



Model	Outer Dia D (mm)	Inner Dia d (mm)	Free Length L (mm)	Spring Const (kgf/mm)	0.3 million		0.5 million		1 million	
					Deflection F (mm)	Load kgf(N)	Deflection F (mm)	Load kgf(N)	Deflection F (mm)	Load kgf(N)
TL 8 × 10	8	4	10	2.50	4.0	10	3.6	9	3.2	8
15			1.67	6.0	5.4		4.8			
20			1.25	8.0	7.2		6.4			
25			1.00	10.0	9.0		8.0			
30			0.83	12.0	10.8		9.6			
35			0.71	14.0	12.6		11.2			
40			0.63	16.0	14.4		12.8			
45			0.56	18.0	16.2		14.4			
50			0.50	20.0	18.0		16.0			
55			0.46	22.0	19.8		17.6			
60			0.42	24.0	21.6		19.2			
65			0.38	26.0	23.4		20.8			
70			0.36	28.0	25.2		22.4			
75	0.33	30.0	27.0	24.0						
80	0.31	32.0	28.8	25.6						
90	0.28	36.0	32.4	28.8						
TL 10 × 10	10	5	10	3.61	4.0	14.5	3.6	13	3.2	11.5
15			2.41	6.0	5.4		4.8			
20			1.81	8.0	7.2		6.4			
25			1.45	10.0	9.0		8.0			
30			1.21	12.0	10.8		9.6			
35			1.03	14.0	12.6		11.2			
40			0.90	16.0	14.4		12.8			
45			0.80	18.0	16.2		14.4			
50			0.73	20.0	18.0		16.0			
55			0.66	22.0	19.8		17.6			
60			0.60	24.0	21.6		19.2			
65			0.55	26.0	23.4		20.8			
70			0.51	28.0	25.2		22.4			
75	0.48	30.0	27.0	24.0						
80	0.45	32.0	28.8	25.6						
90	0.40	36.0	32.4	28.8						
100	0.36	40.0	36.0	32.0						

Model	Outer Dia D (mm)	Inner Dia d (mm)	Free Length L (mm)	Spring Const (kgf/mm)	0.3 million		0.5 million		1 million	
					Deflection F (mm)	Load kgf(N)	Deflection F (mm)	Load kgf(N)	Deflection F (mm)	Load kgf(N)
TL 12 × 20	12	6	20	2.63	8.0	21	7.2	19	6.4	17
			25	2.10	10.0		9.0		8.0	
			30	1.75	12.0		10.8		9.6	
			35	1.50	14.0		12.6		11.2	
			40	1.32	16.0		14.4		12.8	
			45	1.17	18.0		16.2		14.4	
			50	1.05	20.0		18.0		16.0	
			55	0.96	22.0		19.8		17.6	
			60	0.88	24.0		21.6		19.2	
			65	0.81	26.0		23.4		20.8	
			70	0.75	28.0		25.2		22.4	
			75	0.70	30.0		27.0		24.0	
			80	0.66	32.0		28.8		25.6	
			90	0.58	36.0		32.4		28.8	
100	0.53	40.0	36.0	32.0						
TL 14 × 20	14	7	20	3.47	8.0	28	7.2	25	6.4	22
			25	2.80	10.0		9.0		8.0	
			30	2.34	12.0		10.8		9.6	
			35	2.00	14.0		12.6		11.2	
			40	1.75	16.0		14.4		12.8	
			45	1.56	18.0		16.2		14.4	
			50	1.40	20.0		18.0		16.0	
			55	1.27	22.0		19.8		17.6	
			60	1.17	24.0		21.6		19.2	
			65	1.08	26.0		23.4		20.8	
			70	1.00	28.0		25.2		22.4	
			75	0.93	30.0		27.0		24.0	
			80	0.87	32.0		28.8		25.6	
			90	0.77	36.0		32.4		28.8	
100	0.70	40.0	36.0	32.0						
125	0.56	50.0	45.0	40.0						
TL 16 × 20	16	8	20	4.44	8.0	35	7.2	32	6.4	28
			25	3.50	10.0		9.0		8.0	
			30	2.92	12.0		10.8		9.6	
			35	2.50	14.0		12.6		11.2	
			40	2.19	16.0		14.4		12.8	
			45	1.95	18.0		16.2		14.4	
			50	1.75	20.0		18.0		16.0	
			55	1.60	22.0		19.8		17.6	
			60	1.46	24.0		21.6		19.2	
			65	1.35	26.0		23.4		20.8	
			70	1.25	28.0		25.2		22.4	
			75	1.17	30.0		27.0		24.0	
			80	1.10	32.0		28.8		25.6	
			90	0.98	36.0		32.4		28.8	
100	0.88	40.0	36.0	32.0						
125	0.70	50.0	45.0	40.0						

