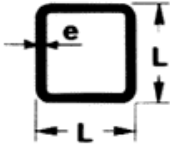


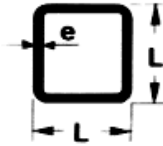
TUBOS CUADRADOS de 28 a 75 mm

Dimensiones exteriores L mm	Espesor e mm	Peso teórico kg/m	Area de la sección A cm ²	Momento de inercia de torsión J cm ⁴	Constante de torsión C cm ³	Momento de inercia de flexión I cm ⁴	Módulo de inercia de flexión W cm ³	Radio de giro i cm	Coefficiente de adaptación plástica Ψ	Módulo de plasticidad de flexión Z cm ³	Superficie m ² /Tn
28	4	2,950	3,763	5,844	3,509	3,545	2,532	0,9707	1,160	3,337	35,01
30	3,2	2,650	3,381	6,446	3,748	3,999	2,666	1,088	1,133	3,368	42,63
	4	3,200	4,083	7,414	4,193	4,523	3,016	1,053	1,154	3,929	34,76
35	3,2	3,160	4,021	10,71	5,430	6,713	3,836	1,292	1,119	4,762	42,18
	4	3,830	4,883	12,50	6,179	7,718	4,410	1,257	1,139	5,620	34,29
40	3,2	3,660	4,661	16,53	7,429	10,44	5,219	1,496	1,107	6,396	41,85
	4	4,460	5,683	19,49	8,559	12,14	6,071	1,462	1,127	7,610	33,94
	5	5,400	6,879	22,56	9,649	13,83	6,917	1,418	1,147	8,924	27,64
	6	6,270	7,986	24,96	10,42	15,08	7,540	1,374	1,165	10,02	23,47
45	3,2	4,160	5,301	24,14	9,746	15,33	6,815	1,701	1,097	8,270	41,61
	4	5,090	6,483	28,67	11,34	18	7,999	1,666	1,116	9,901	33,68
	5	6,190	7,879	33,54	12,94	20,75	9,221	1,623	1,136	11,71	27,37
	6	7,210	9,186	37,54	14,15	22,90	10,18	1,579	1,154	13,26	23,18
	7	8,170	10,40	40,69	15,02	24,51	10,89	1,535	1,169	14,57	20,20
	8	9,050	11,53	43,03	15,59	25,62	11,39	1,491	1,182	15,64	17,99
50	3,2	4,660	5,941	33,77	12,38	21,56	8,625	1,905	1,090	10,38	41,41
	4	5,720	7,283	40,35	14,51	25,48	10,19	1,871	1,107	12,49	33,48
	5	6,970	8,879	47,57	16,72	29,64	11,86	1,827	1,127	14,86	27,15
	6	8,150	10,39	53,71	18,47	33,04	13,22	1,784	1,144	16,95	22,95
	8	10,30	13,13	62,83	20,79	37,75	15,10	1,696	1,171	20,31	17,74
	9	11,30	14,37	65,87	21,44	39,18	15,67	1,651	1,183	21,59	16,02
55	3,2	5,170	6,581	45,69	15,34	29,28	10,65	2,109	1,083	12,74	41,26
	4	6,340	8,083	54,83	18,08	34,80	12,65	2,075	1,099	15,38	33,32
	5	7,760	9,879	65,04	20,99	40,78	14,83	2,032	1,118	18,40	26,98
	6	9,100	11,59	73,93	23,38	45,80	16,65	1,988	1,135	21,09	22,77
	8	11,60	14,73	87,83	26,78	53,20	19,35	1,900	1,162	25,57	17,54
	9	12,70	16,17	92,91	27,87	55,72	20,26	1,856	1,174	27,36	15,81
60	3,2	5,670	7,221	60,11	18,61	38,65	12,88	2,314	1,078	15,33	41,13
	4	6,970	8,883	72,41	22,05	46,14	15,38	2,279	1,092	18,57	33,19
	5	8,540	10,88	86,33	25,77	54,39	18,13	2,236	1,111	22,30	26,85
	6	10	12,79	98,65	28,89	61,47	20,49	2,193	1,127	25,68	22,63
	8	12,80	16,33	118,6	33,55	72,37	24,12	2,105	1,154	31,43	17,38
	10	15,30	19,52	132,6	36,36	79,40	26,47	2,017	1,175	35,88	14,26
65	3,2	6,170	7,861	77,28	22,21	49,83	15,33	2,518	1,073	18,17	41,02
	4	7,600	9,683	93,39	26,42	59,72	18,38	2,483	1,087	22,06	33,08
	5	9,330	11,88	111,8	31,04	70,75	21,77	2,440	1,104	26,59	26,73
