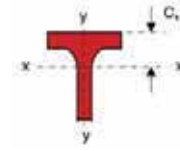


Structural Tees



Metric units

Designation		Cut from		Width	Depth	Thickness		Root	Ratio For		Dimension
Serial	Mass	Serial	Mass	Of	Of	Web	Flange	Radius	Local		
Size	Per	Size	Per	Section	Section				Buckling		
	Metre		Metre	B	d	t	T	r	d/t	b/T	C _x
mm	kg/m		kg/m	mm	mm	mm	mm	mm			cm
50x100	8.5	100x100	17.2	100	50	6	8	8	8.33	6.25	1.00
62.5x125	11.8	125x125	23.6	125	62.5	6.5	9	8	9.62	6.94	1.19
75x75	7.0	150x75	14.0	75	75	5	7	8	15.0	5.36	1.79
75x100	10.3	150x100	20.7	100	74	6	9	8	12.3	5.56	1.56
75x150	15.6	150x150	31.1	150	75	7	10	8	10.7	7.50	1.37
87.5x90	9.0	175x90	18.0	90	87.5	5	8	8	17.5	5.63	1.93
87.5x175	20.2	175x175	40.4	175	87.5	7.5	11	13	11.7	7.95	1.55
100x100	9.1	200x100	18.2	99	99	4.5	7	11	22.0	7.07	2.15
	10.5	200x100	20.9	100	100	5.5	8	8	18.2	6.25	2.31
	10.7	200x100	21.3	100	100	5.5	8	11	18.2	6.25	2.29
100x150	15.0	200x150	29.9	150	97	6	9	8	16.2	8.33	1.80
	15.3	200x150	30.6	150	97	6	9	13	16.2	8.33	1.79
100x200	24.9	200x200	49.9	200	100	8	12	13	12.5	8.33	1.73
	28.1	200x200	57.8	204	100	12	12	13	8.3	8.50	2.09
	32.8	200x200	65.7	202	104	10	16	13	10.4	6.31	1.91
125x125	12.8	250x125	25.7	124	124	5	8	12	24.8	7.75	2.63
	14.5	250x125	29.0	125	125	6	9	8	20.8	6.94	2.81
	14.8	250x125	29.6	125	125	6	9	12	20.8	6.94	2.78
125x175	21.8	250x175	43.6	175	122	7	11	13	17.4	7.95	2.28
	22.1	250x175	44.1	175	122	7	11	16	17.4	7.95	2.27
125x250	32.2	250x250	64.4	252	122	11	11	16	11.1	11.5	2.39
	33.2	250x250	66.5	249	124	8	13	16	15.5	9.58	1.98
	35.9	250x250	71.8	250	125	9	14	13	13.9	8.93	2.08
	36.2	250x250	72.4	250	125	9	14	16	13.9	8.93	2.08
	41.1	250x250	82.2	255	125	14	14	16	8.93	9.11	2.58
150x150	16.0	300x150	32.0	149	149	5.5	8	13	27.1	9.31	3.26
	18.4	300x150	36.7	150	150	6.5	9	13	23.1	8.33	3.41
150x200	27.9	300x200	55.8	200	147	8	12	13	18.4	8.33	2.85
	28.4	300x200	56.8	200	147	8	12	18	18.4	8.33	2.83
	32.7	300x200	65.4	201	149	9	14	18	16.6	7.18	2.91
150x300	42.3	300x300	84.6	302	147	12	12	18	12.3	12.6	2.84
	43.5	300x300	87.0	299	149	9	14	18	16.6	10.7	2.36
	46.5	300x300	93.0	300	150	10	15	13	15.0	10.0	2.47
	47.0	300x300	94.0	300	150	10	15	18	15.0	10.0	2.47
	52.9	300x300	106	305	150	15	15	18	10.0	10.2	3.03
	52.9	300x300	106	301	152	11	17	18	13.8	8.85	2.55
175x175	20.7	350x175	41.4	174	173	6	9	14	28.8	9.67	3.71
	24.7	350x175	49.4	175	175	7	11	13	25.0	7.95	3.76
	24.8	350x175	49.6	175	175	7	11	14	25.0	7.95	3.75
175x250	34.6	350x250	69.2	249	168	8	12	20	21.0	10.4	3.02
	39.1	350x250	78.1	250	170	9	14	13	18.9	8.93	3.11
	39.8	350x250	79.7	250	170	9	14	20	18.9	8.93	3.09
175x350	53.1	350x350	106.2	351	169	13	13	20	13.0	13.5	3.21
	57.3	350x350	113	348	172	10	16	20	17.2	10.9	2.67
	65.4	350x350	130.8	354	172	16	16	20	10.8	11.1	3.40
	67.5	350x350	135	350	175	12	19	13	14.6	9.21	2.87
	68.2	350x350	137	350	175	12	19	20	14.6	9.21	2.86
	77.9	350x350	159	357	175	19	19	20	9.2	9.39	3.59
	79.3	350x350	181	352	178	14	22	20	12.7	8.00	3.05
200x200	28.3	400x200	56.1	199	198	7	11	16	28.3	9.05	4.17
	32.7	400x200	65.4	200	200	8	13	13	25.0	7.69	4.26
	33.0	400x200	66.0	200	200	8	13	16	25.0	7.69	4.23