Model	Outer Dia D (mm)	Inner Dia d (mm)	Free Length L (mm)	Spring Const (kgf/mm)	0.3 million		0.5 million		1 million	
					Deflection F (mm)	Load kgf(N)	Deflection F (mm)	Load kgf(N)	Deflection F (mm)	Load kgf(N)
TL 18 × 20	18	9	20	5.42	8.0	43	7.2	39	6.4	34
25			25	4.30	10.0		9.0		8.0	
30			30	3.58	12.0		10.8		9.6	
35			35	3.07	14.0		12.6		11.2	
40			40	2.69	16.0		14.4		12.8	
45			45	2.39	18.0		16.2		14.4	
50			50	2.15	20.0		18.0		16.0	
55			55	1.96	22.0		19.8		17.6	
60			60	1.79	24.0		21.6		19.2	
65			65	1.66	26.0		23.4		20.8	
70			70	1.54	28.0		25.2		22.4	
75			75	1.44	30.0		27.0		24.0	
80			80	1.35	32.0		28.8		25.6	
90			90	1.20	36.0		32.4		28.8	
100			100	1.07	40.0		36.0		32.0	
125	125	0.86	50.0	45.0	40.0					
TL 20 × 20	20	10	20	6.81	8.0	54	7.2	49	6.4	43
25			25	5.40	10.0		9.0		8.0	
30			30	4.50	12.0		10.8		9.6	
35			35	3.86	14.0		12.6		11.2	
40			40	3.38	16.0		14.4		12.8	
45			45	3.00	18.0		16.2		14.4	
50			50	2.70	20.0		18.0		16.0	
55			55	2.45	22.0		19.8		17.6	
60			60	2.25	24.0		21.6		19.2	
65			65	2.08	26.0		23.4		20.8	
70			70	1.93	28.0		25.2		22.4	
75			75	1.80	30.0		27.0		24.0	
80			80	1.69	32.0		28.8		25.6	
90			90	1.50	36.0		32.4		28.8	
100			100	1.35	40.0		36.0		32.0	
125	125	1.08	50.0	45.0	40.0					
150	150	0.90	60.0	54.0	48.0					
175	175	0.77	70.0	63.0	56.0					
TL 22 × 25	22	11	25	6.70	10.0	67	9.0	60	8.0	54
30			30	5.60	12.0		10.8		9.6	
35			35	4.80	14.0		12.6		11.2	
40			40	4.20	16.0		14.4		12.8	
45			45	3.72	18.0		16.2		14.4	
50			50	3.35	20.0		18.0		16.0	
55			55	3.05	22.0		19.8		17.6	
60			60	2.80	24.0		21.6		19.2	
65			65	2.58	26.0		23.4		20.8	
70			70	2.40	28.0		25.2		22.4	
75			75	2.23	30.0		27.0		24.0	
80			80	2.10	32.0		28.8		25.6	
90			90	1.86	36.0		32.4		28.8	
100			100	1.68	40.0		36.0		32.0	
125			125	1.34	50.0		45.0		40.0	
150	150	1.12	60.0	54.0	48.0					
175	175	0.96	70.0	63.0	56.0					

Model	Outer Dia D (mm)	Inner Dia d (mm)	Free Length L (mm)	Spring Const (kgf/mm)	0.3 million		0.5 million		1 million	
					Deflection F (mm)	Load kgf(N)	Deflection F (mm)	Load kgf(N)	Deflection F (mm)	Load kgf(N)
TL 25 × 25	25	12.5	25	8.40	10.0	84	9.0	76	8.0	67
30			30	7.00	12.0		10.8			
35			35	6.00	14.0		12.6			
40			40	5.25	16.0		14.4			
45			45	4.67	18.0		16.2			
50			50	4.20	20.0		18.0			
55			55	3.82	22.0		19.8			
60			60	3.50	24.0		21.6			
65			65	3.23	26.0		23.4			
70			70	3.00	28.0		25.2			
75			75	2.80	30.0		27.0			
80			80	2.63	32.0		28.8			
90			90	2.33	36.0		32.4			
100			100	2.10	40.0		36.0			
125			125	1.68	50.0		45.0			
150			150	1.40	60.0		54.0			
175			175	1.20	70.0		63.0			
200	200	1.05	80.0	72.0						
TL 27 × 25	27	13.5	25	10.00	10.0	100	9.0	90	8.0	80
30			30	8.33	12.0		10.8			
35			35	7.14	14.0		12.6			
40			40	6.25	16.0		14.4			
45			45	5.56	18.0		16.2			
50			50	5.00	20.0		18.0			
55			55	4.55	22.0		19.8			
60			60	4.17	24.0		21.6			
65			65	3.85	26.0		23.4			
70			70	3.57	28.0		25.2			
75			75	3.33	30.0		27.0			
80			80	3.13	32.0		28.8			
90			90	2.78	36.0		32.4			
100			100	2.50	40.0		36.0			
125			125	2.00	50.0		45.0			
150			150	1.67	60.0		54.0			
175			175	1.43	70.0		63.0			
200	200	1.25	80.0	72.0						
TL 30 × 25	30	15	25	12.11	10.0	121	9.0	109	8.0	97
30			30	10.08	12.0		10.8			
35			35	8.65	14.0		12.6			
40			40	7.56	16.0		14.4			
45			45	6.73	18.0		16.2			
50			50	6.05	20.0		18.0			
55			55	5.50	22.0		19.8			
60			60	5.04	24.0		21.6			
65			65	4.65	26.0		23.4			
70			70	4.32	28.0		25.2			
75			75	4.03	30.0		27.0			
80			80	3.78	32.0		28.8			
90			90	3.36	36.0		32.4			
100			100	3.02	40.0		36.0			
125			125	2.42	50.0		45.0			