	6	11	13,99	128,3	34,99	80,36	24,73	2,397	1,119	30,73	22,51
	8	14,10	17,93	155,8	41,10	95,67	29,44	2,310	1,146	37,89	17,25
	10	16,90	21,52	176,2	45,11	106,2	32,69	2,222	1,168	43,63	14,12
70	3,2	6,670	8,501	97,44	26,12	62,99	18	2,722	1,069	21,24	40,93
	4	8,230	10,48	118,1	31,19	75,73	21,64	2,688	1,082	25,85	32,98
	5	10,10	12,88	141,8	36,80	90,08	25,74	2,645	1,098	31,24	26,63
	6	11,90	15,19	163,4	41,68	102,8	29,36	2,601	1,113	36,22	22,41
	8	15,30	19,53	200	49,43	123,5	35,28	2,514	1,139	44,96	17,14
	10	18,50	23,52	228,3	54,82	138,5	39,57	2,427	1,160	52,13	14
75	3,2	7,180	9,141	120,8	30,35	78,27	20,87	2,926	1,066	24,55	40,85
	4	8,860	11,28	146,7	36,35	94,36	25,16	2,892	1,078	29,95	32,90
	5	10,90	13,88	176,8	43,07	112,7	30,04	2,849	1,092	36,28	26,55
	6	12,90	16,39	204,3	48,97	129	34,40	2,806	1,107	42,16	22,32
	8	16,60	21,13	251,8	58,56	156,2	41,66	2,719	1,133	52,62	17,05
	10	20	25,52	289,6	65,52	176,7	47,12	2,631	1,154	61,39	13,91



TUBOS CUADRADOS de 80 a 140 mm

Dimensiones exteriores L mm	Espesor e mm	Peso técnico kg/m	Area de la sección A cm ²	Momento de inercia de torsión J cm ⁴	Constante de de torsión C cm ⁴	Momento de inercia de flexión I cm ⁴	Módulo de inercia de flexión W cm ³	Radio de gro i cm	Coefficiente de adaptación plástica Ψ	Módulo de plasticidad de flexión Z cm ³	Superficie m ² /Tn
80	3.2	7.680	9.781	147.7	34.91	95.85	23.96	3.130	1.063	28.11	40.78
	4	9.480	12.08	179.7	41.92	115.8	28.96	3.096	1.074	34.34	32.83
	5	11.70	14.88	217.1	49.83	138.7	34.68	3.053	1.088	41.68	26.48
	6	13.80	17.59	251.5	56.86	159.4	39.84	3.010	1.102	48.55	22.25
	8	17.80	22.73	311.8	68.47	194.3	48.57	2.923	1.127	60.88	16.97
	10	21.60	27.52	360.9	77.19	221.3	55.33	2.836	1.147	71.39	13.82
12	25.10	31.94	399.4	83.36	241.3	60.32	2.748	1.165	80.15	11.73	
90	3.2	8.680	11.06	212.8	44.97	138.5	30.78	3.539	1.058	35.94	40.67
	4	10.70	13.68	259.8	54.25	168.1	37.35	3.505	1.068	44.02	32.72
	5	13.30	16.88	315	64.85	202.3	44.95	3.462	1.080	53.62	26.36
	6	15.70	19.99	366.6	74.42	233.6	51.91	3.419	1.092	62.68	22.13
	8	20.40	25.93	458.7	90.69	288	63.99	3.332	1.116	79.21	16.84
	10	24.70	31.52	536.6	103.5	331.9	73.77	3.245	1.136	93.65	13.68
12	28.80	36.74	600.6	113.2	366.4	81.42	3.158	1.154	106.1	11.59	
100	3.2	9.690	12.34	294.7	56.31	192.3	38.45	3.947	1.054	44.72	40.58
	4	12	15.28	360.6	68.18	234	46.80	3.913	1.063	54.90	32.63
	5	14.80	18.88	438.8	81.87	282.8	56.56	3.870	1.074	67.06	26.27
	6	17.60	22.39	512.3	94.38	327.9	65.59	3.827	1.085	78.62	22.03
	8	22.90	29.13	645.6	116.1	407.7	81.54	3.741	1.107	99.93	16.74
	10	27.90	35.52	761.2	133.7	474.3	94.86	3.654	1.127	118.9	13.58
12	32.60	41.54	859.3	147.8	528.6	105.7	3.567	1.144	135.6	11.48	
110	3.2	10.70	13.62	395.2	68.94	258.4	46.98	4.355	1.051	54.47	40.51
	4	13.30	16.88	484.6	83.70	315.3	57.32	4.321	1.059	66.98	32.55
	5	16.40	20.88	591.2	100.9	382.2	69.50	4.279	1.069	82	26.19
