

TB**Carga Extra Pesada**

Referência	Diam. Externo	Diam. Interno	Compr. Total (mm)	Constante Elástica		16% do compr. total 1Milhão de ciclos		18% do compr. total 500mil ciclos		20% do compr. total 300mil ciclos	
				(N / mm)	(Kgf /mm)	Deflexão	Carga	Deflexão	Carga	Deflexão	Carga
TB 8 × 10	8	4	10	166.11	{ 16.94 }	1.6	255 { 26.0 }	1.8	299 { 30.5 }	2.0	343 { 35.0 }
15			15	110.74	{ 11.29 }	2.4		2.7		3.0	
20			20	83.06	{ 8.47 }	3.2		3.6		4.0	
25			25	66.44	{ 6.78 }	4.0		4.5		5.0	
30			30	55.37	{ 5.65 }	4.8		5.4		6.0	
35			35	47.46	{ 4.84 }	5.6		6.3		7.0	
40			40	41.53	{ 4.23 }	6.4		7.2		8.0	
45			45	36.91	{ 3.76 }	7.2		8.1		9.0	
50			50	33.22	{ 3.39 }	8.0		9.0		10.0	
55			55	30.20	{ 3.08 }	8.8		9.9		11.0	
60			60	27.69	{ 2.82 }	9.6		10.8		12.0	
65			65	25.56	{ 2.61 }	10.4		11.7		13.0	
70			70	23.73	{ 2.42 }	11.2		12.6		14.0	
75			75	22.15	{ 2.26 }	12.0		13.5		15.0	
80			80	20.76	{ 2.12 }	12.8		14.4		16.0	
TB 10 × 20	10	5	20	111.67	{ 11.39 }	3.2	353 { 36.0 }	3.6	402 { 41.0 }	4.0	441 { 45.0 }
25			25	89.33	{ 9.11 }	4.0		4.5		5.0	
30			30	74.44	{ 7.59 }	4.8		5.4		6.0	
35			35	63.81	{ 6.51 }	5.6		6.3		7.0	
40			40	55.83	{ 5.69 }	6.4		7.2		8.0	
45			45	49.63	{ 5.06 }	7.2		8.1		9.0	
50			50	44.67	{ 4.55 }	8.0		9.0		10.0	
55			55	40.61	{ 4.14 }	8.8		9.9		11.0	
60			60	37.22	{ 3.80 }	9.6		10.8		12.0	
65			65	34.36	{ 3.50 }	10.4		11.7		13.0	
70			70	31.90	{ 3.25 }	11.2		12.6		14.0	
75			75	29.78	{ 3.04 }	12.0		13.5		15.0	
80			80	27.92	{ 2.85 }	12.8		14.4		16.0	
90			90	24.81	{ 2.53 }	14.4		16.2		18.0	
TB 12 × 20			12	6	20	141.67		{ 14.45 }		3.2	
25	25	113.33			{ 11.56 }	4.0	4.5	5.0			
30	30	94.44			{ 9.63 }	4.8	5.4	6.0			
35	35	80.95			{ 8.25 }	5.6	6.3	7.0			
40	40	70.83			{ 7.22 }	6.4	7.2	8.0			
45	45	62.96			{ 6.42 }	7.2	8.1	9.0			
50	50	56.67			{ 5.78 }	8.0	9.0	10.0			
55	55	51.52			{ 5.25 }	8.8	9.9	11.0			
60	60	47.22			{ 4.82 }	9.6	10.8	12.0			
65	65	43.59			{ 4.44 }	10.4	11.7	13.0			
70	70	40.48			{ 4.13 }	11.2	12.6	14.0			
75	75	37.78			{ 3.85 }	12.0	13.5	15.0			
80	80	35.42			{ 3.61 }	12.8	14.4	16.0			
90	90	31.48			{ 3.21 }	14.4	16.2	18.0			