Model	Outer Dia D (mm)	Inner Dia d (mm)	Free Length L (mm)	Spring Const (kgf/mm)	0.3 million		0.5 million		1 million	
					Deflection F (mm)	Load kgf(N)	Deflection F (mm)	Load kgf(N)	Deflection F (mm)	Load kgf(N)
TL 30 × 150	30	15	150	2.01	60.0	121	54.0	109	48.0	97
			175	1.72	70.0		63.0		56.0	
			200	1.51	80.0		72.0		64.0	
TL 35 × 35	35	17.5	35	11.78	14.0	165	12.6	149	11.2	132
			40	10.31	16.0		14.4		12.8	
			45	9.17	18.0		16.2		14.4	
			50	8.25	20.0		18.0		16.0	
			55	7.50	22.0		19.8		17.6	
			60	6.87	24.0		21.6		19.2	
			65	6.35	26.0		23.4		20.8	
			70	5.89	28.0		25.2		22.4	
			75	5.50	30.0		27.0		24.0	
			80	5.15	32.0		28.8		25.6	
			90	4.58	36.0		32.4		28.8	
			100	4.12	40.0		36.0		32.0	
			125	3.30	50.0		45.0		40.0	
			150	2.75	60.0		54.0		48.0	
			175	2.35	70.0		63.0		56.0	
200	2.06	80.0	72.0	64.0						
TL 40 × 40	40	20	40	13.50	16.0	216	14.4	194	12.8	173
			45	12.00	18.0		16.2		14.4	
			50	10.80	20.0		18.0		16.0	
			55	9.82	22.0		19.8		17.6	
			60	9.00	24.0		21.6		19.2	
			65	8.31	26.0		23.4		20.8	
			70	7.71	28.0		25.2		22.4	
			75	7.20	30.0		27.0		24.0	
			80	6.75	32.0		28.8		25.6	
			90	6.00	36.0		32.4		28.8	
			100	5.40	40.0		36.0		32.0	
			125	4.32	50.0		45.0		40.0	
			150	3.60	60.0		54.0		48.0	
			175	3.08	70.0		63.0		56.0	
			200	2.70	80.0		72.0		64.0	
225	2.40	90.0	81.0	72.0						
250	2.16	100.0	90.0	80.0						
275	1.96	110.0	99.0	88.0						
300	1.80	120.0	108.0	96.0						
TL 50 × 50	50	25	50	16.89	20.0	338	18.0	304	16.0	270
			55	15.35	22.0		19.8		17.6	
			60	14.08	24.0		21.6		19.2	
			65	12.99	26.0		23.4		20.8	
			70	12.07	28.0		25.2		22.4	
			75	11.26	30.0		27.0		24.0	
			80	10.56	32.0		28.8		25.6	
			90	9.38	36.0		32.4		28.8	
			100	8.45	40.0		36.0		32.0	
			125	6.76	50.0		45.0		40.0	
			150	5.63	60.0		54.0		48.0	
175	4.82	70.0	63.0	56.0						
200	4.22	80.0	72.0	64.0						

