

Jootmine kõvajoodisega. Kõvajoodisliidete purustuskatsed

Brazing - Destructive tests of brazed joints

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 12797:2000 sisaldab Euroopa standardi EN 12797:2000 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.12.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 12797:2000 consists of the English text of the European standard EN 12797:2000.</p> <p>This document is endorsed on 18.12.2000 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

<p>Käsitlusala: This standard describes destructive test procedures and test piece types necessary to perform the tests on brazed joints.</p>	<p>Scope: This standard describes destructive test procedures and test piece types necessary to perform the tests on brazed joints.</p>
--	--

ICS 25.160.50

Võtmesõnad:

ICS 25.160.50

English version

Brazing

Destructive tests on brazed joints

Brasage fort – Essais destructifs des
assemblages réalisés par brasage
fort

Hartlöten – Zerstörende Prüfung von
Harlötverbindungen

This European Standard was approved by CEN on 2000-07-02.

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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Contents

	Page
Foreword	2
1 Scope	3
2 Normative references	4
3 General principles	5
4 Shear tests	6
5 Tensile tests	10
6 Metallographic examination	16
7 Hardness testing	17
8 Peel tests	19
9 Bend tests	21
Annex A (informative) Imperfections in brazed joints	29
Annex ZA (informative) Clauses of this European Standard addressing essential requirements or other provisions of EU Directives	32

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 January 2001, and conflicting national standards shall be withdrawn at the latest by January 2001.

This European Standard 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 standard.

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.

1 Scope

This European Standard describes destructive test procedures and test piece types necessary to perform the tests on brazed joints.

Brazed joints are used in a wide variety of assemblies and the design requirements placed upon these joints will also vary widely; there will usually be some level of strength required but this may not be explicitly stated and is frequently of minor importance compared to some other criterion, e.g. hermeticity. It follows that a test which measures strength may be totally irrelevant in assessing a joint for a particular application where strength is a minor consideration. This situation is made more complicated because brazed joints are almost invariably designed to be loaded in shear and the dimensions of the joint affect the shear strength to a much greater extent than they do the tensile strength. The tests described in this standard have been used successfully to give information on specific properties and where such information is needed, it is recommended that one of them be specified.

It is vital to recognise that for many fabrications none of these tests will be suitable and specific tests will have to be devised, which do yield the requisite information (which may be qualitative rather than quantitative). The destructive test methods described are as follows:

- a) shear tests (see clause 4);
- b) tensile tests (see clause 5);
- c) metallographic examination (see clause 6);
- d) hardness tests (see clause 7);
- e) peel test (see clause 8);
- f) bend tests (see clause 9).

Details of burst tests are not included as these are not commonly used on brazed joints.

The type of test piece described for each test can be quoted or incorporated in engineering applications standards that deal with brazed assemblies.

The results of the tests are used.

- 1) to determine basic data regarding filler metal performance;
- 2) to arrive at optimum brazing designs (including gaps) and brazing procedures;
- 3) to relate production results to results achieved in development

This European Standard does not recommend the number of samples to be tested or the repeat tests allowed. Neither does it specify methods of sampling brazed joints, except to give guidance regarding the precautions necessary, nor does it comment on the acceptance criteria applicable to any of the tests.

No attempt is made to define which test or tests, if any, should be applied in any situation. This is a matter to be established before any particular method of test is selected.

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 (including amendments).

EN 910	Destructive tests on welds in metallic materials - Bend tests
EN 10002-1	Metallic materials - Tensile testing - Part 1: Method of test (at ambient temperature)
EN 10003-1	Metallic materials - Brinell hardness test - Part 1 : Test method
EN 10109-1	Metallic materials - Hardness test - Part 1 : Rockwell test (scales A, B, C, D, E, F, G, H, K) and Rockwell superficial (scales 15N, 30N, 45N, 15T, 30T and 45T)
EN 12799:2000	Brazing - Non-destructive examination of brazed joints
ISO 4545	Metallic materials - Hardness test - Knoop test
ISO 5187	Welding and allied processes - Assemblies made with soft solders and brazing filler metals - Mechanical test methods
EN ISO 6507-1	Metallic materials - Vickers hardness test - Part 1: Test method (ISO 6507-1:1997)
ISO 7438	Metallic materials - Bend test