



Designation: B 546 – 98

Standard Specification for Electric Fusion-Welded Ni-Cr-Co-Mo Alloy (UNS N06617), Ni-Fe-Cr-Si Alloys (UNS N08330 and UNS N08332), Ni-Cr- Fe-Al Alloy (UNS N06603), Ni-Cr-Fe Alloy (UNS N06025), and Ni-Cr-Fe-Si Alloy (UNS N06045) Pipe¹

This standard is issued under the fixed designation B 546; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers electric fusion-welded nickel-chromium-cobalt-molybdenum alloy UNS N06617, nickel-iron-chromium-silicon alloys UNS N08330 and UNS N08332, Ni-Cr-Fe-Al Alloy (UNS N06603), Ni-Cr-Fe Alloy UNS N06025, and Ni-Cr-Fe-Si Alloy UNS N06045 pipe intended for heat resisting applications and general corrosive service.

1.2 This specification covers pipe in sizes 3 in. (76.2 mm) nominal diameter and larger and possessing a minimum wall thickness of 0.083 in. (2.11 mm).

1.3 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:

B 168 Specification for Nickel-Chromium-Iron Alloys (UNS N06600, N06601, and N06690) and Nickel-Chromium-Cobalt-Molybdenum Alloy (UNS N06617) Plate, Sheet, and Strip²

B 536 Specification for Nickel-Iron-Chromium-Silicon Alloys (UNS N08330 and N08332) Plate, Sheet, and Strip²

B 775 Specification for General Requirements for Nickel and Nickel Alloy Welded Pipe²

E 10 Test Method for Brinell Hardness of Metallic Materials³

E 140 Hardness Conversion Tables for Metals (Relationship Between Brinell Hardness, Vickers Hardness, Rockwell Hardness, Rockwell Superficial Hardness, and Knoop Hardness)^{3,4}

E 1473 Test Methods for Chemical Analysis of Nickel,

Cobalt, and High-Temperature Alloys⁵

2.2 ASME Standards:

Boiler and Pressure Vessel Code, Section VIII, Paragraph UW-51⁶

Boiler and Pressure Vessel Code, Section IX⁶

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. Classification

4.1 Two classes of pipe are covered as follows:

4.1.1 *Class 1*—All welded joints to be 100 % inspected by radiography.

4.1.2 *Class 2*—No radiographic examination is required.

5. Ordering Information

5.1 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:

5.1.1 Alloy (Table 1),

5.1.2 ASTM designation and year of issue,

5.1.3 Class (See 4.1),

5.1.4 Dimensions (standard pipe size and schedule),

5.1.5 Length (specific or random),

5.1.6 Quantity (feet or number of pieces),

5.1.7 Certification—State if certification is required,

5.1.8 Whether type of filler metal and deposited composition is required (see 7.3),

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

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 Their Alloys.

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² *Annual Book of ASTM Standards*, Vol 02.04.

³ *Annual Book of ASTM Standards*, Vol 03.01.

⁴ *Annual Book of ASTM Standards*, Vol 03.05.

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

⁶ Available from the American Society of Mechanical Engineers, 345 E. 47th St., New York, NY 10017.