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

GB/T 44518-2024

**Welding procedure qualification test for underwater hyperbaric
dry welding**
(English Translation)

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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 for standardization documents" Drafting is required.

This document is modified to adopt ISO 15614-10:2005 "Welding procedure specifications

and qualification welding procedure tests for metallic materials Part 10 Division.
High-voltage dry welding.

Compared with ISO 15614-10:2005, this document has the following structural adjustments.

8.5.2 and 8.5.3 in Chapter 8 correspond to 8.5.1 and 8.5.2 in Chapter 8 of ISO 15614-10:2005, with 8.5.1 and 8.5.4 added. -the technical differences between this document and ISO 15614-10:2005 and their reasons are as follows.

Repair welding has been added to the scope of application to facilitate the implementation of the standard;

The terms not referenced in the original ISO text (see Chapter 3) have been deleted to facilitate the implementation of the standard;

The normative reference GB/T 19866 replaces ISO 15607:2003, and GB/T 44527 replaces ISO 15618-2:2001 (see Chapter 3, Chapter 7); ISO 15609-1:2004 (see Chapter 4, Chapter 9) is replaced by the normative reference GB/T 19867.1;

The normative reference GB/T 16672 replaces ISO 6947:1990 (see 6.3); the normative reference GB/T 40424 is added, EN 228-9 has been deleted (see Chapter 7 and Chapter 8); ISO 4063:1998 has been replaced by the normative reference GB/T 5185 (see 8.5.1); ISO 14175:2008 (see 8.5.3) is replaced by the normative reference GB/T 39255 to apply my country's technical requirements;

The normative reference to ISO 15618-2:2001 for the shape and size requirements of plate specimens has been deleted and replaced with a schematic diagram for easier standardization.

Practical application (see 6.2);

The note on common sense in welding of test pieces has been deleted (see 6.3); -Added requirements for welding method codes to facilitate the practical application of the standard (see 8.5.1); -Laser welding (see 8.5.1) is added to the method designation to apply to laser welding methods; -Added requirements for laser welding to specific welding methods (see 8.5.1 and 8.5.4) to apply to laser welding methods;

The requirements for depth reduction re-evaluation in Table 2 have been changed to facilitate the practical application of the standard (see 8.6). -the following editorial changes have been made to this document.

The name of the standard is changed to "Underwater High-Pressure Dry Welding Procedure Qualification Test"; -Added informative Appendix A. -

1 Scope

This document specifies the test methods and test requirements for underwater high-pressure dry welding procedure qualification, including pre-welding procedure specification (pWPS), Test pieces, tests and inspections, scope of approval and welding procedure qualification report (WPQR), etc.

This document is applicable to the process qualification test of underwater high-pressure dry welding and repair welding.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies.

in this document.

GB/T 5185 Welding and related process code (GB/T 5185-2005, ISO 4063:1998, IDT)
GB/T 16672 Definition of inclination and rotation angle of weld working position (GB/T 16672-1996, ISO 6947:1990, IDT)
GB/T 19866 General principles for welding procedure specification and 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 39255 Shielding gases for welding and cutting (GB/T 39255-2020, ISO 14175:2008, MOD)
GB/T 40424 Welding procedure qualification test for tube and tube sheet (GB/T 40424-2021, ISO 15614-8:2016, MOD)
GB/T 44527 Skill assessment for underwater high-pressure dry welding diving welders and welding operators (GB/T 44527-2024, ISO 15618-2:2001, MOD)

3 Terms and definitions

The terms and definitions defined in GB/T 19866 and GB/T 44527 and the following apply to this document.

Repair welding repair any welding operation outside the normal welding cycle used to repair welds.

examiner

A person appointed to verify that workmanship conforms to applicable standards.

NOTE: In some cases, an external independent inspector may be required.

Examining body

An organization designated to verify that processes conform to applicable standards.

NOTE: In some cases an external independent inspection body may be required.

4 Pre-welding procedure specification (pWPS)

The pre-welding procedure specification (pWPS) shall be prepared in accordance with GB/T 19867.1 and shall specify all relevant parameters and tolerances.