

# INTERNATIONAL STANDARD

**ISO**  
**10543**

First edition  
1993-11-15

---

---

## **Seamless and hot-stretch-reduced welded steel tubes for pressure purposes — Full peripheral ultrasonic thickness testing**

*Tubes en acier sans soudure et soudés issus d'un laminoir  
étireur-réducteur pour service sous pression — Contrôle de l'épaisseur  
par ultrasons sur toute la circonférence*



Reference number  
ISO 10543:1993(E)

## 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.

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.

International Standard ISO 10543 was prepared by Technical Committee ISO/TC 17, *Steel*, Sub-Committee SC 19, *Technical delivery conditions for steel tubes for pressure purposes*.

# Seamless and hot-stretch-reduced welded steel tubes for pressure purposes — Full peripheral ultrasonic thickness testing

## 1 Scope

**1.1** This International Standard specifies requirements for full peripheral ultrasonic thickness testing of seamless and hot-stretch-reduced welded steel tubes.

### NOTES

1 This International Standard may also be applied to "as welded" (except submerged arc-welded) steel tubes by agreement between the purchaser and manufacturer.

2 Full peripheral testing, in this context, does not necessarily mean that 100 % of the tube surface will be scanned.

Unless otherwise specified in the product standard or by agreement between the purchaser and manufacturer, the surface of the tube shall be scanned in accordance with 4.2.

This inspection may be carried out simultaneously with an inspection for full peripheral ultrasonic testing for the detection of laminar imperfections (see ISO 10124), using the same ultrasonic transducers for both inspection requirements.

Under these circumstances, the percentage of the tube surface to be scanned shall be determined by the minimum lamination size to be detected, as required by ISO 10124.

**1.2** This International Standard is applicable to the thickness measurement of tubes with an outside diameter greater than or equal to 25,4 mm and with a minimum wall thickness of 2,6 mm.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions

of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 10124:—<sup>1)</sup>, *Seamless and welded (except submerged arc-welded) steel tubes for pressure purposes — Ultrasonic testing for the detection of laminar imperfections.*

ISO 11484:—<sup>1)</sup>, *Steel tubes for pressure purposes — Qualification and certification of non-destructive testing (NDT) personnel.*

## 3 General requirements

**3.1** The ultrasonic inspection covered by this International Standard is usually carried out on tubes after completion of all the primary production process operations which affect the tube thickness.

These activities shall be carried out by personnel certificated in accordance with ISO 11484, as nominated by the manufacturer.

In the case of third-party inspection, this shall be agreed between the purchaser and manufacturer.

**3.2** The tubes to be tested shall be sufficiently straight to ensure the validity of the test. The surfaces shall be sufficiently free from foreign matter which would interfere with the validity of the test.

1) To be published.