

ERW Carbon Steel and Carbon-Manganese Steel Boiler and Superheater Tubes

Standard & Material

ASTM A178/A178M ASME SA178 Grade A

It covers minimum wall thickness, electric-resistance-welded tubes made of carbon steel and carbon-manganese steel intended for use as boiler tubes, boiler flues, superheater flues, and safe ends. The tubing sizes and thicknesses usually furnished to ASTM A178/A178M ASME SA178 are 1/2 to 5inch [12.7 to 127mm] in outside diameter and 0.035 to 0.360inch [0.9 to 9.1mm], inclusive, in minimum wall thickness. Tubing having other dimensions may be furnished, provided such tubes comply with all other requirements of ASTM A178/A178M ASME SA178. Mechanical property requirements do not apply to tubing smaller than 1/8inch [3.2mm] in inside diameter or 0.015inch [0.4mm] in thickness.

Chemistry Composition

C, % 0.06-0.18

Mn, % 0.27-0.63

P, % 0.035 max

S, % 0.035 max

Mechanical Properties

Tensile Strength, MPa 325 min

Yield Strength, MPa 180 min

Elongation, % 35 min

Wall Thickness: min wall thickness or average wall thickness

Developed Length: max 30 meters each length, +10mm/-0mm

Manufacture: the tubes made by electric-resistance-welded or ERW and cold drawn process.

Heat Treatment: all tubes after welding shall be heat treated at a temperature of 900°C or higher and followed by cooling in air or in the cooling chamber of a controlled atmosphere furnace. Cold-drawn tubes shall be heat treated after the final cold-draw pass at a temperature of 650°C or higher.

Delivery Condition: Black, Nitrogen Protection, Bright Annealing.

Inspection & Test: chemistry composition analysis, tensile test, flattening test, flaring test, hardness test, NDT, surface inspection and dimension check.

Further Process: U bending tubes, fin tubes

