN on 1997-07-24. Amendment A1 was approved by CEN on 2002-05-01 and amendment A2 was approved by CEN on 2003-11-20. 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.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
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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 121, Welding, the Secretariat of which is held by DS.

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 February 1998, and conflicting national standards shall be withdrawn at the latest by February 1998.

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.

Foreword to amendment A1

This document EN 1712:1997/A1:2002 has been prepared by Technical Committee CEN/TC 121, Welding, the Secretariat of which is held by DS.

This amendment to the European Standard EN 1712:1997 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2002, and conflicting national standards shall be withdrawn at the latest by November 2002.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

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Foreword to amendment A2

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This amendment to the European Standard EN 1712:1997 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2004, and conflicting national standards shall be withdrawn at the latest by June 2004.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

A1 This European Standard specifies ultrasonic acceptance levels, 2 and 3, for full penetration welded joints in ferritic steels, which correspond to the quality levels B and C of EN 25817. Other acceptance levels can be used by specification. **A1**

An acceptance level corresponding to level D of EN 25817 has not been included in this standard as ultrasonic testing is not recommended for this weld quality.

These acceptance levels are applicable to testing carried out in accordance with the standards referred to in EN 12062. **A1** *Text deleted.* **A1**

The standard is applicable to the testing of full penetration ferritic steel welds, with thicknesses from 8 mm up to 100 mm. It can also be used for other types of welds, materials and thicknesses above 100 mm, provided the tests have been performed with necessary consideration of the geometry and acoustical properties of the component and an adequate sensitivity can be employed to enable the acceptance levels of this standard to be applied. The nominal frequency of probes used in this European Standard is between 2 MHz and 5 MHz unless attenuation or requirements for higher resolution call for another frequency. The use of these acceptance levels in conjunction with frequencies outside this range needs to be considered carefully.

2 Normative references

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 1714, Non-destructive testing of welds — Ultrasonic testing of welded joints.

EN 12062, Non-destructive testing of welds — General rules for metallic materials.

EN 25817, Arc-welded joints in steel — Guidance on quality levels for imperfections.

3 Evaluation of indications

3.1 General

The evaluation of indications shall be performed on indications detected by testing performed in accordance with EN 1714.

3.2 Sensitivity setting

For each scanning technique the method for sensitivity setting shall be agreed upon prior to the testing and the same method should normally be used for subsequent testing.

The setting of sensitivity may be performed by:

- method 1: 3 mm diameter side drilled holes;
- method 2: The distance gain size (DGS) system;
- method 3: If a probe angle $\geq 70^\circ$ is used for the thickness range $8 \text{ mm} \leq t < 15 \text{ mm}$ a rectangular notch with a depth of 1 mm may be used.

The length of the side drilled holes and notches shall be greater than the width of the sound beam measured at -20 dB . The width of the notch is not relevant in this application.

The acceptance levels for method 2 are based on the use of the following ultrasonic wave probes given in Table 1.