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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Welding procedure qualification test for tubes to tube-plate
joints**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents" Drafting.

This document uses the redrafting method to modify and adopt ISO 15614-8.2016 "Specifications and qualification of welding procedures for metallic materials.

Inspection Part 8. Welding of Tubes and Tube Sheets.

Compared with ISO 15614-8.2016, this document has structural adjustments. The informative appendix E of this document is ISO 15614-8.2016

Appendix A.

Compared with ISO 15614-8.2016, there are technical differences between this document and the corresponding technical differences and their reasons in Appendix A.

List.

This document has also made the following editorial changes.

---Modified the standard name;

---Informative appendix A, appendix B, appendix C, and appendix D have been added.

1 Scope

This document specifies the welding procedure qualification test methods and requirements for tubes and tube sheets.

This document is applicable to the arc welding of metal material pipe and tube sheet joint.

2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, dated quotations

Only the version corresponding to that date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

This document.

GB/T 985.1 Recommended grooves for gas welding, electrode arc welding, gas shielded welding and high energy beam welding (GB/T 985.1-2008,

ISO 9692-1.2003, MOD)

GB/T 2654 Welded joint hardness test method (GB/T 2654-2008, ISO 9015-1.2001, IDT)

GB/T 3323.1 Non-destructive testing of welds. Radiographic testing. Part 1.X and gamma ray film technology (GB/T 3323.1-

2019, ISO 17636-1.2013, MOD)

GB/T 5185 Welding and related process method code (GB/T 5185-2005, ISO 4063.1998, IDT)

GB/T 6417.1 Classification and description of defects in metal fusion welding joints (GB/T 6417.1-2005, ISO 6520-1.1998, IDT)

GB/T 15169 Steel Fusion Welding Welder Skill Assessment (GB/T 15169-2003, ISO 9606-1..2002, IDT)

GB/T 18851.1 Non-destructive testing Penetrant testing Part 1.General rules (GB/T 18851.1-2012, ISO 3452-1.2008,

IDT)

GB/T 19805 Welding operator skill assessment (GB/T 19805-2005, ISO 14732.1998, IDT)

GB/T 19866 Welding procedure specification and general principles of qualification (GB/T 19866-2005, ISO 15607.2003, IDT)

GB/T 19867.1 Arc welding procedure specification (GB/T 19867.1-2005, ISO 15609-1.2004, IDT)

GB/T 19869.1 Welding procedure qualification test for steel, nickel and nickel alloys (GB/T 19869.1-2005, ISO 15614-1.2004,

IDT)

GB/T 24598 Aluminum and aluminum alloy fusion welding welder skills assessment (GB/T 24598-2009, ISO 9606-2:2004, MOD)

GB/T 26955 Destructive test of welds of metallic materials. Macro and micro inspection of welds (GB/T 26955-2011, ISO 17639.

2003, MOD)

GB/T 30563 Copper and copper alloy fusion welding welder skills assessment (GB/T 30563-2014, ISO 9606-3:1999, MOD)

GB/T 32257 Nickel and nickel alloy fusion welding welder skills assessment (GB/T 32257-2015, ISO 9606-4:1999, MOD)

GB/T 32259 Non-destructive testing of welds Visual inspection of welded joints (GB/T 32259-2015, ISO 17637:2003, MOD)

GB/T 36234 Titanium and titanium alloy, zirconium and zirconium alloy fusion welding welder skill assessment (GB/T 36234-2018, ISO 9606-

5:2000, MOD)

GB/T 39255 Shielding gas for welding and cutting (GB/T 39255-2020, ISO 14175:2008, MOD)

3 Terms and definitions

The terms and definitions defined in GB/T 19866 apply to this document.