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Standards

Irish Standard  
I.S. EN ISO 10893-5:2011

# Non-destructive testing of steel tubes - Part 5: Magnetic particle inspection of seamless and welded ferromagnetic steel tubes for the detection of surface imperfections (ISO 10893-5:2011)

## I.S. EN ISO 10893-5:2011

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English Version

**Non-destructive testing of steel tubes - Part 5: Magnetic particle inspection of seamless and welded ferromagnetic steel tubes for the detection of surface imperfections (ISO 10893-5:2011)**

Essais non destructifs des tubes en acier - Partie 5:  
Contrôle par magnétoscopie des tubes en acier  
ferromagnétique sans soudure et soudés pour la détection  
des imperfections de surface (ISO 10893-5:2011)

Zerstörungsfreie Prüfung von Stahlrohren - Teil 5:  
Magnetpulverprüfung nahtloser und geschweißter  
ferromagnetischer Stahlrohre zum Nachweis von  
Oberflächenunvollkommenheiten (ISO 10893-5:2011)

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

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## **Foreword**

This document (EN ISO 10893-5:2011) 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of an identical text or by endorsement, at the latest by October 2011, and conflicting national standards shall be withdrawn at the latest by October 2011.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 10246-12:2000, EN 10246-18:2000.

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.

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I.S. EN ISO 10893-5:2011

# INTERNATIONAL STANDARD

**ISO**  
**10893-5**

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## Non-destructive testing of steel tubes —

Part 5:

### **Magnetic particle inspection of seamless and welded ferromagnetic steel tubes for the detection of surface imperfections**

*Essais non destructifs des tubes en acier —*

*Partie 5: Contrôle par magnétoscopie des tubes en acier  
ferromagnétique sans soudure et soudés pour la détection des  
imperfections de surface*



Reference number  
ISO 10893-5:2011(E)

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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.

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 10893-5 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 13664:1997 and ISO 13665:1997, 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 hydraulic 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*

**I.S. EN ISO 10893-5:2011**

# Non-destructive testing of steel tubes —

## Part 5:

# Magnetic particle inspection of seamless and welded ferromagnetic steel tubes for the detection of surface imperfections

## 1 Scope

This part of ISO 10893 specifies requirements for magnetic particle inspection of seamless and welded ferromagnetic steel tubes for the detection of surface imperfections on the tube body and the end/bevel face at the ends.

For the tube body, it specifies requirements for the detection of surface imperfections on all or part of the outside surface of tubes. However, by agreement between the purchaser and manufacturer, it can be applicable to the inside surface over a limited length from the ends of tubes, dependent on the tube diameter.

In addition, this part of ISO 10893 can be used, as appropriate, to locate the position of external surface imperfections detected by another non-destructive testing method (e.g. ultrasonic) prior to dressing of the tube surface, and to ensure complete removal of the imperfection after dressing is complete.

For the end/bevel face at the ends of plain-end and beveled-end tubes, this part of ISO 10893 specifies requirements for the detection of laminar imperfections which can interfere with subsequent fabrication and inspection operations (e.g. welding and ultrasonic inspection of the welds).

This part of ISO 10893 is applicable to the detection of imperfections, other than laminar imperfections, on the end/bevel face. In this case, magnetization is applied in the direction essentially perpendicular to the orientation of the particular imperfections being detected.

It can also be applicable to the testing of hollow sections.

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

ISO 9934-1, *Non-destructive testing — Magnetic particle testing — Part 1: General principles*

ISO 9934-2, *Non-destructive testing — Magnetic particle testing — Part 2: Detection media*

ISO 9934-3, *Non-destructive testing — Magnetic particle testing — Part 3: Equipment*

ISO 10893-8, *Non-destructive testing of steel tubes — Part 8: Automated ultrasonic testing of seamless and welded steel tubes for the detection of laminar imperfections*

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

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