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**Non-Destructive Testing of Steel Tubes – Radiographic
Testing of the Weld Seam of Welded Steel Tubes for the
Detection of Imperfections**

钢管无损检测 焊接钢管焊缝缺欠的射线检测

(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 for Imperfections,
IDT)

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Foreword

This Document was drafted as per the rules specified in GB/T 1.1-2020 *Directives for Standardization – Part 1: Rules for the Structure and Drafting of Standardizing Documents*.

This Document equivalently adopted 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*.

The Chinese documents that have consistent correspondence with the international standard documents normatively cited in this document are as follows:

- GB/T 3323.1-2019 Non-destructive testing of welds - Radiographic testing - Part 1: X- and gamma-ray techniques with film (ISO 17636-1:2013, MOD);
- GB/T 9445-2015 Non-destructive testing - Qualification and certification of NDT personnel (ISO 9712:2012, IDT);
- GB/T 12604.2-2005 Non-destructive testing - Terminology - Terms used in radiographic testing (ISO 5576:1997, IDT);
- GB/T 19348.1-2014 Non-destructive testing - Industrial radiographic film - Part 1: Classification of film systems for industrial radiography (ISO 11699-1:2008, MOD);
- GB/T 19802-2005 Non-destructive testing - Industrial radiographic illuminators - Minimum requirements (ISO 5580:1985, IDT);
- GB/T 19943-2005 Non-destructive testing - Industrial radiographic illuminators - Minimum requirements (ISO 5579:1998, IDT);
- GB/T 23901.1-2019 Non-destructive testing - Image quality of radiographs - Part 1: Determination of the image quality value using wire-type image quality indicators (ISO 19232-1:2013, IDT);
- GB/T 23901.2-2019 Non-destructive testing - Image quality of radiographs - Part 2: Determination of the image quality value using step/hole-type image quality indicators (ISO 19232-2:2013, IDT);
- GB/T 40385-2021 Non-destructive testing of steel tubes - Digital radiographic testing of the weld seam of welded steel tubes for the detection of imperfections (ISO 10893-7:2019, IDT).

The following minimal editorial changes have been made to this Document:

- In order to harmonize with existing standards, change the name of the standard into *Non-Destructive Testing of Steel Tubes – Radiographic Testing of the Weld Seam of Welded*

Steel Tubes for the Detection of Imperfections.

Please note some contents of this Document may involve patents. The issuing agency of this Document shall not assume the responsibility to identify these patents.

This Document was proposed by China Iron & Steel Association.

This Document shall be under the jurisdiction of National Technical Committee on Steel of Standardization Administration of China (SAC/TC 183).

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Non-Destructive Testing of Steel Tubes – 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.

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

NOTE 1: As an alternative, see ISO 10893-7 for digital radiographic testing.

NOTE 2: Radiographic inspection of butt weld seam can be performed by reference.

2 Normative References

The provisions in following documents become the essential provisions of this Document through reference in this Document. For the dated documents, only the versions with the dates indicated are applicable to this Document; for the undated documents, only the latest version (including all the amendments) is applicable to this Document.

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

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.

3.1 Tube

Hollow long product open at both ends, of any cross-sectional shape.

3.2 Welded tube

Tube (3.1) made by forming a hollow profile from a flat product and welding adjacent edges together, and which after welding can be further processed, either hot or cold, into its final dimensions.

3.3 Manufacturer

Organization that manufactures products in accordance with the relevant standard(s) and declares the conformity of the delivered products with all applicable provisions of the relevant standard(s).

3.4 Agreement

Contractual arrangement between the manufacturer (3.3) and the purchaser at the time of enquiry and order.

4 General Requirements

4.1 Unless otherwise specified by the product standard or agreed on by the manufacturer and the purchaser, a radiographic inspection shall be carried out on tubes after completion of all the primary production process operations (rolling, heat treating, cold and hot working, sizing, primary straightening, etc.).

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