



Standard Specification for UNS N08020, UNS N08024, and UNS N08026 Nickel Alloy Bar and Wire¹

This standard is issued under the fixed designation B 473; 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 UNS N08020, UNS N08026, and UNS N08024 bar and wire other than required for reforging.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

2. Referenced Documents

2.1 ASTM Standards:

A 262 Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels³

E 8 Test Methods for Tension Testing of Metallic Materials⁴

E 1473 Test Methods for Chemical Analysis of Nickel, Cobalt, and High-Temperature Alloys⁵

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 The terms bar and wire as used in this specification are described as follows:

3.1.2 *bars*, *n*—hot-finished rounds, squares, octagons, and hexagons: ¼ in. (6.35 mm) and over in diameter or size. Hot-finished flats: ¼ to 10 in. (254 mm), inclusive, in width, ½ in. (3.175 mm) and over in thickness. Cold-finished rounds, squares, octagons, hexagons, and shapes: over ½ in. (12.7 mm) in diameter or size. Cold-finished flats: ⅜ in. (9.525 mm) and over in width (see Discussion(1)), ½ in. and over in thickness (see Discussion(2)).

3.1.2.1 *Discussion*—(1) Widths less than ⅜ in. (9.525 mm) and thicknesses less than ⅜ in. (4.75 mm) are generally described as flat wire.

3.1.2.2 *Discussion*—(2) Thicknesses ½ in. (3.175 mm) to under ⅜ in. (4.75 mm) can be cold-rolled strip as well as bar.

3.1.3 *wire*, *n*—cold finished only: round, square, octagon, hexagon, and shape wire, ½ in. (12.7 mm) and under in diameter or size. Cold-finished only: flat wire, ⅜ in. (4.76 mm) to under ⅜ in. (9.525 mm) in width, 0.010 in. (0.254 mm) to under ⅜ in. in thickness.

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 Quantity (weight or number of pieces),

4.1.2 Name of material or UNS number,

4.1.3 Form (bar or wire),

4.1.4 Dimensions,

4.1.5 Condition,

4.1.6 Finish,

4.1.7 ASTM designation and year of issue,

4.1.8 Inspection (15.1),

4.1.9 Supplementary requirements, if any, and

4.1.10 If possible, the intended end use.

NOTE 1—A typical ordering description is as follows: 200 bars, UNS N08020, 1 in. (25.4 mm) round by 10 to 14 ft (3.0 to 3.6 m), centerless ground, Specification B 473.

5. Materials and Manufacture

5.1 *Heat Treatment*—The product of UNS N08020 alloy shall be furnished in the stabilized-annealed condition. The product of UNS N08026 alloy shall be furnished in the solution-annealed condition. The product of UNS N08024 alloy shall be furnished in the annealed condition.

NOTE 2—The recommended annealing temperatures all followed by quenching in water or rapidly cooling by other means are as follows: 1700 to 1850°F (927 to 1010°C) for UNS N08020, 2050 to 2200°F (1121 to 1204°C) for UNS N08026, and 1925 to 1975°F (1052 to 1079°C) for UNS N08024.

6. Chemical Composition

6.1 The material shall conform to the requirements as to chemical composition prescribed in Table 1.

6.2 If a product (check) analysis is performed by the purchaser, the material shall conform to the product (check)

¹ This specification is under the jurisdiction of ASTM Committee B-2 on Nonferrous Metals and Alloys and is the direct responsibility of Subcommittee B02.07 on Refined Nickel and Cobalt, and Alloys Containing Nickel or Cobalt or Both as Principal Constituents.

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² For ASME Boiler and Pressure Vessel Code applications see related Specification SB-473 in Section II of that Code.

³ *Annual Book of ASTM Standards*, Vol 01.03.

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

⁵ *Annual Book of ASTM Standards*, Vol 03.06.