

ASTM B468 / ASME SB468

SPECIFICATION FOR WELDED UNS N08020, N08024, AND N08026 ALLOY TUBES

This specification covers welded UNS N08020, N08024, and N08026 alloy boiler, heat exchanger, and condenser tubes for general corrosion-resisting and low or high-temperature service.

This specification covers tubes 1/8 to 5 in. (3.18 to 127 mm), inclusive, in outside diameter and 0.015 to 0.500 in. (0.38 to 12.70 mm), inclusive, in wall thickness.

A. General Requirement :-

1. Material furnished in accordance with this specification shall conform to the applicable requirements of the current edition of Specification B 751 unless otherwise provided herein.

B. Heat Treatment :-

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

NOTE 1 —The recommended annealing temperatures are 1800 to 1850°F (982 to 1010°C) for UNS N08020, 1925 to 1975°F (1052 to 1079°C) for UNS N08024, and 2050 to 2200°F (1121 to 1204°C) for UNS N08026

C. Chemical Composition :-

The material shall conform to the composition limits specified in Table 1.

Table 1

Element	UNS N08020	UNS N08024	UNS N08026
Carbon, max	0.07	0.03	0.03
Manganese, max	2.0	1.0	1.0
Phosphorus, max	0.045	0.035	0.03
Sulfur, max	0.035	0.035	0.03
Silicon, max	1.0	0.5	0.5
Nickel	32.00–38.00	35.00–40.00	33.00–37.20
Chromium	19.00–21.00	22.50–25.00	22.00–26.00
Molybdenum	2.00–3.00	3.50–5.00	5.00–6.70
Copper	3.00–4.00	0.50–1.50	2.00–4.00
Columbium (Nb) + tantalum	8×carbon–1.00	0.15–0.35	
Nitrogen	0.10–0.16
Iron ^A	Remainder	Remainder	Remainder

^A By difference.

D. Mechanical Properties and Other Requirements :-

1. Mechanical Properties —
The material shall conform to the mechanical property requirements specified in Table 2. One test is required for each lot as defined in Specification B 751.
2. Flattening Test.
3. Flange Test.
4. Non-destructive Test Requirements —

Each tube shall be subjected to either a pressure test or a non-destructive electric test at the manufacturer's option. The purchaser may specify which test is to be used.

Table 2

Tensile Strength min, ksi (MPa)	Yield Strength, min, ksi (MPa)	Elongation in 2 in. (50.8 mm), min, %
80 (551)	35 (241)	30

E. Supplementary Tests :-

1. Corrosion Tests—

One intergranular corrosion test per lot shall be performed by the manufacturer on a sensitized specimen and tested in accordance with Practices A 262.

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