Corrosion-resistant Alloy Seamless Products for Use as Casing, Tubing, Coupling Stock, and Accessory Material

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API Foreword

This American National Standard is under the jurisdiction of the API Subcommittee on Tubular Goods (SC 5). This standard is identical to the English version of ISO 13680:2024. ISO 13680:2024 was prepared by Technical Committee ISO/TC 67 (Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries), SC 5 (Casing, tubing and drill pipe).

In this American National Standard, the following editorial deviations have been made throughout the document:

— Change spelling of words common to the U.S. (e.g. color, not colour)

— Substitution of a decimal point for a decimal comma (e.g. 4.5, not 4,5)

— Substitution of a comma for a space in numbers ≥ 10,000 (e.g. 12,547, not 12 547)

— Removal of space(s) in numbers ≥ 1000 but < 10,000 (e.g. 5274, not 5 274)

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— Addition of industry mark option in marking sequence (sections 11.3 and 11.4)

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May: As used in a standard, “may” denotes a course of action permissible within the limits of a standard.

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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 document 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).

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This document was prepared by Technical Committee ISO/TC 67, *Oil and gas industries including lower carbon energy*, Subcommittee SC 5, *Casing, tubing and drill pipe*.

This fifth edition (ISO 13680:2024) cancels and replaces the fourth edition (ISO 13680:2020), which has been technically revised.

The main changes are as follows:

— adjustment of the scope and title to make it clear that bar material is now included (removal of the word "tubular");

— update of normative references;

— review of straightening requirements, including addition of Figure B.9;

— clarification on the use of alternative method for visual inspection;

— clarification of PMI requirements;

— clarification of marking content and sequence;

— extension of records retention period to five years;

— review of Annex H.

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.

Contents

Page

1 Scope 1

2 Normative References 1

3 Terms, Definitions, Abbreviated Terms and Symbols 4
3.1 Terms and Definitions 4
3.2 Abbreviated Terms 6
3.3 Symbols 7

4 General 7
4.1 Dual Normative References 7
4.2 Units of Measurement 7

5 Information Supplied by the Purchaser 8

6 Manufacturing Process 10
6.1 Melting Practices 10
6.2 Product Manufacturing Process 10
6.3 Pipe end Sizing 10
6.4 Straightening 11
6.5 Processes Requiring Validation 11
6.6 Traceability 11
6.7 Manufacturing Procedure Qualification Test 12
6.8 Process for Update of Alloys and/or Grades 12

7 Material Requirements 12
7.1 Chemical Composition 12
7.2 Tensile Properties 12
7.3 Hardness Properties 12
7.4 Charpy V-notch Test Properties—General Requirements 13
7.4.1 Evaluation of Test Results 13
7.4.2 Critical Thickness 13
7.4.3 Specimen Size, Orientation and Hierarchy 13
7.4.4 Alternative Size Impact Test Specimens 13
7.4.5 Sub-size Test Specimens 13
7.4.6 Test Temperature 13
7.5 Charpy V-notch—Absorbed Energy Requirements for Coupling Stock and Accessory Material—All Grades 14
7.5.1 General 14
7.5.2 Requirements for All Grades 14
7.6 Charpy V-notch—Absorbed Energy Requirements for Pipe—All Grades 14
7.7 Flattening Requirements 15
7.8 Charpy V-notch Test Properties at Low Temperature for Group 2 16
7.8.1 General 16
7.8.2 Evaluation of Test Results 16
7.8.3 Selection of Test Specimens 16
7.8.4 Test Temperature 16
7.8.5 Absorbed Energy Requirements 16
7.9 Corrosion Properties 16
7.9.1 General 16
7.9.2 Pitting Corrosion Properties for Group 2 16
7.10 Microstructure Properties 17

8 Dimensions, Masses and Tolerances 18
8.1 Outside Diameter, Wall Thickness and Mass 18
8.2 Length 19
8.3 Tolerances 19
8.4 Product Ends 19

