

## Material: DIN 1.4311

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

**Group:** Ferrous Stainless Steel Alloys

**Sub Group:** DIN 1.4311 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 %	0.030 max.	Solution Annealing	
Silicon	Si %	1.000 max.		
Manganese	Mn %	2.000 max.		
Phosphorus	P %	0.045 max.		
Sulphur	S %	0.030 max.		
Chromium	Cr %	17.000 - 19.000		
Nickel	Ni %	8.500 - 11.500		
Nitrogen	N %	0.120 - 0.220		
Iron	Fe %	Balance	Mechanical Properties	
-	-	-	Tensile Strength in Mpa	550 - 760
-	-	-	Yield Strength in Mpa	270 min.
-	-	-	Elongation in %	30 min.
-	-	-	Reduction of Area in %	-
-	-	-	Hardness in HB	230 max.
-	-	-	Impact in Joule	55 J @ RT

Cross Reference Table			
Material	Standard	Country	Grade Belong to the Industry
1.4311	EN	European Union	Tube
1.4311	DIN	Germany	Steel
CrNi18/9-0.03C/N	BS	British	Steel and Flat
X3CrNi18-10	AFNOR NF	France	Steel and Tube
SUS 304 LN	JIS	Japan	Steel, Plate, Sheet and Strip
X20CrNi 18-10	UNI	Italy	Sheet, Plate, Strip and Bar
X2CrNi18 10 KKW	ONORM	Australia	Steel

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