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## **Brazing - Imperfections in brazed joints**

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## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 18279:2004 sisaldab Euroopa standardi EN ISO 18279:2003 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.05.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 18279:2004 consists of the English text of the European standard EN ISO 18279:2003.</p> <p>This document is endorsed on 18.05.2004 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>
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<p><b>Käsitlusala:</b> This European Standard details a classification of imperfections that can occur in brazing joints. In addition guidance is provided on quality levels and suggested limits for imperfections are detailed. For requirements not covered by this standard, reference is to be made to other sources, e.g. statutory regulations, codes of practice and technical delivery conditions.</p>	<p><b>Scope:</b> This European Standard details a classification of imperfections that can occur in brazing joints. In addition guidance is provided on quality levels and suggested limits for imperfections are detailed. For requirements not covered by this standard, reference is to be made to other sources, e.g. statutory regulations, codes of practice and technical delivery conditions.</p>
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ICS 25.160.50

Võtmesõnad:

ICS 25.160.50

English version

Brazing  
Imperfections in brazed joints  
(ISO 18279 : 2003)

Brasage fort – Défauts dans les  
assemblages réalisés par brasage  
fort (ISO 18279 : 2003)

Hartlöten – Unregelmäßigkeiten in  
hartgelöteten Verbindungen  
(ISO 18279 : 2003)

This European Standard was approved by CEN on 2003-03-17.

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre 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 Management Centre has the same status as the official versions.

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**CEN**

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

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## Foreword

This document (EN ISO 18279:2003) has been prepared by Technical Committee CEN/TC 121 "Welding", the secretariat of which is held by DS, in collaboration with Technical Committee ISO/TC 44 "Welding and allied processes".

This European Standard EN ISO 18279:2003 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.

Annexes A and B are informative.

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.

## Introduction

Brazed joints usually contain imperfections of various types, some of which will be detrimental in almost every case but others may be detrimental or harmless, depending entirely on the service requirements of the joint in question. Therefore it will frequently be necessary to classify the imperfections in a brazed joint and then try to assess the significance of their effects on the behaviour of the joint in service. The classification is, relatively, easy and Table 1 describes the imperfections that most commonly occur. The assessment of significance is not easy (see also Annex A).

For welded joints, there has been extensive work carried out for many years on the significance of imperfections in service but such work has not been carried out on brazed joints. Moreover the work on welded joints is only rarely relevant to brazed joints, mainly because of differences in geometry and stressing. Therefore this standard cannot give definitive quality levels for brazed joints. These can only be produced as experience is gained from industrial applications. However, Annex B gives some suggestions for quality levels for general applications, which may be of help where detailed information is not available. It has to be emphasized that the use of quality levels can only be successful if the imperfections that are relevant to the application of the brazed joint are determined.

### 1 Scope

This European Standard details a classification of imperfections that can occur in brazing joints. In addition guidance is provided on quality levels and suggested limits for imperfections are detailed.

For requirements not covered by this standard, reference is to be made to other sources, e.g. statutory regulations, codes of practice and technical delivery conditions.

No information is given on how imperfections are to be assessed in individual cases because this depends on the requirements for the particular brazed joint. These imperfections are not always detectable by the use of non-destructive testing alone.

The standard covers only imperfections that can occur in connection with brazing without the effect of any additional service loads. Only the type, shape and position of such imperfections are covered; no indication is given of the conditions of occurrence or causes.

For requirements for brazed joints which are relevant and essential to the particular function of the component, reference should be made to the relevant documentation, e.g. manufacturing documents or procedure sheets.

**NOTE** It is important that these requirements be precisely prescribed and that compliance with them be verifiable. Compliance may be established by testing either the brazed assembly itself or a test piece produced under comparable conditions. The requirements should be established and fully documented before any classification is undertaken.

This European Standard does not lay down requirements for acceptance levels for imperfections since these will differ very markedly, depending on the application, but it does suggest some quality levels which may be of value in the absence of more detailed information.