



Standard Specification for Nickel-Chromium-Iron-Molybdenum-Copper Alloy Rod¹

This standard is issued under the fixed designation B 581; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification² covers rod of Ni-Cr-Fe-Mo-Cu alloys (UNS N06007, N06975, N06985, N06030, and N08031)* as shown in Tables 1-3, for use in general corrosive service.

1.2 The following products are covered under this specification:

1.2.1 Rods $\frac{5}{16}$ to $\frac{3}{4}$ in. (7.94 to 19.05 mm) excl in diameter, hot- or cold-finished, solution annealed and pickled or mechanically descaled.

1.2.2 Rods $\frac{3}{4}$ to $3\frac{1}{2}$ in. (19.05 to 88.9 mm) incl in diameter, hot- or cold-finished, solution annealed, ground or turned.

1.3 The values stated in inch-pound units are to be regarded as the standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to become familiar with all hazards including those identified in the appropriate Material Safety Data Sheet for this product/material as provided by the manufacturer, to establish appropriate safety and health practices, and determine the applicability of regulatory limitations.*

2. Referenced Documents

2.1 ASTM Standards:

B 880 Specification for General Requirements for Chemical Check Analysis Limits for Nickel, Nickel Alloys and Cobalt Alloys³

E 8 Test Methods for Tension Testing of Metallic Materials⁴

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications⁵

E 55 Practice for Sampling Wrought Nonferrous Metals and

Alloys for Determination of Chemical Composition⁶
E 1473 Test Methods for Chemical Analysis of Nickel, Cobalt, and High-Temperature Alloys⁶

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *rod*—material of round solid section furnished in straight lengths.

4. Ordering Information

4.1 It is the responsibility of the purchaser to specify all requirements that are necessary for material ordered under this specification. Examples of such requirements include, but are not limited to the following:

4.1.1 *Alloy*—Table 1.

4.1.2 *Dimensions*—Nominal diameter and length. The shortest useable multiple length shall be specified (Table 4).

4.1.3 *Certification*—State if certification or a report of test results is required (Section 16).

4.1.4 *Purchaser Inspection*—State which tests or inspections are to be witnessed (Section 14).

4.1.5 *Samples for Product (Check) Analysis*—State whether samples shall be furnished (10.2.2).

5. Chemical Composition

5.1 *Heat Analysis*—The material shall conform to the composition limits specified in Table 1.

5.2 *Product (Check) Analysis*—If a product (check) analysis is made by the purchaser, the material shall conform to the requirements specified in Table 1 subject to the permissible tolerances in Specification B 880.

6. Mechanical and Other Requirements

6.1 The material shall conform to the requirements of Table 2.

7. Straightness

7.1 The maximum curvature (depth of cord) shall not exceed 0.050 in. multiplied by the length in feet (0.04 mm multiplied by the length in centimetres).

¹ This specification is under the jurisdiction of ASTM Committee B02 on Nonferrous Metals and Alloys and is the direct responsibility of Subcommittee B02.07 on Refined Nickel and Cobalt and Their Alloys.

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² For ASME Boiler and Pressure Vessel Code applications see related Specification SB-581 in Section II of that Code.

* New designation established in accordance with ASTM E 527 and SAE J1086, Practice for Numbering Metals and Alloys (UNS).

³ *Annual Book of ASTM Standards*, Vol 02.04.

⁴ *Annual Book of ASTM Standards*, Vol 03.01.

⁵ *Annual Book of ASTM Standards*, Vol 14.02.

⁶ *Annual Book of ASTM Standards*, Vol 03.05.