Metric units

Designation Serial Size	Mass Per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter u	Torsional Index x	Torsional Constant J	Sectional Area A
		Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y				
mm	kg/m	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³			cm ⁴	cm ²
50x100	8.5	16.2	66.8	1.22	2.49	4.04	13.4	7.86	20.5	-	5.58	2.35	10.8
62.5x125	11.8	35.1	147	1.53	3.13	6.92	23.5	13.3	35.9	-	6.41	3.93	15.0
75x75	7.0	42.4	24.7	2.18	1.66	7.44	6.59	13.4	10.4	0.520	10.2	1.40	8.92
75x100	10.3	51.7	75.2	1.98	2.39	8.84	15.0	16.2	23.2	-	7.90	3.27	13.2
75x150	15.6	66.4	282	1.83	3.77	10.8	37.5	20.6	57.2	-	7.08	6.22	19.8
87.5x90	9.0	70.4	48.7	2.48	2.06	10.3	10.8	18.5	16.8	0.463	10.9	2.15	11.4
87.5x175	20.2	115	492	2.11	4.37	16.0	56.2	30.4	85.8	-	7.27	10.5	25.7
100x100	9.1	93.3	56.8	2.84	2.21	12.0	11.5	21.5	17.9	0.493	13.3	1.92	11.6
	10.5	114	66.9	2.92	2.24	14.8	13.4	26.3	20.8	0.514	12.5	2.53	13.3
	10.7	114	66.9	2.90	2.22	14.8	13.4	26.5	21.0	0.511	11.8	2.87	13.6
100x150	15.0	124	253	2.55	3.65	15.7	33.8	28.3	51.5	-	10.6	4.65	19.1
	15.3	125	254	2.53	3.61	15.8	33.8	28.6	51.8	-	9.91	5.44	19.5
100x200	24.9	185	801	2.41	5.02	22.3	80.1	42.3	122	-	7.78	14.9	31.8
	28.1	256	851	2.68	4.88	32.4	83.4	59.2	129	-	7.19	19.6	35.8
	32.8	251	1100	2.45	5.13	29.6	109	58.4	166	-	6.09	33.3	41.8
125x125	12.8	207	127	3.56	2.79	21.2	20.5	37.5	31.8	0.487	15.0	3.36	16.3
	14.5	247	147	3.65	2.82	25.5	23.5	45.2	36.3	0.508	14.2	4.24	18.5
	14.8	247	147	3.62	2.79	25.4	23.5	45.3	36.6	0.505	13.5	4.83	18.8
125x175	21.8	288	492	3.22	4.21	29.1	56.2	52.3	86.0	-	10.7	10.6	27.7
	22.1	289	492	3.21	4.18	29.1	56.2	52.6	86.4	-	10.3	11.6	28.1
125x250	32.2	445	1469	3.29	5.98	45.3	117	81.3	179	-	9.54	19.6	41.0
	33.2	365	1674	2.93	6.29	35.0	134	65.7	204	-	8.96	23.3	42.3
	35.9	412	1824	3.00	6.32	39.6	146	74.3	222	-	8.56	27.9	45.7
	36.2	413	1824	2.99	6.29	39.6	146	74.6	222	-	8.38	29.3	46.1
	41.1	589	1938	3.36	6.09	59.4	152	108	234	-	7.73	39.1	52.3
150x150	16.0	391	221	4.38	3.29	33.5	29.7	59.5	45.9	0.515	17.8	4.32	20.4
	18.4	461	254	4.44	3.29	39.7	33.8	70.7	52.6	0.528	16.0	6.16	23.4
150x200	27.9	570	801	4.01	4.75	48.1	80.1	85.6	123	-	12.0	15.7	35.5
	28.4	571	801	3.97	4.71	48.1	80.1	86.1	123	-	11.4	17.9	36.2
	32.7	662	949	3.99	4.77	55.2	94.5	99.6	145	-	10.1	26.6	41.7
150x300	42.3	857	2758	3.99	7.16	72.3	183	129	280	-	10.6	30.5	53.8
	43.5	716	3120	3.59	7.51	57.1	209	105	317	-	10.0	35.6	55.4
	46.5	798	3377	3.67	7.55	63.7	225	117	341	-	9.70	40.9	59.2
	47.0	799	3377	3.65	7.51	63.8	225	118	342	-	9.41	44.0	59.9
	52.9	1108	3552	4.05	7.26	92.5	233	167	358	-	8.72	57.7	67.4
	52.9	904	3866	3.66	7.57	71.5	257	134	390	-	8.46	62.1	67.4
175x175	20.7	675	396	5.06	3.88	49.6	45.5	87.6	70.1	0.504	18.8	6.81	26.3
	24.7	811	492	5.08	3.96	59.0	56.2	104	86.7	0.495	16.1	11.2	31.5
	24.8	811	492	5.07	3.95	59.0	56.2	104	86.8	0.494	15.9	11.5	31.6
175x250	34.6	881	1546	4.47	5.92	63.9	124	114	190	-	12.9	22.3	44.1
	39.1	1015	1824	4.52	6.05	73.1	146	130	222	-	12.1	28.9	49.8
	39.8	1017	1825	4.48	6.00	73.1	146	131	223	-	11.4	33.1	50.8
175x350	53.1	1423	4690	4.59	8.33	104	267	185	409	-	11.3	44.8	67.6
	57.3	1232	5622	4.11	8.78	84.8	323	156	490	-	10.2	60.4	73.0
	65.4	1802	5923	4.65	8.43	131	335	234	513	-	9.41	81.1	83.3
	67.5	1519	6791	4.20	8.89	104	388	194	588	-	9.02	92.6	85.9
	68.2	1521	6793	4.18	8.84	104	388	195	589	-	8.77	99.3	86.9
	77.9	2203	7216	4.71	8.53	158	404	287	622	-	8.07	134	99.2
	79.3	1826	8002	4.25	8.90	124	455	236	691	-	7.70	152	101
200x200	28.3	1188	723	5.74	4.48	76.0	72.7	134	112	0.491	17.8	13.5	36.1
	32.7	1390	868	5.77	4.56	88.3	86.8	156	133	0.486	15.9	19.8	41.7
	33.0	1391	868	5.75	4.54	88.2	86.8	156	134	0.485	15.5	21.0	42.1

