



Standard Specification for Welded Nickel-Iron-Chromium Alloy Pipe¹

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1. Scope

1.1 This specification² covers nickel-iron-chromium alloys in the form of welded, cold-worked, and annealed pipe for general corrosive service and heat-resisting applications. These products are furnished in three alloys: UNS N08120, UNS N08800, and UNS N08810.* Alloy UNS N08800 is employed normally in service temperatures up to and including 1100°F (593°C). Alloys UNS N08120 and UNS N08810 are employed normally in service temperatures above 1100°F where resistance to creep and rupture is required, and are annealed to develop controlled grain size for optimum properties in this temperature range.

1.2 This specification covers outside diameter and nominal wall pipe shown in ANSI B36.19. Pipe having other dimensions may be furnished provided such pipe complies with all other requirements of the specification.

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

2. Referenced Documents

2.1 ASTM Standards:

B 775 Specification for General Requirements for Nickel and Nickel Alloy Seamless and Welded Pipe³

2.2 ANSI Standard:

B36.19 Stainless Steel Pipe⁴

3. General Requirement

3.1 Material furnished in accordance with this specification shall conform to the applicable requirements of the current edition of Specification B 775 unless otherwise provided herein.

4. Ordering Information

4.1 Orders for material under this specification should

include the following information:

4.1.1 Alloy name or UNS number.

4.1.2 ASTM designation and year of issue.

4.1.3 Condition (temper) (Table 1).

4.1.4 *Dimensions*:

4.1.4.1 Nominal pipe size or outside diameter and schedule number or nominal wall thickness.

4.1.4.2 Length (specific or random).

4.1.5 Quantity (feet or metres, or number of pieces).

4.1.6 *Certification*—State if certification or a report of test results is required.

4.1.7 *Samples for Product (Check) Analysis*—State whether samples for product (check) analysis should be furnished.

4.1.8 *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 Pipe shall be made from flat-rolled alloy by an automatic welding process with no addition of filler metal. Subsequent to welding and prior to final solution treatment, the material shall be cold worked either in both weld and base metal or in weld metal only.

5.2 Pipe shall be furnished with a scale-free finish. When bright annealing is used, descaling is not necessary.

6. Chemical Composition

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

6.2 If a product (check) analysis is performed by the purchaser, the material shall conform to the product (check) analysis variations in Table 1 of Specification B 775.

7. Mechanical and Other Requirements

7.1 *Mechanical Properties*—The material shall conform to the requirements for mechanical properties prescribed in Table 1.

7.2 *Grain Size*—A transverse sample representing the full-wall thickness of annealed alloys UNS N08120 and N08810 shall conform to an average grain size of ASTM No. 5 or coarser.

7.3 *Flattening Test*—Pipe shall be capable of withstanding, without cracking, flattening under a load applied gradually at room temperature until the distance between the platens is five times the wall thickness. The weld shall be positioned 90 deg from the direction of the applied flattening force.

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 Code applications see related Specification SB-514 in Section II of that Code.

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

³ *Annual Book of ASTM Standards*, Vol 02.04.

⁴ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.