

# SLOVENSKI STANDARD

## SIST EN ISO 10893-6:2019

01-maj-2019

Nadomešča:

SIST EN ISO 10893-6:2011

---

**Neporušitveno preskušanje jeklenih cevi - 6. del: Ugotavljanje napak varov pri jeklenih ceveh, obločno varjenih pod praškom, z radiografsko preiskavo (ISO 10893-6:2019)**

Non-destructive testing of steel tubes - Part 6: Radiographic testing of the weld seam of welded steel tubes for the detection of imperfections (ISO 10893-6:2019)

**iTeh STANDARD PREVIEW**

Zerstörungsfreie Prüfung von Stahlrohren - Teil 6: Durchstrahlungsprüfung der Schweißnaht geschweißter Stahlrohre zum Nachweis von Unvollkommenheiten (ISO 10893-6:2019)

[SIST EN ISO 10893-6:2019](https://standards.iteh.ai/catalog/standards/sist/3cd039b0-0f71-4a67-b00f-61d0269081e2/sist-en-iso-10893-6-2019)

[https://standards.iteh.ai/catalog/standards/sist/3cd039b0-0f71-4a67-b00f-](https://standards.iteh.ai/catalog/standards/sist/3cd039b0-0f71-4a67-b00f-61d0269081e2/sist-en-iso-10893-6-2019)

Essais non destructifs des tubes en acier - Partie 6: Contrôle radiographique du cordon de soudure des tubes en acier soudés pour la détection des imperfections (ISO 10893-6:2019)

**Ta slovenski standard je istoveten z: EN ISO 10893-6:2019**

---

**ICS:**

23.040.10	Železne in jeklene cevi	Iron and steel pipes
77.040.20	Neporušitveno preskušanje kovin	Non-destructive testing of metals
77.140.75	Jeklene cevi in cevni profili za posebne namene	Steel pipes and tubes for specific use

**SIST EN ISO 10893-6:2019**

**en,fr,de**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN ISO 10893-6:2019

<https://standards.iteh.ai/catalog/standards/sist/3cd039b0-0f71-4a67-b00f-fdd9269f18a2/sist-en-iso-10893-6-2019>

EUROPEAN STANDARD

EN ISO 10893-6

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2019

ICS 23.040.10; 77.040.20; 77.140.75

Supersedes EN ISO 10893-6:2011

English Version

## 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- 6:2019)

Essais non destructifs des tubes en acier - Partie 6:  
Contrôle radiographique du cordon de soudure des  
tubes en acier soudés pour la détection des  
imperfections (ISO 10893-6:2019)

Zerstörungsfreie Prüfung von Stahlrohren - Teil 6:  
Durchstrahlungsprüfung der Schweißnaht  
geschweißter Stahlrohre zum Nachweis von  
Unvollkommenheiten (ISO 10893-6:2019)

This European Standard was approved by CEN on 29 December 2018.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey 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

<b>Contents</b>	<b>Page</b>
<b>European foreword.....</b>	<b>3</b>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 10893-6:2019](https://standards.iteh.ai/catalog/standards/sist/3cd039b0-0f71-4a67-b00f-fdd9269f18a2/sist-en-iso-10893-6-2019)  
<https://standards.iteh.ai/catalog/standards/sist/3cd039b0-0f71-4a67-b00f-fdd9269f18a2/sist-en-iso-10893-6-2019>

## European foreword

This document (EN ISO 10893-6:2019) 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 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 September 2019, and conflicting national standards shall be withdrawn at the latest by September 2019.

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.

This document supersedes EN ISO 10893-6:2011.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

**iTeh STANDARD PREVIEW**  
**Endorsement notice**  
**(standards.iteh.ai)**

The text of ISO 10893-6:2019 has been approved by CEN as EN ISO 10893-6:2019 without any modification.