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					Deflection F (mm)	Load kgf(N)	Deflection F (mm)	Load kgf(N)	Deflection F (mm)	Load kgf(N)
TL 50 × 225	30	25	225	3.75	90.0	338	81.0	304	72.0	270
250			250	3.38	100.0		90.0		80.0	
275			275	3.07	110.0		99.0		88.0	
300			300	2.81	120.0		108.0		96.0	
350			350	2.41	140.0		126.0		112.0	
400			400	2.11	160.0		144.0		128.0	
450			450	1.88	180.0		162.0		144.0	
500			500	1.69	200.0		180.0		160.0	
TL 60 × 60			60	30	60		20.25		24.0	
70	70	17.35			28.0	25.2	22.4			
80	80	15.18			32.0	28.8	25.6			
90	90	13.50			36.0	32.4	28.8			
100	100	12.15			40.0	36.0	32.0			
125	125	9.72			50.0	45.0	40.0			
150	150	8.10			60.0	54.0	48.0			
175	175	6.94			70.0	63.0	56.0			
200	200	6.07			80.0	72.0	64.0			
225	225	5.40			90.0	81.0	72.0			
250	250	4.86			100.0	90.0	80.0			
275	275	4.42			110.0	99.0	88.0			
300	300	4.05			120.0	108.0	96.0			
350	350	3.47			140.0	126.0	112.0			
400	400	3.04			160.0	144.0	128.0			
450	450	2.70			180.0	162.0	144.0			
500	500	2.43			200.0	180.0	160.0			
TLR 30 × 30	30	16	30	6.33	12.0	76	10.8	68	9.6	61
35			35	5.43	14.0		12.6		11.2	
40			40	4.75	16.0		14.4		12.8	
45			45	4.22	18.0		16.2		14.4	
50			50	3.80	20.0		18.0		16.0	
55			55	3.45	22.0		19.8		17.6	
60			60	3.17	24.0		21.6		19.2	
65			65	2.92	26.0		23.4		20.8	
70			70	2.71	28.0		25.2		22.4	
75			75	2.53	30.0		27.0		24.0	
80			80	2.38	32.0		28.8		25.6	
90			90	2.11	36.0		32.4		28.8	
100			100	1.90	40.0		36.0		32.0	
125			125	1.52	50.0		45.0		40.0	
150			150	1.27	60.0		54.0		48.0	
175	175	1.09	70.0	63.0	56.0					
TLR 35 × 40	35	21	40	9.69	16.0	155	14.4	140	12.8	124
45			45	8.61	18.0		16.2		14.4	
50			50	7.75	20.0		18.0		16.0	
55			55	7.05	22.0		19.8		17.6	
60			60	6.46	24.0		21.6		19.2	
65			65	5.96	26.0		23.4		20.8	
70			70	5.54	28.0		25.2		22.4	
75			75	5.17	30.0		27.0		24.0	
80			80	4.84	32.0		28.8		25.6	
90	90	4.31	36.0	32.4	28.8					

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					Deflection F (mm)	Load kgf(N)	Deflection F (mm)	Load kgf(N)	Deflection F (mm)	Load kgf(N)
TLR 35 × 100	35	21	100	3.88	40.0	155	36.0	140	32.0	124
125			125	3.10	50.0		45.0		40.0	
150			150	2.58	60.0		54.0		48.0	
175			175	2.21	70.0		63.0		56.0	
200			200	1.94	80.0		72.0		64.0	
250			250	1.74	100.0		90.0		80.0	
TLR 40 × 50	40	26	50	8.70	20.0	174	18.0	157	16.0	138
60			60	7.25	24.0		21.6		19.2	
70			70	6.21	28.0		25.2		22.4	
80			80	5.44	32.0		28.8		25.6	
90			90	4.83	36.0		32.4		28.8	
100			100	4.35	40.0		36.0		32.0	
125			125	3.48	50.0		40.0		40.0	
150			150	2.90	60.0		54.0		48.0	
175			175	2.49	70.0		63.0		56.0	
200			200	2.18	80.0		72.0		64.0	
250			250	1.74	100.0		90.0		80.0	
TLR 50 × 60			50	30	60		10.83		24.0	
70	70	9.29			28.0	25.2	22.4			
80	80	8.13			32.0	28.8	25.6			
90	90	7.22			36.0	32.4	28.8			
100	100	6.50			40.0	36.0	32.0			
125	125	5.20			50.0	45.0	40.0			
150	150	4.33			60.0	54.0	48.0			
175	175	3.71			70.0	63.0	56.0			
200	200	3.25			80.0	72.0	64.0			
250	250	2.60			100.0	90.0	80.0			
300	300	2.17			120.0	108.0	96.0			
TLR 60 × 90	60	35			90	10.67	36.0	384	32.4	345
100			100	9.60	40.0	36.0	32.0			
125			125	7.68	50.0	45.0	40.0			
150			150	6.40	60.0	54.0	48.0			
175			175	5.49	70.0	63.0	56.0			
200			200	4.80	80.0	72.0	64.0			
250			250	3.84	100.0	90.0	80.0			
300			300	3.20	120.0	108.0	96.0			



Order Example

TYPE	D	L
TL	D25	L100