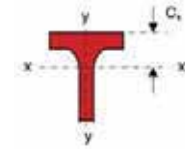
Structural Tees



Metric units

Designation	Cut from	Width	Depth	Thickness	Root	Ratio For	Dimension				
Serial Size	Mass Per Metre	Serial Size	Mass Per Metre	Of Section	Of Section	Web	Flange	Radius	Local Buckling		
				B	d	t	T	r	d/t	b/T	C _x
mm	kg/m	kg/m	mm	mm	mm	mm	mm	mm			cm
200x300	47.1	400x300	94.3	299	193	9	14	22	21.4	10.7	3.33
	52.3	400x300	105	300	195	10	16	13	19.5	9.38	3.43
	53.4	400x300	107	300	195	10	16	22	19.5	9.38	3.41
200x400	70.0	400x400	140	402	194	15	15	22	12.9	13.4	3.70
	73.3	400x400	147	398	197	11	18	22	17.9	11.1	3.01
	84.1	400x400	171.6	405	197	18	18	22	10.9	11.3	3.89
	85.8	400x400	172	400	200	13	21	22	15.4	9.52	3.21
	98.4	400x400	200	408	200	21	21	22	9.5	9.71	4.07
	116.0	400x400	232	405	207	18	28	22	11.5	7.23	3.68
	142.0	400x400	283	407	214	20	35	22	10.7	5.81	3.90
	207.0	400x400	415	417	229	30	50	22	7.6	4.17	4.85
	302.0	400x400	605	432	249	45	70	22	5.5	3.09	6.13
225x200	33.1	450x200	66.2	199	223	8	12	18	27.9	8.29	5.10
	37.5	450x200	74.9	200	225	9	14	13	25.0	7.14	5.19
	38.0	450x200	76.0	200	225	9	14	18	25.0	7.14	5.15
225x300	53.0	450x300	106	299	217	10	15	24	21.7	9.97	4.04
	60.4	450x300	121	300	220	11	18	13	20.0	8.33	4.09
	61.8	450x300	124	300	220	11	18	24	20.0	8.33	4.05
250x200	39.7	500x200	77.9	199	248	9	14	20	27.6	7.11	5.90
	44.1	500x200	88.2	200	250	10	16	13	25.0	6.25	6.03
	44.8	500x200	89.6	200	250	10	16	20	25.0	6.25	5.96
	51.5	500x200	102	201	253	11	19	20	23.0	5.29	5.95
250x300	57.1	500x300	114	300	241	11	15	26	21.9	10.0	4.92
	62.5	500x300	125	300	244	11	18	13	22.2	8.33	4.72
	64.2	500x300	128	300	244	11	18	26	22.2	8.33	4.66
300x200	47.3	600x200	92.5	199	298	10	15	22	29.8	6.63	7.79
	51.7	600x200	103	200	300	11	17	13	27.3	5.88	7.95
	52.8	600x200	106	200	300	11	17	22	27.3	5.88	7.84
	59.8	600x200	120	201	303	12	20	22	25.3	5.03	7.79
	67.0	600x200	134	202	306	13	23	22	23.5	4.39	7.79
300x300	68.5	600x300	137	300	291	12	17	28	24.3	8.82	6.39
	73.5	600x300	147	300	294	12	20	13	24.5	7.50	6.17
	75.6	600x300	151	300	294	12	20	28	24.5	7.50	6.08
	87.3	600x300	175	302	297	14	23	28	21.2	6.57	6.33
350x300	83.0	700x300	166	300	346	13	20	28	26.6	7.50	7.99
	90.9	700x300	182	300	350	13	24	18	26.9	6.25	7.63
	92.4	700x300	185	300	350	13	24	28	26.9	6.25	7.55
400x300	95.6	800x300	191	300	396	14	22	28	28.3	6.82	9.66
	103.0	800x300	207	300	400	14	26	18	28.6	5.77	9.27
	105.0	800x300	210	300	400	14	26	28	28.6	5.77	9.18
450x300	105.0	900x300	210	299	445	15	23	18	29.7	6.50	11.7
	120.0	900x300	240	300	450	16	28	18	28.1	5.36	11.4
	141.0	900x300	283	302	456	18	34	18	25.3	4.44	11.3
	152.0	900x300	304	303	459	19	37	18	24.2	4.09	11.4