9 Inspection and Testing 19
9.1 Test Equipment 19
9.2 Type and Frequency of Tests 19

9.3 Testing of Chemical Composition 20
9.4 Testing of Mechanical Characteristics 20
9.5 Tensile Test 20
9.6 Hardness Test 21
9.7 Impact or Flattening Test 24
9.8 Impact Test at Low Temperature for Group 2 26
9.9 Pitting Corrosion Test for Group 2 26
9.10 Microstructural Examination 27
9.11 Dimensional Testing 28
9.12 Drift Test 29
9.13 Length 29
9.14 Straightness 29
9.15 Mass Determination 29
9.16 Visual Inspection 29
9.17 Non-destructive Examination 30
9.18 Positive Material Identification 35

10 Surface Treatment 36
10.1 Group 1 36
10.2 Groups 2, 3 and 4 36

11 Marking 37
11.1 General 37
11.2 Color-code Identification 37
11.3 Marking Content and Sequence 37
11.4 Marking for Couplings, Pup Joints and Accessories after Threading 38

12 Surface Protection—Group 1 38

13 Documents 39
13.1 Electronic Media 39
13.2 Retention of Records 39
13.3 Test Certificates 39

14 Handling, Packaging and Storage 40
14.1 General 40
14.2 Handling 40
14.3 Packaging 40
14.4 Storage 41

Annex A (normative) Tables in SI Units 42

Annex B (normative) Figures in SI (USC) Units 62

Annex C (normative) Tables in USC Units 66

Annex D (normative) Purchaser Inspection 88

Annex E (normative) Cleanliness Requirements 89

Annex F (normative) Coupling Blanks and Accessory Material from Bar 91

Annex G (normative) Product Specification Level 2 (PSL-2) 105

Annex H (normative) Standardized Manufacturing Procedure Qualification Test 107

Annex I (informative) Photographic Examples of Microstructures, Groups 2, 3 and 4 111

Bibliography 115

Corrosion-resistant Alloy Seamless Products for Use as Casing, Tubing, Coupling Stock, and Accessory Material

WARNING—It is the purchaser's responsibility to specify the product specification level (PSL), corrosion-resistant alloy (CRA) group, category, grade, delivery conditions and any other requirement in addition to those specified herewith to ensure that the product is adequate for the intended service environment. The ISO 15156 series or NACE MR0175 should be considered when making specific requirements for H_2S-containing environments; see Annex G. It is the product user's responsibility to ensure that the product is suitable for the intended application with consideration of all environmental degradation threats during both normal operation and system upsets. There are other sources of hydrogen besides H_2S-containing environments, which are not addressed by the ISO 15156 series or NACE MR0175. Not all PSL-1 categories and grades can be made cracking resistant in accordance with the ISO 15156 series or NACE MR0175 and are, therefore, not included in PSL-2.

1 Scope

This document specifies the technical delivery conditions for corrosion-resistant alloy seamless products for casing, tubing, coupling stock and accessory material (including coupling stock and accessory material from bar) for two product specification levels:

— PSL-1, which is the basis of this document;

— PSL-2, which provides additional requirements for a product that is intended to be both corrosion and cracking resistant for the environments and qualification method specified in Annex G and in the ISO 15156 series or NACE MR0175.

This document contains no provisions relating to the connection of individual lengths of pipe. Demonstration of conformance to ISO 15156-3:2020 or NACE MR0175-2021 of material affected by end sizing, connection manufacture or welding operations is outside the scope of this document.

This document contains provisions relating to marking of tubing and casing after threading.

This document is applicable to the following five groups of products:

a) group 1, which is composed of stainless alloys with a martensitic or martensitic/ferritic structure;

b) group 2, which is composed of stainless alloys with a ferritic-austenitic structure, such as duplex and super-duplex stainless alloy;

c) group 3, which is composed of stainless alloys with an austenitic structure (iron base);

d) group 4, which is composed of nickel-based alloys with an austenitic structure (nickel base);

e) group 5, which is composed of bar only (Annex F) in age-hardened (AH) nickel-based alloys with austenitic structure.

2 Normative References

The following documents, as applicable for the product, 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 377, *Steel and steel products—Location and preparation of samples and test pieces for mechanical testing*

ISO 404, *Steel and steel products—General technical delivery requirements*

ISO 525, *Bonded abrasive products—General requirements*