TB



Carga Extra Pesada

Referência	Diam. Externo	Diam. Interno	Compr. Total (mm)	Constante Elástica		16% do compr. total 1Milhão de ciclos		18% do compr. total 500mil ciclos		20% do compr. total 300mil ciclos	
				(N / mm)	(Kgf /mm)	Deflexão	Carga	Deflexão	Carga	Deflexão	Carga
TB 14 x 25	14	7	25	148.22	{ 15.11 }	4.0	588 { 60.0 }	4.5	667 { 68.0 }	5.0	736 { 75.1 }
30			30	123.52	{ 12.60 }	4.8		5.4		6.0	
35			35	105.87	{ 10.80 }	5.6		6.3		7.0	
40			40	92.64	{ 9.45 }	6.4		7.2		8.0	
45			45	82.35	{ 8.40 }	7.2		8.1		9.0	
50			50	74.11	{ 7.56 }	8.0		9.0		10.0	
55			55	67.37	{ 6.87 }	8.8		9.9		11.0	
60			60	61.76	{ 6.30 }	9.6		10.8		12.0	
65			65	57.01	{ 5.81 }	10.4		11.7		13.0	
70			70	52.94	{ 5.40 }	11.2		12.6		14.0	
75			75	49.41	{ 5.04 }	12.0		13.5		15.0	
80			80	46.32	{ 4.72 }	12.8		14.4		16.0	
90			90	41.17	{ 4.20 }	14.4		16.2		18.0	
100			100	37.06	{ 3.78 }	16.0		18.0		20.0	
TB 16 x 25	16	8	25	196.22	{ 20.01 }	4.0	785 { 80.0 }	4.5	883 { 90.0 }	5.0	981 { 100.0 }
30			30	163.52	{ 16.67 }	4.8		5.4		6.0	
35			35	140.16	{ 14.29 }	5.6		6.3		7.0	
40			40	122.64	{ 12.51 }	6.4		7.2		8.0	
45			45	109.01	{ 11.12 }	7.2		8.1		9.0	
50			50	98.11	{ 10.00 }	8.0		9.0		10.0	
55			55	89.19	{ 9.10 }	8.8		9.9		11.0	
60			60	81.76	{ 8.34 }	9.6		10.8		12.0	
65			65	75.47	{ 7.70 }	10.4		11.7		13.0	
70			70	70.08	{ 7.15 }	11.2		12.6		14.0	
75			75	65.41	{ 6.67 }	12.0		13.5		15.0	
80			80	61.32	{ 6.25 }	12.8		14.4		16.0	
90			90	54.51	{ 5.56 }	14.4		16.2		18.0	
100			100	49.06	{ 5.00 }	16.0		18.0		20.0	
125	125	39.24	{ 4.00 }	20.0	22.5	25.0					
TB 18 x 25	18	9	25	246.22	{ 25.11 }	4.0	981 { 100.0 }	4.5	1,108 { 113.0 }	5.0	1,226 { 125.0 }
30			30	205.19	{ 20.92 }	4.8		5.4		6.0	
35			35	175.87	{ 17.93 }	5.6		6.3		7.0	
40			40	153.89	{ 15.69 }	6.4		7.2		8.0	
45			45	136.79	{ 13.95 }	7.2		8.1		9.0	
50			50	123.11	{ 12.55 }	8.0		9.0		10.0	
55			55	111.92	{ 11.41 }	8.8		9.9		11.0	
60			60	102.59	{ 10.46 }	9.6		10.8		12.0	
65			65	94.70	{ 9.66 }	10.4		11.7		13.0	
70			70	87.94	{ 8.97 }	11.2		12.6		14.0	
75			75	82.07	{ 8.37 }	12.0		13.5		15.0	
80			80	76.94	{ 7.85 }	12.8		14.4		16.0	
90			90	68.40	{ 6.97 }	14.4		16.2		18.0	
100			100	61.56	{ 6.28 }	16.0		18.0		20.0	
125	125	49.24	{ 5.02 }	20.0	22.5	25.0					



