

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

API SPECIFICATION 5CRA
THIRD EDITION, APRIL 2025

API MONOGRAM PROGRAM EFFECTIVE DATE: OCTOBER 1, 2025

ISO 13680:2024 (Identical), Oil and gas industries including lower carbon energy—Corrosion-resistant alloy seamless products for use as casing, tubing, coupling stock and accessory material—Technical delivery conditions



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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 $\geq 10,000$ (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.

Can: As used in a standard, “can” denotes a statement of possibility or capability.

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ISO 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 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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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.

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.

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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 H₂S 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 H₂S 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 MR0175-2020 for 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 superduplex 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*