



BSI Standards Publication

Non-destructive testing of steel tubes

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

This is a preview of "BS EN ISO 10893-11:2...". [Click here to purchase the full version from the ANSI store.](#)

National foreword

This British Standard is the UK implementation of EN ISO 10893-11:2011+A1:2020. It is identical to ISO 10893-11:2011, incorporating amendment 1:2020. It supersedes BS EN ISO 10893-11:2011, which is withdrawn.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 committee manager.

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

© The British Standards Institution 2020
Published by BSI Standards Limited 2020

ISBN 978 0 539 05482 8

ICS 25.160.40; 77.040.20; 23.040.10; 77.140.75

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

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 April 2011.

Amendments/corrigenda issued since publication

Date	Text affected
31 July 2020	Implementation of ISO amendment 1:2020 with CEN endorsement A1:2020

EUROPÄISCHE NORM

July 2020

ICS 23.040.10; 77.040.20; 77.140.75

English Version

**Non-destructive testing of steel tubes - Part 11:
Automated ultrasonic testing of the weld seam of welded
steel tubes for the detection of longitudinal and/or
transverse imperfections (ISO 10893-11:2011)**

Essais non destructifs des tubes en acier - Partie
11: Contrôle automatisé par ultrasons du cordon
de soudure des tubes en acier soudés pour la
détection des imperfections longitudinales
et/ou transversales (ISO 10893-11:2011)

Zerstörungsfreie Prüfung von Stahlrohren -
Teil 11: Automatisierte Ultraschallprüfung der
Schweißnaht geschweißter Stahlrohre zum
Nachweis von Unvollkommenheiten in Längs-
und/oder Querrichtung (ISO 10893-11:2011)

This European Standard was approved by CEN on 10 December 2010.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom..



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

This is a preview of "BS EN ISO 10893-11:2...". [Click here to purchase the full version from the ANSI store.](#)

European foreword

This document (EN ISO 10893-11:2011) 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 10246-8:1999, EN 10246-9:2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of ISO 10893-11:2011 has been approved by CEN as a EN ISO 10893-11:201 without any modification.

Foreword to amendment A1

This document (EN ISO 10893-11:2011/A1:2020) has been prepared by Technical Committee ISO/TC 17 "Steel" in collaboration with Technical Committee CEN/TC 459/SC 10 "Steel tubes, and iron and steel fittings" the secretariat of which is held by UNI.

This Amendment to the European Standard EN ISO 10893-11:2011 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2021, and conflicting national standards shall be withdrawn at the latest by January 2021.

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

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 10893-11:2011/Amd 1:2020 has been approved by CEN as EN ISO 10893-11:2011/A1:2020 without any modification.

This is a preview of "BS EN ISO 10893-11:2...". Click here to purchase the full version from the ANSI store.

Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 General requirements	2
5 Test method	3
6 Reference tube	4
6.1 General.....	4
6.2 Reference notches.....	5
6.2.1 Types and preparation of notch.....	5
6.2.2 Dimension of reference notches.....	6
6.3 Reference hole.....	7
7 Equipment calibration and checking	7
7.1 General.....	7
7.2 Adjustment of the trigger/alarm level.....	7
7.3 Calibration check and recalibration.....	7
8 Acceptance	8
9 Test report	8
Annex A (normative) Manual/semi-automated testing of untested ends and suspect areas	9

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.

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

ISO 10893-11 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 9764:1989 and ISO 9765:1990, which have 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 tubes*

This is a preview of "BS EN ISO 10893-11:2...". Click here to purchase the full version from the ANSI store.

Non-destructive testing of steel tubes —

Part 11:

Automated ultrasonic testing of the weld seam of welded steel tubes for the detection of longitudinal and/or transverse imperfections

1 Scope

This part of ISO 10893 specifies requirements for the automated ultrasonic shear wave (generated by conventional or phased array technique) testing of the weld seam of submerged arc-welded (SAW) or electric resistance and induction-welded (EW) steel tubes.

For SAW tubes, the test covers the detection of imperfections oriented predominantly parallel to or, by agreement, perpendicular to the weld seam or both.

For EW tubes, the test covers the detection of imperfections oriented predominantly parallel to the weld seam. In the case of testing on longitudinal imperfections, Lamb wave testing can be applied at the discretion of the manufacturer.

For the detection of imperfections at the weld seam of EW tubes, full peripheral ultrasonic testing is possible.

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

NOTE For full peripheral ultrasonic testing of seamless and welded (except SAW) tubes, see ISO 10893-10.

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 10893-6, *Non-destructive testing of steel tubes — Part 6: Radiographic testing of the weld seam of welded steel tubes for the detection of imperfections*

ISO 10893-7, *Non-destructive testing of steel tubes — Part 7: Digital radiographic testing of the weld seam of welded steel tubes for the detection of imperfections*

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 standard

standard for the calibration of non-destructive testing equipment (e.g. drill holes, notches, recesses)