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Non-destructive testing of steel tubes – Part 13: Automatic full peripheral ultrasonic thickness testing for seamless and welded (except submerged arc welded) steel tubes

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Swedish Standards corresponding to documents referred to in this Standard are listed in "Catalogue of Swedish Standards", issued by SIS. The Catalogue lists, with reference number and year of Swedish approval, International and European Standards approved as Swedish Standards as well as other Swedish Standards.

Oförstörande provning av stålrör – Del 13: Automatiserad tjockleksmätning med ultraljud runt omkretsen på sömlösa och svetsade (förutom pulverbågsvetsade) rör

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ICS 23.040.10

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English version

Non-destructive testing of steel tubes - Part 13: Automatic full peripheral ultrasonic thickness testing for seamless and welded (except submerged arc welded) steel tubes

Essais non destructifs sur des tubes en acier - Partie 13:
Contrôle automatique de l'épaisseur par ultrasons sur toute
la circonférence des tubes sans soudure et soudés (sauf à
l'arc immergé sous flux en poudre)

Zerstörungsfreie Prüfung von Stahlrohren - Teil 13:
Automatische Ultraschall-Dickenprüfung nahtloser und
geschweißter (ausgenommen unterpulvergeschweißter)
Stahlrohre über den gesamten Rohrumfang

This European Standard was approved by CEN on 25 December 1999.

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.

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 Central Secretariat has the same status as the official versions.

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



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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 the requirements for the full peripheral ultrasonic testing of seamless and welded steel tubes, with the exception of submerged arc welded (SAW) tubes, for wall thickness measurement. The standard specifies acceptance levels and calibration procedures

NOTE 1: Full peripheral testing does not necessarily mean that 100 % of the tube surface will be scanned.

NOTE 2: This inspection may be carried out simultaneously with full peripheral ultrasonic testing for the detection of laminar imperfections (see EN 10246-14) using the same ultrasonic transducers for both inspection requirements. Under these circumstances, the percentage of the tube surface to be scanned is determined by the minimum lamination size to be detected as required by EN 10246-14.

This Part of EN 10246 is applicable to the thickness measurement of tubes with a specified outside diameter equal to or greater than 25,4 mm and a minimum wall thickness of 2,6 mm.

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

2 GENERAL REQUIREMENTS

2.1 The ultrasonic inspection covered by this Part of EN 10246 is usually carried out on tubes after completion of all the primary production process operations which affect the tube thickness.

2.2 The tubes to be tested shall be sufficiently straight and free from foreign matter and surface irregularities as to ensure the validity of the test.

3 METHOD OF TEST

3.1 The tube shall be tested using the ultrasonic single or multiple pulse echo technique, with piezo-electric or electromagnetic transducer. The ultrasound shall be transmitted in the direction normal to the tube surface, to determine that the tube thickness meets the specified requirements.

3.2 During testing, the tubes and the transducer assembly shall be moved relative to each other so that (with the exception provided in NOTE 2 of clause 1) the tube surface shall be scanned over equidistant non-coincident spiral paths, not exceeding 150 mm pitch, along the entire length of the tube.

NOTE: Other scanning routes may be used by agreement between the purchaser and manufacturer.

3.3 The maximum width of each individual transducer, measured parallel to the major axis of the tube, shall be 25 mm.

3.4 The equipment shall be capable of classifying tubes as either acceptable or suspect by means of an automatic trigger/alarm level combined with a marking and/or sorting system.