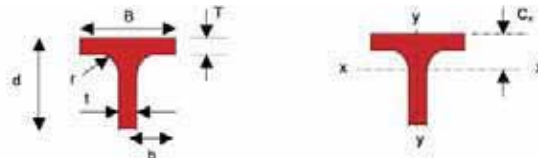
BEAMS AND COLUMNS



Metric units

Designation Serial Size	Mass Per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter u	Torsional Index x	Torsional Constant J	Sectional Area A
		Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y				
mm	kg/m	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³			cm ⁴	cm ²
200x300	47.1	1524	3122	5.04	7.21	95.5	209	170	318	-	12.9	39.9	60.0
	52.3	1728	3602	5.09	7.35	108	240	192	365	-	12.3	49.7	66.6
200x400	53.4	1732	3604	5.05	7.28	108	240	193	367	-	11.6	56.7	68.0
	70.0	2480	8129	5.27	9.54	158	404	280	619	-	11.3	77.7	89.2
	73.3	2047	9461	4.68	10.1	123	475	226	720	-	10.5	96.8	93.4
	84.1	3052	9977	5.34	9.65	193	493	346	755	-	9.62	131	107
	85.8	2478	11210	4.76	10.1	148	560	276	850	-	9.11	151	109
	98.4	3652	11900	5.40	9.8	229	584	414	897	-	8.38	205	125
	116.0	3626	15510	4.95	10.2	213	766	410	1166	-	7.04	356	148
	142.0	4380	19680	4.93	10.4	250	967	504	1470	-	5.83	657	180
	207.0	7470	30260	5.32	10.7	414	1451	863	2218	-	4.27	1934	264
302.0	13250	47180	5.87	11.1	706	2184	1501	3362	-	3.21	5488	385	
225x200	33.1	1861	790	6.65	4.33	108	79.4	193	123	0.565	18.2	19.1	42.1
	37.5	2142	935	6.70	4.43	124	93.5	219	145	0.563	16.8	25.7	47.7
	38.0	2144	936	6.66	4.40	124	93.6	220	145	0.559	16.1	28.4	48.4
225x300	53.0	2341	3346	5.89	7.04	133	224	235	343	-	13.5	51.9	67.5
	60.4	2676	4053	5.90	7.26	149	270	265	412	-	12.5	70.5	76.9
	61.8	2681	4055	5.84	7.18	149	270	267	414	-	11.7	81.6	78.7
250x200	39.7	2814	922	7.45	4.27	149	92.7	266	145	0.598	17.6	30.3	50.6
	44.1	3187	1069	7.54	4.36	168	107	299	166	0.599	16.7	37.9	56.1
	44.8	3190	1070	7.47	4.33	168	107	300	167	0.594	15.8	42.8	57.1
	51.5	3650	1290	7.46	4.43	189	128	337	201	0.582	13.8	65.7	65.6
250x300	57.1	3401	3381	6.84	6.82	177	225	314	348	0.167	14.7	58.8	72.8
	62.5	3607	4053	6.73	7.14	183	270	323	412	-	14.0	71.5	79.6
	64.2	3615	4056	6.65	7.04	183	270	325	415	-	13.0	85.8	81.8
300x200	47.3	5127	989	9.23	4.05	233	99.4	424	158	0.660	19.9	41.1	60.2
	51.7	5743	1137	9.34	4.16	261	114	470	179	0.662	19.2	48.5	65.9
	52.8	5749	1139	9.25	4.12	259	114	470	181	0.656	18.0	56.3	67.2
	59.8	6512	1360	9.24	4.22	289	135	522	214	0.644	15.9	83.2	76.2
	67.0	7288	1588	9.24	4.31	319	157	574	249	0.636	14.2	118	85.3
300x300	68.5	6315	3834	8.51	6.63	278	256	494	396	0.501	16.1	86.2	87.2
	73.5	6668	4505	8.44	6.94	287	300	505	461	0.465	15.6	99.3	93.6
	75.6	6679	4509	8.33	6.84	286	301	508	464	0.460	14.4	120	96.2
	87.3	7892	5291	8.43	6.90	338	350	601	542	0.466	12.8	178	111
350x300	83.0	11220	4511	10.3	6.53	422	301	751	468	0.572	17.2	130	106
	90.9	11960	5408	10.2	6.83	437	361	771	555	0.540	15.7	171	116
	92.4	11970	5411	10.1	6.78	436	361	774	558	0.536	15.0	191	118
400x300	95.6	17590	4964	12.0	6.39	588	331	1053	518	0.617	18.4	170	122
	103.0	18680	5860	11.9	6.67	608	391	1076	605	0.591	17.0	220	132
	105.0	18690	5864	11.8	6.62	607	391	1078	608	0.588	16.3	243	134
450x300	105.0	25750	5137	13.9	6.20	785	344	1415	539	0.662	21.1	180	133
	120.0	29030	6316	13.8	6.43	863	421	1541	659	0.639	17.9	289	153
	141.0	34070	7827	13.8	6.59	994	518	1773	811	0.627	15.1	488	180
	152.0	36650	8604	13.8	6.67	1061	568	1892	889	0.623	14.0	616	194