Carga Extra Pesada

Referência	Diam. Externo	Diam. Interno	Compr. Total (mm)	Constante Elástica		16% do compr. total 1Milhão de ciclos		18% do compr. total 500mil ciclos		20% do compr. total 300mil ciclos	
				(N / mm)	(Kgf /mm)	Deflexão	Carga	Deflexão	Carga	Deflexão	Carga
TB 20 × 25	20	10	25	313.78	32.00	4.0	1,255 {128.0}	4.5	1,412 {144.0}	5.0	1,569 {160.0}
30			30	261.48	26.66	4.8		5.4			
35			35	224.13	22.85	5.6		6.3			
40			40	196.11	20.00	6.4		7.2			
45			45	174.32	17.78	7.2		8.1			
50			50	156.89	16.00	8.0		9.0			
55			55	142.63	14.54	8.8		9.9			
60			60	130.74	13.33	9.6		10.8			
65			65	120.68	12.31	10.4		11.7			
70			70	112.06	11.43	11.2		12.6			
75			75	104.59	10.67	12.0		13.5			
80			80	98.06	10.00	12.8		14.4			
90			90	87.16	8.89	14.4		16.2			
100			100	78.44	8.00	16.0		18.0			
125			125	62.76	6.40	20.0		22.5			
150			150	52.30	5.33	24.0		27.0			
TB 22 × 25	22	11	25	383.56	39.11	4.0	1,530 {156.0}	4.5	1,726 {176.0}	5.0	1,912 {195.0}
30			30	319.63	32.59	4.8		5.4			
35			35	273.97	27.94	5.6		6.3			
40			40	239.72	24.44	6.4		7.2			
45			45	213.09	21.73	7.2		8.1			
50			50	191.78	19.56	8.0		9.0			
55			55	174.34	17.78	8.8		9.9			
60			60	159.81	16.30	9.6		10.8			
65			65	147.52	15.04	10.4		11.7			
70			70	136.98	13.97	11.2		12.6			
75			75	127.85	13.04	12.0		13.5			
80			80	119.86	12.22	12.8		14.4			
90			90	106.54	10.86	14.4		16.2			
100			100	95.89	9.78	16.0		18.0			
125			125	76.71	7.82	20.0		22.5			
150			150	63.93	6.52	24.0		27.0			
TB 25 × 25	25	12.5	25	482.22	49.17	4.0	1,922 {196.0}	4.5	2,170 {221.3}	5.0	2,400 {244.7}
30			30	401.85	40.98	4.8		5.4			
35			35	344.44	35.12	5.6		6.3			
40			40	301.39	30.73	6.4		7.2			
45			45	267.90	27.32	7.2		8.1			
50			50	241.11	24.59	8.0		9.0			
55			55	219.19	22.35	8.8		9.9			
60			60	200.93	20.49	9.6		10.8			
65			65	185.47	18.91	10.4		11.7			
70			70	172.22	17.56	11.2		12.6			
75			75	160.74	16.39	12.0		13.5			
80			80	150.69	15.37	12.8		14.4			
90			90	133.95	13.66	14.4		16.2			
100			100	120.56	12.29	16.0		18.0			
125			125	96.44	9.83	20.0		22.5			
150			150	80.37	8.20	24.0		27.0			
175	175	68.89	7.02	28.0	31.5						
200	200	60.28	6.15	32.0	36.0						



