

Carbon Steel, Alloy Steel, Stainless Steel, and Nickel Base Alloy Castings for Use in the Petroleum and Natural Gas Industry

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Suggested revisions are invited and should be submitted to the Standards Department, API, 200 Massachusetts Avenue, NW, Suite 1100, Washington, DC 20001, standards@api.org.

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Introduction

Changes from the Second to the Third Edition

This specification is the result of updating the requirements from API Specification 20A, Second Edition, including Addendum 1 and Addendum 2. The revision of API 20A, Third Edition, is developed based on input from the API 20A Task Group technical experts globally. The technical revisions have been made to accommodate the needs of industry to move this specification to a higher level of service to the petroleum and natural gas industry.

Highlights of some of the significant changes between the Second Edition and the Third Edition include the following:

- added and deleted some normative references;
- removed the figures in Section 4 that identified size and shape of qualification test coupons;
- modified text content in some tables and renumbered;
- removed all CSL-4 and sacrificial castings from Qualification and Production sections and moved to informative Annex A;
- moved Table 11—Minimum Facility Requirements table from Section 5 to Section 4 (now Table 1—Facility Requirements);
- added guidance throughout the document reference to other API 20 series standards.

Carbon Steel, Alloy Steel, Stainless Steel, and Nickel Base Alloy Casting for Use in the Petroleum and Natural Gas Industry

1 Scope

This specification identifies requirements for the foundry qualification, production, design, marking, and documentation of carbon steel, alloy steel, stainless steel, and nickel base alloy castings used in the petroleum and natural gas industries when referenced by an applicable API product standard or otherwise specified as a requirement for compliance.

This specification applies to castings used in the manufacture of pressure-containing, pressure-controlling, and primary load-bearing components. Castings manufactured in accordance with this API specification may be produced using any industry standard casting method.

This specification provides manufacturers with a fixed methodology to examine a qualification casting and to compare the results of that examination with a defined set of acceptance criteria. The results of the qualification testing by material grouping are then used to establish a baseline casting specification level (CSL) for subsequently produced castings.

This specification also provides manufacturers with a fixed production testing methodology to determine whether subsequently produced castings conform to the minimum requirements for the intended CSL. The intent is that the production castings meet the minimum CSL requirements proven during qualification testing by material grouping and the minimum CSL.

2 Normative References

The following referenced documents are indispensable for the application 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, except that new editions may be used on issue and shall become mandatory upon the effective date specified by the publisher or 6 months from the date of the revision (where no effective date is specified).

API Specification Q1, *Quality Management System Requirements for Organizations Providing Products for the Petroleum and Natural Gas Industry*

API Specification 6A, *Specification for Wellhead and Tree Equipment*

API Specification 6D, *Specification for Valves*

API Standard 20H, *Heat Treatment Services—Batch Type for Equipment Used in the Petroleum and Natural Gas Industry*

ANSI ¹/ASQ Z1.4 ², *Sampling Procedures and Tables for Inspection by Attributes*

ANSI/NACE MR0175 ³/ISO 15156 ⁴, *Petroleum and natural gas industries—Materials for use in H₂S-containing environments in oil and gas production*

¹ American National Standards Institute, 1899 L Street, NW, 11th Floor, Washington, DC 20036, <https://ansi.org>.

² American Society for Quality, 600 North Plankinton Avenue, Milwaukee, Wisconsin 53203, <https://asq.org>.

³ NACE International (now Association for Materials Protection and Performance), 15835 Park Ten Place, Houston, Texas 77084, <https://ampp.org>.

⁴ International Organization for Standardization, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, www.iso.org.