



Designation: **B668 – 14 (Reapproved 2019) B668 – 23**

## Standard Specification for UNS N08028 and N08029 Seamless Iron-Nickel-Chromium-Molybdenum Alloy Seamless Pipe and Tube<sup>1</sup>

This standard is issued under the fixed designation B668; 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~~ Scope\*

1.1 This specification covers UNS N08028 and N08029 seamless cold-finished or hot-finished pipe and tube intended for general corrosive service. ~~The general requirements are covered in Specification B829.~~

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3 *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 establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

### 2. Referenced Documents

- 2.1 *ASTM Standards:*<sup>2</sup>
- [B829 Specification for General Requirements for Nickel and Nickel Alloys Seamless Pipe and Tube](#)
  - [B899 Terminology Relating to Non-ferrous Metals and Alloys](#)

### ~~3. General Requirement~~

~~3.1 Material furnished under this specification shall conform to the applicable requirements of Specification B829 unless otherwise provided herein.~~

### 3. Terminology

#### 3.1 Definitions:

3.1.1 For definitions of terms used in this specification, refer to Terminology B899.

<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.

Current edition approved April 1, 2019; Nov. 1, 2023. Published May 2019; November 2023. Originally approved in 1980. Last previous edition approved in 2014 as B668 – 14; B668 – 14 (2019). DOI: 10.1520/B0668-14R19; 10.1520/B0668-23.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

\*A Summary of Changes section appears at the end of this standard

#### 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 Alloy name or UNS number,

4.1.2 ASTM designation and year of issue,

4.1.3 *Dimensions:*

4.1.3.1 Outside diameter, minimum or average wall thickness (in inches or millimetres, not ~~gage~~gauge number), and length,

4.1.3.2 Standard pipe size, schedule and length,

4.1.4 Quantity (feet or metres, or number of pieces),

4.1.5 Optional requirements,

~~4.1.6 *Certification*—State if certification is required,~~

4.1.6 *Samples for Product (Check) Analysis*—State whether samples for product (check) analysis should be furnished, and

4.1.7 *Purchaser Inspection*—If the purchaser wishes to witness tests or inspection of material at the place of manufacture, the purchase order must so state, indicating which tests or inspections are to be witnessed.

#### 5. Materials and Manufacture

5.1 Material furnished under this specification shall conform to the applicable requirements of Specification B829 unless otherwise provided herein.

5.2 Pipe and tube shall be furnished in the solution-annealed condition.

NOTE 1—The recommended heat treatment for UNS N08028 shall consist of heating the material to a temperature of ~~1975~~1975 °F to 2100 °F (~~1080~~1080 °C to 1150 °C) with subsequent quenching in water or rapidly cooling by other means. The recommended heat treatment for UNS N08029 shall consist of heating the material to a minimum temperature of 2000 °F (1100 °C) with subsequent quenching in water or rapidly cooling by other means.

5.3 The scale shall be removed by suitable means. When bright annealed, scale removal operations are not necessary.

#### 6. Chemical Composition

6.1 The material shall conform to the requirement prescribed in Table 1.

6.1.1 A chemical analysis shall be made on each lot of material as described in Specification B829.

6.2 If a product (check) analysis is performed by the purchaser, the material shall conform to Table 1 subject to the product (check) analysis variations prescribed in Specification B829.

#### ~~7. Mechanical Properties and Other Requirements~~

7.1 The material shall conform to the mechanical properties prescribed in Table 2. One test is required for each lot, as defined in Specification B829.

7.1.1 One tension test shall be made on each lot of pipe or tube.

7.2 *Flaring Test*—One flaring test shall be made on a specimen from one end of one pipe or tube from each lot of finished tubes.