

Seamless Steel Tubes for Pressure Purposes - Non-alloy and Alloy Steel Tubes with Specified Elevated Temperature Properties

Standard & Material

EN 10216-2 X10CrMoVNb9-1 1.4903 (Steel Number)

It specifies the technical delivery conditions in two test categories for seamless tubes of circular cross section, with specified elevated temperature properties, made of non-alloy and alloy steel, which are used in the construction of boilers, pipelines, pressure vessels and equipment for service up to 600°C and at simultaneous high pressures, where the total stress and relevant scaling conditions can raise or lower the temperature limit.

Chemistry Composition

C, % 0.08-0.12

Si, % 0.20-0.50

Mn, % 0.30-0.60

P, % 0.020 max

S, % 0.010 max

Cr, % 8.00-9.50

Mo, % 0.85-1.05

Ni, % 0.40 max

Cu, % 0.30 max

Nb, % 0.06-0.10

V, % 0.18-0.25

N, % 0.03-0.07



Mechanical Properties

Tensile Strength, MPa 630-830

Yield Strength, MPa 450 min

Elongation, % 19 min

Wall Thickness: average wall thickness, $\pm 12.5\%$ or $\pm 0.4\text{mm}$ whichever is the greater; min wall thickness, $+ 28\%/-0$ or $+0.8\text{mm}/-0$ whichever is the greater; special requirements on id & wt should be agreed before contract.

Developed Length: max 30 meters each length, $+10\text{mm}/-0\text{mm}$

Manufacture: the tubes made by cold drawn or hot rolled process.

Heat Treatment: the tubes are +NT (normalizing + tempering) heat treated over the entire length, normalizing at 1040°C to 1090°C, and tempering at 730°C to 780°C.

Inspection & Test: chemistry composition analysis, tension test, flattening test, flaring test, NDT, leak tightness test, surface inspection and dimension check. Option: impact test.

Further Process: U bending tubes, fin tubes, studded tubes