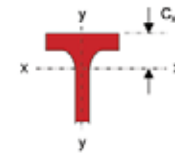
Structural Tees



Imperial units

Designation		Cut from		Width Of Section	Depth Of Section	Thickness		Root Radius	Ratios For Local Buckling		Dimension
Serial Size	Mass Per Metre	Serial Size	Mass Per Metre			Web	Flange		d/t	b/T	
Bxd				B	d	t	T	r			C _x
mm	kg/m		kg/m	mm	mm	mm	mm	mm			cm
102x76	6.70	152x102	13.4	100.1	74.9	4.32	5.46	6.4	17.3	9.17	1.58
	8.93	152x102	17.9	101.6	76.6	5.84	7.11	6.4	13.1	7.14	1.72
	11.91	152x102	23.8	102.4	79.8	6.60	10.29	6.4	12.1	4.98	1.72
102x127	11.00	254x102	22.0	101.6	126.9	5.70	6.80	7.6	22.3	7.47	3.45
	12.60	254x102	25.0	101.9	128.5	6.00	8.40	7.6	21.4	6.07	3.32
	14.20	254x102	28.0	102.2	130.1	6.30	10.00	7.6	20.7	5.11	3.24
102x152	12.40	305x102	25.0	101.6	152.5	5.80	7.00	7.6	26.3	7.26	4.43
	14.10	305x102	28.0	101.8	154.3	6.00	8.80	7.6	25.7	5.78	4.20
	16.40	305x102	33.0	102.4	156.3	6.60	10.80	7.6	23.7	4.74	4.14
127x152	18.50	305x127	37.0	123.4	152.1	7.10	10.70	8.9	21.4	5.77	3.78
	21.00	305x127	42.0	124.3	153.5	8.00	12.10	8.9	19.2	5.14	3.87
	24.00	305x127	48.0	125.3	155.4	9.00	14.00	8.9	17.3	4.48	3.94
127x178	16.50	356x127	33.0	125.4	174.4	6.00	8.50	10.2	29.1	7.38	4.56
	19.50	356x127	39.0	126.0	176.6	6.60	10.70	10.2	26.8	5.89	4.44
133x102	12.50	203x133	25.0	133.2	101.5	5.70	7.80	7.6	17.8	8.54	2.10
	15.00	203x133	30.0	133.9	103.3	6.40	9.60	7.6	16.1	6.97	2.11
140x203	19.50	406x140	39.0	141.8	198.9	6.40	8.60	10.2	31.1	8.24	5.32
	23.00	406x140	46.0	142.2	201.5	6.80	11.20	10.2	29.6	6.35	5.02
146x127	15.60	254x146	31.0	146.1	125.6	6.00	8.60	7.6	20.9	8.49	2.66
	18.50	254x146	37.0	146.4	127.9	6.30	10.90	7.6	20.3	6.72	2.55
	21.50	254x146	43.0	147.3	129.7	7.20	12.70	7.6	18.0	5.80	2.64
152x76	11.50	152x152	23.0	152.2	76.1	5.80	6.80	7.6	13.1	11.2	1.39
	15.00	152x152	30.0	152.9	78.7	6.50	9.40	7.6	12.1	8.13	1.41
	18.50	152x152	37.0	154.4	80.8	8.00	11.50	7.6	10.1	6.71	1.53
152x229	26.20	457x152	52.0	152.4	224.8	7.60	10.90	10.2	29.6	6.99	6.04
	29.90	457x152	60.0	152.9	227.2	8.10	13.30	10.2	28.0	5.75	5.84
	33.60	457x152	67.0	153.8	228.9	9.00	15.00	10.2	25.4	5.13	5.91
	34.23	457x152	68.5	153.9	229.4	9.14	15.37	10.2	25.1	5.01	5.92
	37.10	457x152	74.0	154.4	230.9	9.60	17.00	10.2	24.1	4.54	5.88
	41.00	457x152	82.0	155.3	232.8	10.50	18.90	10.2	22.2	4.11	5.96
165x102	17.86	203x165	35.7	165.0	100.7	6.22	10.16	10.2	16.2	8.12	1.76
	20.83	203x165	41.7	166.0	102.4	7.24	11.81	10.2	14.1	7.03	1.87
165x152	19.35	305x165	38.7	164.8	155.2	5.84	9.65	7.6	26.6	8.54	3.16
	20.10	305x165	40.0	165.0	151.6	6.00	10.20	8.9	25.3	8.09	3.03
	22.32	305x165	44.6	165.6	156.7	6.60	11.18	7.6	23.7	7.41	3.22
	23.10	305x165	46.0	165.7	153.2	6.70	11.80	8.9	22.9	7.02	3.07
	26.04	305x165	52.1	166.6	158.8	7.62	13.21	7.6	20.8	6.31	3.31
	27.00	305x165	54.0	166.9	155.1	7.90	13.70	8.9	19.6	6.09	3.21
165x267	32.74	533x165	65.5	165.1	262.4	8.89	11.43	12.7	29.5	7.22	7.58
	37.20	533x165	74.4	165.9	264.5	9.65	13.59	12.7	27.4	6.10	7.44
	42.41	533x165	84.8	166.5	267.5	10.29	16.51	12.7	26.0	5.04	7.24
171x178	22.50	356x171	45.0	171.1	175.6	7.00	9.70	10.2	25.1	8.82	4.05
	25.50	356x171	51.0	171.5	177.4	7.40	11.50	10.2	24.0	7.46	3.94
	28.50	356x171	57.0	172.2	178.9	8.10	13.00	10.2	22.1	6.62	3.97
	33.50	356x171	67.0	173.2	181.6	9.10	15.70	10.2	20.0	5.52	4.00
178x203	27.10	406x178	54.0	177.7	201.2	7.70	10.90	10.2	26.1	8.15	4.83
	30.00	406x178	60.0	177.9	203.1	7.90	12.80	10.2	25.7	6.95	4.64
	33.60	406x178	67.0	178.8	204.6	8.80	14.30	10.2	23.3	6.25	4.73
	37.10	406x178	74.0	179.5	206.3	9.50	16.00	10.2	21.7	5.61	4.76
	42.41	406x178	84.8	180.8	208.7	10.92	18.16	10.2	19.1	4.98	4.93