	6	19.50	24.79	692.2	116.7	444.7	80.86	4.236	1.079	96.35	21.95
	8	25.40	32.33	877.3	144.6	556.8	101.2	4.150	1.099	123.1	16.66
	10	31	39.52	1041	167.9	652.4	118.6	4.063	1.118	147.2	13.49
12	36.40	46.34	1183	187.1	732.7	133.2	3.976	1.135	168.7	11.39	
120	3.2	11.70	14.90	516.4	82.94	338.1	56.36	4.764	1.049	65.18	40.45
	4	14.50	18.48	634.3	100.8	413.5	68.91	4.730	1.056	80.26	32.49
	5	18	22.88	775.4	121.9	502.6	83.77	4.687	1.065	98.44	26.13
	6	21.30	27.19	909.8	141.5	586.4	97.73	4.644	1.074	115.9	21.89
	8	27.90	35.53	1159	176.4	738.3	123.1	4.558	1.092	148.6	16.59
	10	34.20	43.52	1381	206.1	870.3	145.1	4.472	1.111	178.4	13.42
12	40.10	51.14	1578	231.1	983.5	163.9	4.385	1.127	205.5	11.31	
130	3.2	12.70	16.18	660.1	98.02	432.8	66.59	5.172	1.046	76.85	40.40
	4	15.80	20.08	811.9	119.6	530.2	81.57	5.138	1.053	94.74	32.44
	5	19.50	24.88	994.4	144.9	646	99.38	5.095	1.061	116.4	26.08
	6	23.20	29.59	1169	168.6	755.3	116.2	5.053	1.070	137.2	21.84
	8	30.40	38.73	1494	211.4	955.5	147	4.967	1.087	176.5	16.54
	10	37.30	47.52	1789	248.3	1132	174.1	4.881	1.104	212.7	13.37
12	43.90	55.94	2053	279.9	1286	197.8	4.794	1.119	245.8	11.25	
135	3.2	13.20	16.82	741	106.1	486.2	72.03	5.376	1.045	83.04	40.38
	4	16.40	20.88	911.9	129.5	596	88.29	5.342	1.052	102.4	32.42
	5	20.30	25.88	1118	157.2	726.8	107.7	5.300	1.060	125.9	26.05
	6	24.20	30.79	1315	183.1	850.8	126	5.257	1.068	148.6	21.81
	8	31.70	40.33	1684	230	1079	159.8	5.171	1.084	191.4	16.51
	10	38.90	49.52	2019	270.9	1280	189.7	5.085	1.101	230.9	13.34
12	45.80	58.34	2322	306.1	1458	216	4.999	1.116	267.3	11.23	
140	3.2	13.50	17.19	832.4	114.4	531.2	75.88	5.558	1.045	87.64	40.55
	4	16.70	21.27	1026	139.7	647.6	92.51	5.518	1.052	107.6	32.60
	5	20.60	26.23	1259	169.6	784.2	112	5.468	1.060	131.4	26.24
	6	24.40	31.05	1482	197.6	911.3	130.2	5.418	1.068	154	22
	8	31.60	40.26	1900	248.2	1138	162.5	5.316	1.084	195.7	16.72
	10	38.40	48.91	2276	291.9	1329	189.8	5.212	1.101	232.8	13.56
12	44.70	56.99	2609	329	1487	212.4	5.107	1.118	265.4	11.46	



TUBOS CUADRADOS de 150 a 400 mm

Dimensiones exteriores L mm	Espesor e mm	Peso teórico kg/m	Area de la sección A cm ²	Momento de inercia de torsión J cm ⁴	Constante de de torsión C cm ³	Momento de inercia de flexión I cm ⁴	Módulo de inercia de flexión W cm ³	Radio de giro i cm	Coefficiente de adaptación plástica Ψ	Módulo de plasticidad de flexión Z cm ³	Superficie m ² /Tn
150	4	17.90	22.87	1268	161.6	803.2	107.1	5.927	1.049	124.2	32.55
	5	22.20	28.23	1558	196.6	974.9	130.	5.877	1.057	152	26.19
	6	26.30	33.45	1837	229.6	1135	151.4	5.826	1.064	178.5	21.95
	8	34.10	43.46	2362	289.6	1424	189.9	5.725	1.080	227.6	16.66
	10	41.50	52.91	2840	342	1672	223	5.622	1.096	271.8	13.50
	12	48.50	61.79	3270	387.4	1881	250.8	5.517	1.112	311.1	11.39
