



Designation: B 815 – 02

Standard Specification for Cobalt-Chromium-Nickel-Molybdenum-Tungsten Alloy (UNS R31233) Rod¹

This standard is issued under the fixed designation B 815; 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 cobalt-chromium-nickel-molybdenum-tungsten alloy UNS R31233 in the form of rod for wear applications and general corrosion service.

1.2 The following products are covered under this specification:

1.2.1 Rods $\frac{3}{16}$ to $\frac{3}{4}$ in. (9.76 to 19.05 mm) exclusive in diameter, hot or cold finished, solution-annealed, and pickled or mechanically descaled; and

1.2.2 Rods $\frac{3}{4}$ to $3\frac{1}{2}$ in. (19.05 to 88.9 mm) inclusive 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. The values given in parentheses are for information only.

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 prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

B 880 Specification for General Requirements for Chemical 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 Alloys⁷

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *rod*—product 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*.

4.1.2 *Dimensions*—Nominal diameter and length. The shortest usable multiple length shall be specified (Table 1).

4.1.3 *Certification*—State whether certification or a report of test results is required (Section 15).

4.1.4 *Purchaser Inspection*—State which tests or inspections are to be witnessed (Section 13).

4.1.5 *Samples for Product (Check) Analysis*—State whether samples should be furnished (9.2.2).

5. Chemical Composition

5.1 The material shall conform to the chemical composition requirements prescribed in Table 2.

5.2 If a product (check) analysis is made by the purchaser, the material shall conform to the requirements specified in Table 2 subject to the permissible tolerances given in Specification B 880.

6. Mechanical Properties and Other Requirements

6.1 The mechanical properties of the material at room temperature shall conform to those given in Table 3.

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.

Current edition approved Oct. 10, 2002. Published December 2002. Originally published as B 815 – 91. Last previous edition B 815 – 97.

² For ASME Boiler and Pressure Vessel Code applications, see related Specification SB-815 in Section II of that code.

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.

⁷ *Annual Book of ASTM Standards*, Vol 03.06.