Carga Extra Pesada

Referência	Diam. Externo	Diam. Interno	Compr. Total (mm)	Constante Elástica		16% do compr. total 1Milhão de ciclos		18% do compr. total 500mil ciclos		20% do compr. total 300mil ciclos	
				(N / mm)	(Kgf /mm)	Deflexão	Carga	Deflexão	Carga	Deflexão	Carga
TB 27 × 25	27	13.5	25	568.89	58.01	4.0	2,280 {232.5}	4.5	2,560 {261.1}	5.0	2,840 {289.6}
30			30	474.07	48.34	4.8		5.4		6.0	
35			35	406.35	41.44	5.6		6.3		7.0	
40			40	355.56	36.26	6.4		7.2		8.0	
45			45	316.05	32.23	7.2		8.1		9.0	
50			50	284.44	29.01	8.0		9.0		10.0	
55			55	258.59	26.37	8.8		9.9		11.0	
60			60	237.04	24.17	9.6		10.8		12.0	
65			65	218.80	22.31	10.4		11.7		13.0	
70			70	203.17	20.72	11.2		12.6		14.0	
75			75	189.63	19.34	12.0		13.5		15.0	
80			80	177.78	18.13	12.8		14.4		16.0	
90			90	158.02	16.11	14.4		16.2		18.0	
100			100	142.22	14.50	16.0		18.0		20.0	
125			125	113.78	11.60	20.0		22.5		25.0	
150			150	94.81	9.67	24.0		27.0		30.0	
175			175	81.27	8.29	28.0		31.5		35.0	
200	200	71.11	7.25	32.0	36.0	40.0					
TB 30 × 25	30	15	25	706.67	72.06	4.0	2,820 {287.6}	4.5	3,180 {324.3}	5.0	3,530 {360.0}
30			30	588.89	60.05	4.8		5.4		6.0	
35			35	504.76	51.47	5.6		6.3		7.0	
40			40	441.67	45.04	6.4		7.2		8.0	
45			45	392.59	40.03	7.2		8.1		9.0	
50			50	353.33	36.03	8.0		9.0		10.0	
55			55	321.21	32.75	8.8		9.9		11.0	
60			60	294.44	30.02	9.6		10.8		12.0	
65			65	271.79	27.72	10.4		11.7		13.0	
70			70	252.38	25.74	11.2		12.6		14.0	
75			75	235.56	24.02	12.0		13.5		15.0	
80			80	220.83	22.52	12.8		14.4		16.0	
90			90	196.30	20.02	14.4		16.2		18.0	
100			100	176.67	18.01	16.0		18.0		20.0	
125			125	141.33	14.41	20.0		22.5		25.0	
150			150	117.78	12.01	24.0		27.0		30.0	
175			175	100.95	10.29	28.0		31.5		35.0	
200	200	88.33	9.01	32.0	36.0	40.0					
TB 35 × 40	35	17.5	40	600.00	61.18	6.4	3,840 {391.6}	7.2	4,320 {440.5}	8.0	4,810 {490.5}
45			45	533.33	54.38	7.2		8.1		9.0	
50			50	480.00	48.95	8.0		9.0		10.0	
55			55	436.36	44.50	8.8		9.9		11.0	
60			60	400.00	40.79	9.6		10.8		12.0	
65			65	369.23	37.65	10.4		11.7		13.0	
70			70	342.86	34.96	11.2		12.6		14.0	
75			75	320.00	32.63	12.0		13.5		15.0	
80			80	300.00	30.59	12.8		14.4		16.0	
90			90	266.67	27.19	14.4		16.2		18.0	
100			100	240.00	24.47	16.0		18.0		20.0	
125			125	192.00	19.58	20.0		22.5		25.0	
150			150	160.00	16.32	24.0		27.0		30.0	
175			175	137.14	13.98	28.0		31.5		35.0	
200	200	120.00	12.24	32.0	36.0	40.0					



