



Standard Specification for Precipitation-Hardening Nickel-Iron-Chromium-Columbium (Nb)-Titanium-Aluminum Alloy (UNS N09908) Plate, Sheet, and Strip¹

This standard is issued under the fixed designation B 872; 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 specification covers rolled precipitation hardenable nickel-iron-chromium-columbium (Nb)-titanium-aluminum alloy (N09908) plate, sheet, and strip in the annealed condition (temper). This alloy is used as sheathing for super conductor cables, as tooling for fabrication of such cables, and for other applications requiring a material with low coefficient-of-expansion properties.

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.

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 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:²

- E 8 Test Methods for Tension Testing of Metallic Materials
- E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications
- E 228 Test Method for Linear Thermal Expansion of Solid Materials with a Vitreous Silica Dilatometer
- E 1473 Test Methods for Chemical Analysis of Nickel, Cobalt, and High-Temperature Alloys

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

- 3.1.1 The terms given in Table 1 shall apply.

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 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.

TABLE 1 Product Description

Product	Thickness, in. (mm)	Width
Hot-rolled plate ^A	3/16 to 2 1/4 (4.8 to 57.2) (Table 4)	Table 6 ^B and Table 7
Cold-rolled sheet ^C	0.010 to 0.250 (0.25 to 6.4), incl (Table 5)	Table 8
Cold-rolled strip ^C	0.005 to 0.250 (0.13 to 6.4), incl (Table 5)	Table 8

^A Material 3/16 to 1/4 in. (4.8 to 6.4 mm), incl, in thickness may be furnished as sheet or plate provided the material meets the specification requirements for the condition ordered.

^B Hot-rolled plate, in widths 10 in. (250 mm) and under, may be furnished as hot-finished rectangles with sheared or cut edges provided the mechanical property requirements of this specification are met.

^C Material under 48 in. (1219 mm) in width may be furnished as sheet or strip provided the material meets the specification requirements for the condition ordered.

4. Ordering Information

4.1 Orders for material under this specification should include the following information:

4.1.1 *Alloy*—Name or UNS number (see Table 2).

4.1.2 *ASTM designation* and year of issue.

4.1.3 *Condition*—See 6.1 and Appendix X1.

4.1.4 *Finish*—See Appendix X1.

4.1.5 *Dimensions*—Thickness, width, and length.

4.1.6 *Quantity*.

4.1.7 *Optional Requirements*:

4.1.7.1 *Sheet and Strip*—Whether to be furnished in coil, in cut straight lengths, or in random straight lengths.

4.1.7.2 *Strip*—Whether to be furnished with commercial slit edge, square edge, or round edge.

4.1.7.3 *Plate*—Whether to be furnished specially flattened (see 7.7); also how plate is to be cut (see 7.2.1 and 7.3.2).

4.1.8 *Fabrication Details*—Not mandatory but helpful to the manufacturer:

4.1.8.1 *Welding or Brazing*—Process to be employed.

4.1.8.2 *Plate*—Whether material is to be hot-formed.

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

4.1.10 *Samples for Product (Check) Analysis*—Whether samples should be furnished (see 5.2).

4.1.11 *Purchaser Inspection*—If the purchaser wishes to witness the tests or inspection of material at the place of