

ASTM B474 / ASME SB474

Standard Specification for Electric Fusion Welded UNS N08020, UNS N08024, and UNS N08026 Nickel Alloy Pipe

This specification covers electric fusion welded UNS N08020, UNS N08026, and UNS N08024 pipe suitable for high-temperature or corrosive service.

Two types of pipe are covered as follows:

Type I— All welded joints to be completely examined by radiography.

Type II— No radiographic examination required.

A. Heat Treatment :-

1. The product of UNS N08020 alloy shall be furnished in the stabilized-annealed condition.
2. The product of UNS N08026 alloy shall be furnished in the solution-annealed condition.
3. The product of UNS N08024 alloy shall be furnished in the annealed condition.

NOTE 1— 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.

B. Chemical Composition :-

1. The chemical composition of the pipe shall conform to the requirements in Table 1 of Specification B 463.

C. Mechanical and Other Properties :-

1. Mechanical Properties— The mechanical properties of the plate shall be in accordance with Table 1.

Table 1

Tensile Strength, min		Yield Strength, ^A min		Elongation in 2 in. or 50 mm, min, %
ksi	MPa	ksi	MPa	
80	551	35	241	30.0

^A Yield strength shall be determined by the offset method at 0.2 % limiting permanent set in accordance with Test Methods E 8. An alternative method of determining yield strength may be based on a total extension under load of 0.5 %.

2. Transverse Guided Weld Bend Test Requirements.
3. Pressure Test.
4. Radiographic Examination—Type I welded joints shall be completely examined by radiography.

D. Test Methods :-

1. The chemical composition and mechanical properties of the material as enumerated in this specification shall be determined, in case of disagreement, in accordance with the following ASTM methods:
 - i. Chemical Analysis—Test Methods E 1473. Iron shall be determined arithmetically by difference.
 - ii. Tension Test— Test Methods E 8.
2. Tension Test— If the percentage of elongation of any test specimen is less than that specified and any part of the fracture is more than 3/4 in. (19.05 mm) from the center of the gage length, as indicated by scribe marks on the specimen before testing, or if a specimen breaks due to a flaw, a retest shall be allowed.
3. Hydrostatic Test— When pipe is hydrostatically tested, such testing shall be done at a pressure determined by the following equation, but shall not exceed 2500 psi (17 MPa) for nominal sizes 3 in. (76 mm) and under, or 2800 psi (19 MPa) for all nominal sizes over 3 in.

$$P = 2St/D \quad \dots\dots\dots (1)$$

or

$$S = PD/2t \quad \dots\dots\dots (2)$$

where: P = hydrostatic test pressure, psi (MPa),
S = allowable fiber stress or 20 000 psi (138 MPa),
t = specified wall thickness, in. (mm), and
D = specified outside diameter, in. (mm).

4. The test pressure shall be held for a minimum of 5 s.

E. Supplementary Tests :-

1. Corrosion Tests for UNS N08020—
One intergranular corrosion test per lot shall be performed by the manufacturer on a sensitized specimen and tested in accordance with Practices A 262.

Related Keywords

- [astm b474 pdf](#)
- [asme 474 pdf](#)
- [asme 474 pdf free download](#)
- [asme sb474 pdf free download](#)
- [asme sb474 pdf free](#)

Pipingmart.com