

# TUBASYS: DATA SHEET

## 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 ReH for T wall thickness in mm (Mpa)		Tensile strength Rm (Mpa)	Elongation at breakage A % min.	
	T ≤ 16	16 < T ≤ .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

# TUBASYS: DATA SHEET

Below we present a table with the dimensions and mass per unit of length and tolerances of diameters and thickness according to the different fire protection standards, of the manufactured tubes that we will use in our production process.

1. Minimum thickness specified in the standard UNE-EN 12845, through the ISO 4200 gamma D. Minimum thickness specified in TUBASYS' Factory Mutual Approval:

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
10'	273.1	5.00	275.15	271.05	33.10
12'	323.9	5.60	326.33	321.47	43.97

2. Minimum thickness specified in the standard VdS:

NPS	Outside Diameter (mm.)	Minimum Wall Thickness (mm.) with Standard Tolerance	Tolerances on the outside diameter (mm.)		Mass per unit of length (Kg/m)
			Max.	Min.	
1"	33,7	2,60	34,0	33,4	1,99
1.25"	42,4	2,60	42,7	42,1	2,55
1.5"	48,3	2,60	48,6	48,0	2,93
2"	60,3	2,60	60,6	60,0	3,70
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	4,50	219,5	218,7	23,82
10'	273.1	5.00	275.15	271.05	33.10
12'	323.9	5.60	326.33	321.47	43.97

# TUBASYS: DATA SHEET

The range of T wall thicknesses available for each diameter is very wide. On all of them, the allowable tolerance for Series 1 (the only series for which standardized accessories are available) is reflected in the table below:

Outside Diameter (mm.)	Tolerances on		
	Diámetro Exterior D	Wall Thickness T (mm)	
		T ≤ 5	5 < T ≤ 40
D ≤ 219.1	±1% o ±0.5 Bigger of these values	±10% o ±0.3 Bigger of these values	±8% o ±2 Smaller of these values
D > 219.1	±0.75% o ±6 Smaller of these values		

In this EN10217-1 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 < 6000	0/+10
6000 < L < 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.