BS EN ISO 10893-12:2011+A1:2020

BSI Standards Publication

Non-destructive testing of steel tubes

Part 12: Automated full peripheral ultrasonic thickness testing of seamless and welded (except submerged arc-welded) steel tubes (ISO 10893-12:2011)

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National foreword

This British Standard is the UK implementation of EN ISO 10893-12:2011+A1:2020. It is identical to ISO 10893-12:2011, incorporating amendment 1:2020. It supersedes BS EN 10246-13:2000, which is withdrawn

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to ISO text carry the number of the ISO amendment. For example, text altered by ISO amendment 1 is indicated by A1 A1.

The UK participation in its preparation was entrusted to Technical Committee ISE/110, Steel Tubes, and Iron and Steel Fittings.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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Amendments/corrigenda issued since publication

Date	Text affected
30 June 2020	Implementation of ISO amendment 1:2020 with CEN endorsement A1:2020

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 10893-12

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English Version

Non-destructive testing of steel tubes — Part 12: Automated full peripheral ultrasonic thickness testing of seamless and welded (except submerged arc-welded) steel tubes (ISO 10893-12:2011)

Essais non destructifs des tubes en acier — Partie 12: Contrôle automatisé de l'épaisseur par ultrasons sur toute la circonférence des tubes en acier sans soudure et soudés (sauf à l'arc immergésous flux en poudre) (ISO 10893-12:2011)

Zerstörungsfreie Prüfung von Stahlrohren — Teil 12: Automatisierte Ultraschall-Wanddickenprüfung nahtloser und geschweißter (ausgenommen unterpulvergeschweißter) Stahlrohre über den gesamten Rohrumfang (ISO 10893-12:2011)

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European Foreword

This document (EN ISO 10893-12:2011) has been prepared by Technical Committee ISO/TC 17 "Steel" in collaboration with Technical Committee ECISS/TC 110 “Steel tubes, and iron and steel fittings” 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 October 2011, and conflicting national standards shall be withdrawn at the latest by October 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 10246-13:2000.

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Endorsement notice

The text of ISO 10893-12:2011 has been approved by CEN as a EN ISO 10893-12:2011 without any modification.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 10893-12 was prepared by Technical Committee ISO/TC 17, *Steel*, Subcommittee SC 19, *Technical delivery conditions for steel tubes for pressure purposes*.

This first edition cancels and replaces ISO 10543:1993, which has been technically revised.

ISO 10893 consists of the following parts, under the general title *Non-destructive testing of steel tubes*:

— *Part 1: Automated electromagnetic testing of seamless and welded (except submerged arc-welded) steel tubes for the verification of leaktightness*

— *Part 2: Automated eddy current testing of seamless and welded (except submerged arc-welded) steel tubes for the detection of imperfections*

— *Part 3: Automated full peripheral flux leakage testing of seamless and welded (except submerged arc-welded) ferromagnetic steel tubes for the detection of longitudinal and/or transverse imperfections*

— *Part 4: Liquid penetrant inspection of seamless and welded steel tubes for the detection of surface imperfections*

— *Part 5: Magnetic particle inspection of seamless and welded ferromagnetic steel tubes for the detection of surface imperfections*

— *Part 6: Radiographic testing of the weld seam of welded steel tubes for the detection of imperfections*

— *Part 7: Digital radiographic testing of the weld seam of welded steel tubes for the detection of imperfections*

— *Part 8: Automated ultrasonic testing of seamless and welded steel tubes for the detection of laminar imperfections*

— *Part 9: Automated ultrasonic testing for the detection of laminar imperfections in strip/plate used for the manufacture of welded steel tubes*

— *Part 10: Automated full peripheral ultrasonic testing of seamless and welded (except submerged arc-welded) steel tubes for the detection of longitudinal and/or transverse imperfections*

— *Part 11: Automated ultrasonic testing of the weld seam of welded steel tubes for the detection of longitudinal and/or transverse imperfections*

— *Part 12: Automated full peripheral ultrasonic thickness testing of seamless and welded (except submerged arc-welded) steel tube*s

INTERNATIONAL STANDARD **ISO 10893-12:2011**

Non-destructive testing of steel tubes —

Part 12: Automated full peripheral ultrasonic thickness testing of seamless and welded (except submerged arc-welded) steel tubes (ISO 10893-12:2011)

1 Scope

This part of ISO 10893 specifies requirements for the automated full peripheral ultrasonic testing of seamless and welded steel tubes, with the exception of submerged arc-welded (SAW) tubes, for wall thickness measurement. It specifies the testing method and corresponding calibration procedures.

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

NOTE 2 This test can be carried out simultaneously with full peripheral ultrasonic testing for the detection of laminar imperfections (see ISO 10893-8) using the same ultrasonic transducers for both inspection requirements. Under these circumstances, the minimum lamination size under detection determines the percentage of the tube surface for scanning, according to ISO 10893-8.

This part of ISO 10893 can also be applicable to the testing of circular hollow sections.

This part of ISO 10893 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, unless otherwise agreed on.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5577, *Non-destructive testing — Ultrasonic inspection — Vocabulary*

ISO 9712, *Non-destructive testing — Qualification and certification of personnel*

ISO 11484, *Steel products — Employer's qualification system for non-destructive testing (NDT) personnel*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5577 and ISO 11484 and the following apply.

3.1
reference tube
tube or length of tube used for calibration purposes

3.2
reference sample
sample (e.g. segment of tube, plate or strip) used for calibration purposes

Note 1 to entry: Only the term “reference tube” is used in this part of ISO 10893, also covering the term “reference sample”.