

## Material: BS 91

### Standard Specification for Seamless Steel Tubes for Pressure Purposes

**Group:** Ferrous Stainless Steel Alloys

**Sub Group:** BS 91 Seamless Steel Tubes for Pressure Purposes

**Application:** Intended for Valve, Pump, General Engineering, Automotive and Other Industries

**Grade Belongs to the Industry:** Steel

Chemical Composition			Heat Treatment	
Carbon	C %	0.080 - 0.120	Normalizing + Tempering	
Silicon	Si %	0.200 - 0.500		
Manganese	Mn %	0.300 - 0.600		
Phosphorus	P %	0.020 max.		
Sulphur	S %	0.020 max.		
Chromium	Cr %	8.000 - 9.500		
Molybdenum	Mo %	0.850 - 1.050		
Nickel	Ni %	0.400 max.		
Vanadium	V %	0.180 - 0.250		
Aluminium	Al %	0.030 max.		
			Mechanical Properties	
Nitrogen	N %	0.030 - 0.070	Tensile Strength in Mpa	630 - 830
Niobium	Nb %	0.060 - 0.100	Yield Strength in Mpa	450 min.
Copper	Cu %	0.250 max.	Elongation in %	18 min.
Tin	Sn %	0.030 max.	Reduction of Area in %	-
Iron	Fe %	Balance	Hardness in BHN	-
			Impact in Joule	-

Cross Reference Table			
Material	Standard	Country	Grade Belong to the Industry
1.4903	EN	European Union	Steel and Tube
1.4903	DIN	Germany	Steel
1.4903	DIN	Germany	Steel
J84090	UNS	USA	Casting
X10CrMoVNb9-1	DIN	Germany	Steel and Tube
X10CrMoVNb9-1	ISO	International	Steel and Tube
TU Z 10 CDVNb 09 01	AFNOR NF	France	Steel and Tube

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