

Welded steel tubes are manufactured according to standard UNE-EN 10217-1

The welded steel tubes for pressure purposes: Non-alloy steel tubes with specific characteristics at room temperature properties. It is supplied at only one grade of non-alloy steel of quality of which symbolic and numeric designations are the following:

Designation of the steel grade	
Symbolic	Numeric
P235TR1	1.0254

The welded steel tubes are manufactured according to this standard must accomplish the following values reflected in the following table for longitudinal probes:

Steel grade	Yield Strength R_{eH} for T wall thickness in mm (Mpa)		Tensile strength R_m (Mpa)	Elongation at breakage A % min.	
	$T \leq 16$	$16 < T \leq 40$		Longitudinal	Transversal
P235TR1	235	225	360-500	25	23

The chemical composition of the welded steel tubes will be according to the standard requirements reflected in the following table:

Steel grade	Heat Analysis. Chemical Composition in % in mass.				
	Max C %	Max Si %	Max Mn %	Max P %	Max S %
P235TR1	0,160	0,350	1,200	0,025	0,020

Below we present a table with the dimensions and mass per unit of length and tolerances of diameters and thickness according to the standard, of the manufactured tubes that we will use in our production process, specified in the standard UNE-EN 12845, through the ISO 4200 gamma D:

NPS	Outside Diameter (mm.)	Wall Thickness (mm.)	Tolerances on the outside diameter (mm.)		Mass per unit of length (Kg/m)
			Max.	Min.	
1"	33,7	2,30	34,0	33,4	1.78
1.25"	42,4	2,30	42,7	42,1	2,27
1.5"	48,3	2,30	48,6	48,0	2,61
2"	60,3	2,30	60,6	60,0	3,29
2.5"	76,1	2.60	76,4	75,8	4,71
3"	88,9	2.90	89,2	88,6	6,15
4"	114,3	3,20	114,6	114,0	8,77
5"	139,7	3.60	140,0	139,4	12.10
6"	168,1	4,00	168,7	167,9	16.21
8"	219,1	5,00	219,5	218,7	26.40

In this standard, the available length and the allowable differences about lengths appear in the following table:

Length L (mm)	Tolerance (mm) for outside diameter <406,4 mm
$L \leq 6000$	0/+10
$6000 < L \leq 12000$	0/+15

The total deviation on the straightness of a tube L length (shaft) must not exceed in mm the formula: $0.0015 \times L$, being L the length supplied by the manufacturer. The deviations of straightness above any length of a meter, must not exceed, in any case 3 mm.

The tolerance for the oval defect is included in the diameter tolerance.