

## **Non-destructive testing of steel tubes - Part 11: Liquid penetrant testing of seamless and welded steel tubes for the detection of surface imperfections**

Non-destructive testing of steel tubes - Part 11:  
Liquid penetrant testing of seamless and welded  
steel tubes for the detection of surface imperfections

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 10246-11:2000 sisaldab Euroopa standardi EN 10246-11:2000 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 08.08.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 10246-11:2000 consists of the English text of the European standard EN 10246-11:2000.</p> <p>This document is endorsed on 08.08.2000 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>
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<p><b>Käsitlusala:</b> This part of EN 10246 specifies requirements for liquid penetrant testing of seamless and welded tubes for the detection of surface imperfections according to four different test categories.</p>	<p><b>Scope:</b> This part of EN 10246 specifies requirements for liquid penetrant testing of seamless and welded tubes for the detection of surface imperfections according to four different test categories.</p>
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**ICS** 23.040.10, 77.040.20

**Võtmesõnad:**

**Hinnagrupp** F

**English version**

**Non-destructive testing of steel tubes**

**Part 11: Liquid penetrant testing of seamless and welded steel tubes  
for the detection of surface imperfections**

Essais non destructifs des tubes en  
acier – Partie 11: Contrôle par  
ressuage des tubes en acier sans  
soudure et soudés pour la détection  
d'imperfections de surface

Zerstörungsfreie Prüfung von Stahl-  
rohren – Teil 11: Eindringprüfung  
nahtloser und geschweißter Stahl-  
rohre zum Nachweis von Ober-  
flächenfehlern

This European Standard was approved by CEN on 1999-12-25.

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**

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## FOREWORD

This European Standard has been prepared by Technical Committee ECISS/TC 29 "Steel tubes and fittings for steel tubes", the secretariat of which is held by UNI.

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 August 2000, and conflicting national standards shall be withdrawn at the latest by August 2000.

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 Part of EN 10246 specifies requirements and acceptance levels for liquid penetrant testing of seamless and welded tubes for the detection of surface imperfections.

This Part of EN 10246 is applicable to all the tube surface.

European Standard EN 10246 "Non-destructive testing of steel tubes" comprises the parts shown in Annex A.

## 2 NORMATIVE REFERENCES

This Part of EN 10246 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 those publications apply to this Part of EN 10246 only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 571-1	Non-destructive testing - Penetrant testing - Part 1: General principles
prEN ISO 3059:1999	Non-destructive testing - Penetrant testing and magnetic particle testing – Viewing conditions (ISO/FDIS 3059:1999)
ISO 3453	Non-destructive testing - Liquid penetrant inspection - Means of verification

## 3 GENERAL REQUIREMENTS

**3.1** The liquid penetrant testing covered by this Part of EN 10246 is usually carried out on tubes after completion of all the primary production process operations.

**3.2** The surface of the tube to be tested shall be sufficiently clean and free from oil, grease, sand or scale or any other foreign matter that would interfere with the correct interpretation of the indications obtained from liquid penetrant testing.

NOTE: The type of indications, as well as the minimum dimension of the surface imperfections to be detected, depend on the specific tube manufacturing process and the surface finish.

## 4 METHOD OF TEST

**4.1** A liquid penetrant is applied to the surface to be examined and allowed to enter the surface imperfections. All excess penetrant is then removed, the surface of the part is dried and a developer is applied. The developer functions both as a blotter to absorb penetrant that has been trapped in imperfections, and as a contrasting background to enhance the visibility of penetrant indications. The dyestuffs in