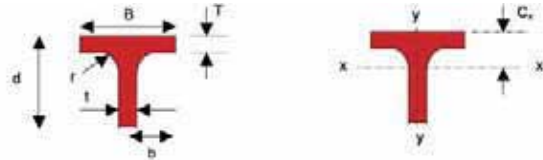
BEAMS AND COLUMNS



Imperial units

Designation	Second	Radius	Elastic	Plastic	Buckling	Torsional	Torsional	Sectional					
Serial	Moment	Of	Modulus	Modulus	Parameter	Index	Constant	Area					
Size	Of Area	Gyration	Axis	Axis	Axis	Axis	Axis	Axis					
	Axis	Axis	Axis	Axis	Axis	Axis	Axis	Axis					
	x-x	y-y	x-x	y-y	x-x	y-y	x-x	y-y					
mm	kg/m	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	u	x	J	A
102x76	6.70	39.4	45.7	2.14	2.30	6.67	9.14	11.8	14.0	-	13.1	0.841	8.64
	8.93	54.8	62.3	2.19	2.33	9.22	12.3	16.5	18.9	-	10.2	1.87	11.5
	11.91	70.3	92.3	2.14	2.46	11.2	18.0	20.6	27.7	-	7.67	4.64	15.3
102x127	11.00	221	59.7	3.97	2.07	23.9	11.8	44.3	18.5	0.662	18.2	2.06	14.0
	12.60	249	74.4	3.94	2.16	26.1	14.6	46.9	22.9	0.628	15.7	3.20	16.0
	14.20	276	89.3	3.91	2.23	28.2	17.5	50.4	27.3	0.606	13.8	4.77	18.0
102x152	12.40	374	61.5	4.86	1.97	34.5	12.1	63.3	19.3	0.701	21.8	2.37	15.8
	14.10	418	77.7	4.83	2.08	37.2	15.3	69.1	24.1	0.681	18.7	3.69	17.9
	16.40	485	97.1	4.81	2.15	42.2	19.0	75.8	29.9	0.656	15.8	6.08	20.9
127x152	18.50	499	168	4.60	2.67	43.6	27.3	77.9	42.5	0.606	14.9	7.36	23.6
	21.00	571	194	4.62	2.70	49.7	31.3	88.9	49.0	0.606	13.3	10.5	26.7
	24.00	660	231	4.64	2.74	56.9	36.8	102	57.8	0.602	11.7	15.8	30.6
127x178	16.50	621	140	5.43	2.58	48.2	22.4	87.2	34.9	0.654	21.1	4.38	21.1
	19.50	724	179	5.39	2.68	54.7	28.4	98.1	44.3	0.632	17.6	7.53	24.9
133x102	12.50	131	154	2.86	3.10	16.2	23.1	28.7	35.4	-	12.8	2.97	16.0
	15.00	154	192	2.84	3.17	18.7	28.7	33.5	44.0	-	10.8	5.13	19.1
140x203	19.50	971	205	6.26	2.87	66.7	28.9	123	45.2	0.673	23.8	5.33	24.8
	23.00	1117	269	6.17	3.03	73.8	37.9	132	58.8	0.633	19.5	9.49	29.3
146x127	15.60	259	224	3.61	3.36	26.1	30.6	46.0	46.9	0.375	14.8	4.26	19.8
	18.50	292	285	3.52	3.48	28.5	39.0	50.7	59.6	0.230	12.2	7.65	23.6
	21.50	343	339	3.54	3.52	33.2	46.0	59.5	70.4	0.198	10.6	11.9	27.4
