



Designation: B 573 – 00

## Standard Specification for Nickel-Molybdenum-Chromium-Iron Alloys (UNS N10003, N10242)\* Rod<sup>1</sup>

This standard is issued under the fixed designation B 573; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This specification<sup>2</sup> covers nickel-molybdenum-chromium-iron alloys (UNS N10003 and UNS N10242)\* rod 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, 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, annealed, ground, or turned.

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

### 2. Referenced Documents

#### 2.1 ASTM Standards:

B 880 Specification for General Requirements for Chemical Check Analysis Limits for Nickel, Nickel Alloys and Cobalt Alloys<sup>3</sup>

E 8 Test Methods for Tension Testing of Metallic Materials<sup>4</sup>

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications<sup>5</sup>

E 1473 Test Methods for Chemical Analysis of Nickel, Cobalt, and High-Temperature Alloys<sup>6</sup>

### 3. Terminology

#### 3.1 Definitions of Terms Specific to This Standard:

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

<sup>1</sup> 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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<sup>2</sup> For ASME Boiler and Pressure Vessel Code applications see Specification SB-573 in Section II of that Code.

\* New designation established in accordance with ASTM E527 and SAE J1086, Recommended Practice for Numbering Metals and Alloys (UNS).

<sup>3</sup> Annual Book of ASTM Standards, Vol 02.04.

<sup>4</sup> Annual Book of ASTM Standards, Vol 03.01.

<sup>5</sup> Annual Book of ASTM Standards, Vol 14.02.

<sup>6</sup> Annual Book of ASTM Standards, Vol 03.06.

### 4. Ordering Information

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

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

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

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

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

### 5. Chemical Composition

5.1 The material shall conform to the requirements as to chemical composition 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 in B 880.

### 6. Mechanical Properties and Other Requirements

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

### 7. Dimensions and Permissible Variations

7.1 *Diameter*—The permissible variations from the specified diameter shall be as prescribed in Table 4.

7.2 *Out-of-Roundness*—The permissible variation in roundness shall be as prescribed in Table 4.

7.3 *Machining Allowances*—When the surfaces of finished material are to be machined, the following allowances are suggested for normal machining operations:

7.3.1 *As-finished (Annealed and Descaled)*—For diameters of  $\frac{5}{16}$  to  $\frac{11}{16}$  in. (7.94 to 17.46 mm) incl, an allowance of  $\frac{1}{16}$  in. (1.59 mm) on the diameter should be made for finish machining.

#### 7.4 Length:

7.4.1 Unless multiple, nominal, or cut lengths are specified, random mill lengths shall be furnished.