Carga Extra Pesada

Referência	Diam. Externo	Diam. Interno	Compr. Total (mm)	Constante Elástica		16% do compr. total 1Milhão de ciclos		18% do compr. total 500mil ciclos		20% do compr. total 300mil ciclos	
				(N / mm)	(Kgf /mm)	Deflexão	Carga	Deflexão	Carga	Deflexão	Carga
TB 40 × 40	40	20	40	784.72	80.02	6.4	5,020 {511.9}	7.2	5,650 {576.1}	8.0	6,280 {640.4}
45			697.53	71.13	7.2	8.1		9.0			
50			627.78	64.02	8.0	9.0		10.0			
55			570.71	58.20	8.8	9.9		11.0			
60			523.15	53.35	9.6	10.8		12.0			
65			482.91	49.24	10.4	11.7		13.0			
70			448.41	45.73	11.2	12.6		14.0			
75			418.52	42.68	12.0	13.5		15.0			
80			392.36	40.01	12.8	14.4		16.0			
90			348.77	35.56	14.4	16.2		18.0			
100			313.89	32.01	16.0	18.0		20.0			
125			251.11	25.61	20.0	22.5		25.0			
150			209.26	21.34	24.0	27.0		30.0			
175			179.37	18.29	28.0	31.5		35.0			
200			156.94	16.00	32.0	36.0		40.0			
225			139.51	14.23	36.0	40.5		45.0			
250			125.56	12.80	40.0	45.0		50.0			
275			114.14	11.64	44.0	49.5		55.0			
300			104.63	10.67	48.0	54.0		60.0			
TB 50 × 50			50	25	50	981.11		100.0		8.0	
55	891.92	90.95			8.8	9.9	11.0				
60	817.59	83.37			9.6	10.8	12.0				
65	754.70	76.96			10.4	11.7	13.0				
70	700.79	71.46			11.2	12.6	14.0				
75	654.07	66.70			12.0	13.5	15.0				
80	613.19	62.53			12.8	14.4	16.0				
90	545.06	55.58			14.4	16.2	18.0				
100	490.56	50.02			16.0	18.0	20.0				
125	392.44	40.02			20.0	22.5	25.0				
150	327.04	33.35			24.0	27.0	30.0				
175	280.32	28.58			28.0	31.5	35.0				
200	245.28	25.01			32.0	36.0	40.0				
225	218.02	22.23			36.0	40.5	45.0				
250	196.22	20.01			40.0	45.0	50.0				
275	178.38	18.19			44.0	49.5	55.0				
300	163.52	16.67			48.0	54.0	60.0				
350	140.16	14.29	56.0	63.0	70.0						
TB 60 × 60	60	30	60	1176.85	120.0	9.6	11,300 {1152}	10.8	12,710 {1296}	12.0	14,120 {1440}
70			1008.73	102.9	11.2	12.6		14.0			
80			882.64	90.00	12.8	14.4		16.0			
90			784.57	80.00	14.4	16.2		18.0			
100			706.11	72.00	16.0	18.0		20.0			
125			564.89	57.60	20.0	22.5		25.0			
150			470.74	48.00	24.0	27.0		30.0			
175			403.49	41.14	28.0	31.5		35.0			
200			353.06	36.00	32.0	36.0		40.0			
225			313.83	32.00	36.0	40.5		45.0			
250			282.44	28.80	40.0	45.0		50.0			
275			256.77	26.18	44.0	49.5		55.0			
300	235.37	24.00	48.0	54.0	60.0						
350	201.75	20.57	56.0	63.0	70.0						





Carga Extra Pesada

Referência	Diam. Externo	Diam. Interno	Compr. Total (mm)	Constante Elástica		16% do compr. total 1Milhão de ciclos		18% do compr. total 500mil ciclos		20% do compr. total 300mil ciclos	
				(N / mm)	(Kgf /mm)	Deflexão	Carga	Deflexão	Carga	Deflexão	Carga
TB 70 x 70	70	38.5	70	1285.71	{ 131.1 }	11.2	14,400 {1468}	12.6	16,200 {1652}	14.0	18,000 {1836}
80			80	1125.00	{ 114.7 }	12.8		14.4		16.0	
90			90	1000.00	{ 102.0 }	14.4		16.2		18.0	
100			100	900.00	{ 91.77 }	16.0		18.0		20.0	
125			125	720.00	{ 73.42 }	20.0		22.5		25.0	
150			150	600.00	{ 61.18 }	24.0		27.0		30.0	
175			175	514.29	{ 52.44 }	28.0		31.5		35.0	
200			200	450.00	{ 45.89 }	32.0		36.0		40.0	
225			225	400.00	{ 40.79 }	36.0		40.5		45.0	
250			250	360.00	{ 36.71 }	40.0		45.0		50.0	
275			275	327.27	{ 33.37 }	44.0		49.5		55.0	
300			300	300.00	{ 30.59 }	48.0		54.0		60.0	
350			350	257.14	{ 26.22 }	56.0		63.0		70.0	

TB