160	5	23.70	30.23	1901	225.6	1194	149.3	6.285	1.055	174.1	26.14
	6	28.10	35.85	2245	263.9	1394	174.2	6.235	1.062	204.8	21.90
	8	36.60	46.66	2894	334.1	1756	219.4	6.134	1.076	261.9	16.61
	10	44.70	56.91	3490	396.1	2070	258.8	6.031	1.091	313.7	13.44
	12	52.30	66.59	4032	450.5	2339	292.4	5.927	1.106	360.3	11.34
180	5	26.90	34.23	2731	289.7	1726	191.8	7.102	1.051	222.9	26.06
	6	31.90	40.65	3231	339.8	2021	224.6	7.052	1.057	262.7	21.82
	8	41.70	53.06	4183	432.7	2564	284.9	6.951	1.070	337.7	16.53
	10	51	64.91	5070	516.3	3045	338.3	6.849	1.082	406.6	13.36
	12	59.80	76.19	5889	591	3467	385.3	6.746	1.096	469.6	11.25
200	5	30	38.23	3772	361.7	2397	239.7	7.919	1.048	277.6	26
	6	35.70	45.45	4470	425.2	2814	281.4	7.869	1.053	327.8	21.76
	8	46.70	59.46	5807	544.2	3589	358.9	7.769	1.064	423.1	16.46
	10	57.20	72.91	7064	652.5	4286	428.6	7.667	1.076	511.6	13.29
	12	67.30	85.79	8239	750.7	4909	490.9	7.565	1.088	593.4	11.18
	14	77	98.10	9330	839.1	5461	546.1	7.461	1.100	668.6	9.670
220	6	39.40	50.25	5990	520.3	3791	344.6	8.686	1.050	400.1	21.71
	8	51.70	65.86	7803	668.4	4855	441.4	8.586	1.060	518.1	16.41
	10	63.50	80.91	9521	804.6	5825	529.5	8.485	1.071	628.5	13.23
	12	74.90	95.39	11140	929.5	6703	609.4	8.383	1.081	731.5	11.12
	14	85.80	109.3	12660	1043	7493	681.2	8.280	1.092	827.2	9.612
250	5	37.90	48.23	7458	576.7	4785	382.8	9.961	1.042	440.7	25.89
	6	45.10	57.45	8862	680.9	5643	451.4	9.911	1.047	522.1	21.65
	8	59.20	75.46	11580	878.7	7264	581.1	9.811	1.055	678.5	16.35
	10	72.90	92.91	14180	1063	8761	700.9	9.711	1.064	826.3	13.17
	12	86.20	109.8	16650	1234	10140	811	9.609	1.074	965.6	11.05
	14	99	126.1	18990	1392	11400	911.9	9.507	1.083	1097	9.543
260	6	47	59.85	9991	739.2	6373	490.2	10.32	1.046	566.4	21.63
	8	61.70	78.66	13070	955.2	8216	632	10.22	1.054	736.8	16.33
	10	76.10	96.91	16010	1157	9924	763.3	10.12	1.063	898.3	13.15
	12	90	114.6	18820	1345	11500	884.7	10.02	1.072	1051	11.03
	14	103	131.7	21500	1519	12950	996.2	9.916	1.081	1195	9.525
300	6	54.50	69.45	15460	996.5	9922	661.5	11.95	1.042	761.4	21.58
	8	71.80	91.46	20280	1293	12850	856.7	11.85	1.049	994	16.27
	10	88.60	112.9	24930	1573	15600	1040	11.75	1.057	1216	13.09
	12	105	133.8	29400	1837	18170	1211	11.65	1.064	1428	10.97
	14	121	154.1	33690	2084	20560	1371	11.55	1.072	1629	9.463
350	6	63.90	81.45	24730	1372	15950	911.5	13.99	1.039	1046	21.53
	8	84.40	107.5	32510	1788	20750	1186	13.90	1.045	1369	16.22
	10	104	132.9	40070	2183	25300	1445	13.80	1.052	1681	13.04
	12	124	157.8	47390	2559	29600	1691	13.70	1.058	1980	10.92
	14	143	182.1	54460	2916	33660	1923	13.59	1.064	2267	9.407
400	8	96.90	123.5	48870	2362	31360	1568	15.94	1.042	1805	16.18
	10	120	152.9	60350	2893	38350	1918	15.84	1.048	2221	13
	12	143	181.8	71510	3402	45030	2251	15.74	1.053	2622	10.88
	14	165	210.1	82370	3888	51380	2569	15.64	1.059	3010	9.366