[SIST EN ISO 10893-6:2019  
https://standards.iteh.ai/catalog/standards/sist/3cd039b0-0f71-4a67-b00f-fdd9269f18a2/sist-en-iso-10893-6-2019](https://standards.iteh.ai/catalog/standards/sist/3cd039b0-0f71-4a67-b00f-fdd9269f18a2/sist-en-iso-10893-6-2019)

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 10893-6:2019](#)

<https://standards.iteh.ai/catalog/standards/sist/3cd039b0-0f71-4a67-b00f-fdd9269f18a2/sist-en-iso-10893-6-2019>

INTERNATIONAL  
STANDARD

ISO  
10893-6

Second edition  
2019-02

---

---

**Non-destructive testing of steel  
tubes —**

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

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

*Essais non destructifs des tubes en acier —*

*Partie 6: Contrôle radiographique du cordon de soudure des tubes en  
acier soudés pour la détection des imperfections*

<https://standards.iteh.ai/catalog/standards/sist/3cd039b0-0f71-4a67-b00f-fdd9269f18a2/sist-en-iso-10893-6-2019>



Reference number  
ISO 10893-6:2019(E)

© ISO 2019

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN ISO 10893-6:2019](https://standards.iteh.ai/catalog/standards/sist/3cd039b0-0f71-4a67-b00f-fdd9269f18a2/sist-en-iso-10893-6-2019)

<https://standards.iteh.ai/catalog/standards/sist/3cd039b0-0f71-4a67-b00f-fdd9269f18a2/sist-en-iso-10893-6-2019>



### **COPYRIGHT PROTECTED DOCUMENT**

© ISO 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland



# Contents

	Page
Foreword .....	iv
<b>1 Scope .....</b>	<b>1</b>
<b>2 Normative references .....</b>	<b>1</b>
<b>3 Terms and definitions .....</b>	<b>1</b>
<b>4 General requirements .....</b>	<b>2</b>
<b>5 Test method .....</b>	<b>3</b>
<b>6 Image quality .....</b>	<b>6</b>
<b>7 Processing of film .....</b>	<b>10</b>
<b>8 Viewing conditions for radiographs .....</b>	<b>11</b>
<b>9 Classification of indications .....</b>	<b>11</b>
<b>10 Acceptance limits .....</b>	<b>11</b>
<b>11 Acceptance .....</b>	<b>12</b>
<b>12 Test report .....</b>	<b>12</b>
<b>Annex A (informative) Examples of distribution of imperfections .....</b>	<b>13</b>
<b>Bibliography .....</b>	<b>15</b>

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)

[SIST EN ISO 10893-6:2019](https://standards.iteh.ai/catalog/standards/sist/3cd039b0-0f71-4a67-b00f-fdd9269f18a2/sist-en-iso-10893-6-2019)

<https://standards.iteh.ai/catalog/standards/sist/3cd039b0-0f71-4a67-b00f-fdd9269f18a2/sist-en-iso-10893-6-2019>

## ISO 10893-6:2019(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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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

This second edition cancels and replaces the first edition (ISO 10893-6:2011), which has been technically revised. The main changes compared with the previous edition are as follows:

- a) evidences about film overlap have been included in [4.7](#);
- b) a safety warning for X and gamma rays has been added at the end of [Clause 4](#);
- c) [Figure 2](#) has been aligned with ISO 17636-1 up to 1 000 kV;
- d) film side position and location have been clarified in [Clause 6](#);
- e) requirements for film processing have been specified in [Clause 7](#);
- f) a reference to ISO 5580 has been added in [Clause 8](#);
- g) the figures in [Annex A](#) have been revised.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

# Non-destructive testing of steel tubes —

## Part 6:

# Radiographic testing of the weld seam of welded steel tubes for the detection of imperfections

## 1 Scope

This document specifies requirements for film-based radiographic X-ray testing of the longitudinal or helical weld seams of automated fusion arc-welded steel tubes for the detection of imperfections.

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

NOTE As an alternative, see ISO 10893-7 for digital radiographic testing.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 5576, *Non-destructive testing — Industrial X-ray and gamma-ray radiology — Vocabulary*

ISO 5579, *Non-destructive testing — Radiographic testing of metallic materials using film and X- or gamma rays — Basic rules* <https://standards.iteh.ai/catalog/standards/sist/3cd039b0-0f71-4a67-b00f-fdd9269f18a2/sist-en-iso-10893-6-2019>

ISO 5580, *Non-destructive testing — Industrial radiographic illuminators — Minimum requirements*

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

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*

ISO 11699-1, *Non-destructive testing — Industrial radiographic film — Part 1: Classification of film systems for industrial radiography*

ISO 17636-1, *Non-destructive testing of welds — Radiographic testing — Part 1: X- and gamma-ray techniques with film*

ISO 19232-1, *Non-destructive testing — Image quality of radiographs — Part 1: Determination of the image quality value using wire-type image quality indicators*

ISO 19232-2, *Non-destructive testing — Image quality of radiographs — Part 2: Determination of the image quality value using step/hole-type image quality indicators*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5576, ISO 11484 and the following apply.