152x76	11.50	58.5	200	2.00	3.70	9.41	26.3	16.9	40.0	-	10.4	2.30	14.6
	15.00	72.3	280	1.94	3.83	11.2	36.7	20.9	55.7	-	8.00	5.24	19.1
	18.50	93.2	353	1.99	3.87	14.2	45.7	27.1	69.6	-	6.67	9.54	23.5
152x229	26.20	1660	323	7.06	3.11	101	42.3	187	66.4	0.678	22.0	10.7	33.3
	29.90	1871	397	7.01	3.23	111	52.0	199	81.2	0.648	18.8	16.9	38.1
	33.60	2113	456	7.03	3.27	124	59.4	223	93.0	0.646	16.8	23.8	42.8
	34.23	2161	469	7.03	3.28	127	60.9	227	95.5	0.645	16.5	25.4	43.7
	37.10	2325	523	7.02	3.33	135	67.8	242	106.2	0.636	15.1	32.9	47.2
	41.00	2589	592	7.04	3.37	149	76.3	267	119.9	0.634	13.7	44.5	52.3
165x102	17.86	147	381	2.54	4.08	17.7	46.2	32.4	70.0	-	9.63	7.22	22.8
	20.83	176	451	2.57	4.12	21.0	54.3	39.0	82.5	-	8.43	11.2	26.6
165x152	19.35	485	360	4.44	3.82	39.3	43.7	68.8	66.8	0.434	16.9	6.22	24.7
	20.10	467	382	4.27	3.86	38.5	46.3	67.7	70.7	0.392	15.5	7.35	25.7
	22.32	560	424	4.44	3.86	45.0	51.2	79.1	78.2	0.427	14.8	9.49	28.4
	23.10	535	448	4.27	3.91	43.7	54.1	77.2	82.6	0.379	13.6	11.1	29.4
	26.04	664	510	4.46	3.91	52.8	61.2	93.6	93.8	0.422	12.7	15.4	33.3
	27.00	641	532	4.32	3.93	52.1	63.7	92.8	97.6	0.388	11.8	17.3	34.4
165x267	32.74	2934	431	8.37	3.21	157	52.2	288	82.9	0.704	23.5	16.0	41.9
	37.20	3317	520	8.36	3.31	174	62.7	319	99.4	0.692	20.6	23.7	47.4
	42.41	3745	638	8.33	3.44	192	76.7	347	121	0.672	17.8	36.8	54.0
171x178	22.50	795	406	5.27	3.76	58.8	47.4	104	73.0	0.546	18.4	7.90	28.7
	25.50	879	484	5.21	3.86	63.7	56.5	113	86.8	0.521	16.1	11.9	32.4
	28.50	984	554	5.21	3.91	70.7	64.4	125	99.1	0.514	14.4	16.6	36.3
	33.50	1152	681	5.19	3.99	81.4	78.7	145	121	0.499	12.2	27.8	42.7
178x203	27.10	1289	511	6.11	3.85	84.3	57.5	150	89	0.587	19.2	11.5	34.5
	30.00	1391	602	6.03	3.97	88.8	67.6	157	104	0.561	16.9	16.6	38.3
	33.60	1569	683	6.06	4.00	99.8	76.4	177	118	0.561	15.2	23.0	42.8
	37.10	1733	773	6.06	4.04	109	86.1	194	133	0.555	13.8	31.3	47.2
	42.41	2026	897	6.12	4.07	127	99.2	226	154	0.559	12.3	46.0	54.1

