ASTM B705 / ASME SB705

SPECIFICATION FOR NICKEL-ALLOY (UNS N06625, N06219 AND N08825) WELDED PIPE

This specification covers welded UNS N06625, UNS N06219 and UNS N08825 pipe in the annealed condition (temper) for general corrosion applications.

This specification covers pipe sizes in schedules shown in the Permissible Variations in Outside Diameter and Wall Thickness for Welded Pipe table of Specification B 775.

A. General Requirement :-

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.

B. Chemical Composition :-

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

Table 1

	UNS N06625	UNS N06219	UNS N08825
Ni	58.0 min(A)	Bal.	38.0–46.0
Cr	20.0–23.0	18.0–22.0	19.5–23.5
Fe	5.0 max	2.0–4.0	22.0 min(A)
Mo	8.0–10.0	7.0–9.0	2.5–3.5
Cb + Ta	3.15–4.15	...	...
C	0.10 max	0.05 max	0.05 max
Mn	0.50 max	0.50 max	1.0 max
Si	0.5 max	0.70–1.10	0.5 max
P	0.015 max	0.020 max	...
S	0.015 max	0.010 max	0.03 max
Al	0.4 max	0.50 max	0.2 max
Ti	0.40 max	0.50 max	0.6–1.2
Co (if determined)	1.0 max	1.0 max	...
Cu	...	0.50 max	1.5–3.0

(A) Element may be determined arithmetically by difference.

C. Mechanical Properties and Other Requirements :-

1. Mechanical Properties:
   i. The material shall conform to the mechanical properties specified in Table 2. One pipe per lot shall be examined.

Table 2

Alloy	Grade	Tensile Strength min, psi (MPa)	Yield Strength 0.2% Offset, min, psi (MPa)	Elongation in 2 in. or 50 mm, min, %
UNS N06625	1 (annealed)	120000 (827)	60000 (414)	30
UNS N06625	2 (solution annealed) (A)	100000 (690)	40000 (276)	30
UNS N06219		96000 (660)	39000 (270)	30
UNS N08825		85000 (586)	35000 (240)	30

(A) Solution annealed at 2000°F (1093°C) minimum, with or without subsequent stablization anneal at 1800°F (982°C) minimum to increase resistance to sensitization.

2. Flattening Test.

3. Transverse Guided Bend Test:
    i. At the option of the pipe manufacturer, the transverse guided bend test may be substituted in lieu of the flattening test.
    ii. Guided bend test specimens shall be prepared and tested in accordance with Section IX, Part QW-160 of the ASME Boiler and Pressure Vessel Code and shall be one of the types shown in QW-462.2 and QW-462.3 of that code.

D. <u>Nondestructive Testing :-</u>

1. Class 1− Each piece in each lot shall be subjected to one of the following four tests: hydrostatic, pneumatic (air underwater), eddy current, or ultrasonic.
2. Class 2− Each piece in each lot shall be subjected to a leak test and an electric test as follows:
    i. Leak Test−Hydrostatic or pneumatic (air underwater).
    ii. Electric Test− Eddy current or ultrasonic.
3. The manufacturer shall have the option to test to Class 1 or 2 and select the nondestructive test methods, if not specified by the purchaser.

Related Keywords

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