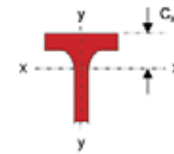
Structural Tees



Imperial units

Designation	Mass	Cut from	Mass	Width	Depth	Thickness		Root	Ratios For		Dimension	
Serial Size	Per Metre	Serial Size	Per Metre	Of Section	Of Section	Web	Flange	Radius	Local Buckling			
Bxd				B	d	t	T	r	d/t	b/T	C _x	
mm	kg/m		kg/m	mm	mm	mm	mm	mm			cm	
178x305	40.92	610x178	81.8	177.9	299.3	10.03	12.83	12.7	29.8	6.93	8.88	
	46.13	610x178	92.3	178.8	301.5	10.92	14.99	12.7	27.6	5.96	8.79	
191x229	33.60	457x191	67.0	189.9	226.6	8.50	12.70	10.2	26.7	7.48	5.46	
	37.10	457x191	74.0	190.4	228.4	9.00	14.50	10.2	25.4	6.57	5.38	
	41.00	457x191	82.0	191.3	229.9	9.90	16.00	10.2	23.2	5.98	5.47	
	44.60	457x191	89.0	191.9	231.6	10.50	17.70	10.2	22.1	5.42	5.47	
	48.37	457x191	96.7	192.8	233.0	11.43	19.05	10.2	20.4	5.06	5.58	
	49.20	457x191	98.0	192.8	233.5	11.40	19.60	10.2	20.5	4.92	5.53	
203x102	52.83	457x191	106	193.9	234.6	12.57	20.57	10.2	18.7	4.71	5.73	
	23.00	203x203	46.0	203.6	101.5	7.20	11.00	10.2	14.1	9.25	1.69	
	26.00	203x203	52.0	204.3	103.0	7.90	12.50	10.2	13.0	8.17	1.75	
	30.00	203x203	60.0	205.8	104.7	9.40	14.20	10.2	11.1	7.25	1.89	
	35.50	203x203	71.0	206.4	107.8	10.00	17.30	10.2	10.8	5.97	1.95	
	43.00	203x203	86.0	209.1	111.0	12.70	20.50	10.2	8.74	5.10	2.20	
203x127	49.85	203x203	99.7	210.3	114.3	14.48	23.75	10.2	7.89	4.43	2.38	
	24.55	254x203	49.1	202.2	123.6	7.37	11.05	12.7	16.8	9.15	2.21	
	29.02	254x203	58.0	202.8	126.0	8.00	13.46	12.7	15.8	7.53	2.22	
	33.48	254x203	67.0	203.7	128.3	8.89	15.75	12.7	14.4	6.47	2.31	
	203x152	29.76	305x203	59.5	203.3	151.6	7.49	13.08	15.2	20.2	7.77	2.75
		33.48	305x203	67.0	204.3	143.2	8.51	14.60	15.2	16.8	7.00	2.63
37.20		305x203	74.4	205.2	154.8	9.40	16.26	15.2	16.5	6.31	2.96	
210x267	41.10	533x210	82.0	208.8	264.1	9.60	13.20	12.7	27.5	7.91	6.75	
	46.10	533x210	92.0	209.3	266.5	10.10	15.60	12.7	26.4	6.71	6.55	
	50.50	533x210	101	210.0	268.3	10.80	17.40	12.7	24.8	6.03	6.53	
	54.50	533x210	109	210.8	269.7	11.60	18.80	12.7	23.3	5.61	6.61	
	61.00	533x210	122	211.9	272.2	12.70	21.30	12.7	21.4	4.97	6.66	
	61.76	533x210	124	212.2	272.2	18.08	21.21	12.7	15.1	5.00	6.76	
229x305	69.20	533x210	138	213.9	274.6	14.73	23.62	12.7	18.6	4.53	6.95	
	50.60	610x229	101	227.6	301.2	10.50	14.80	12.7	28.7	7.69	7.78	
	56.50	610x229	113	228.2	303.7	11.10	17.30	12.7	27.4	6.60	7.58	
	62.50	610x229	125	229.0	306.0	11.90	19.60	12.7	25.7	5.84	7.54	
	69.90	610x229	140	230.2	308.5	13.10	22.10	12.7	23.5	5.21	7.61	
	254x127	36.50	254x254	73	254.6	127.0	8.60	14.20	12.7	14.8	8.96	2.05
40.18		254x254	80	254.8	128.1	9.40	15.62	12.7	13.6	8.16	2.12	
44.50		254x254	89	256.3	130.1	10.30	17.30	12.7	12.6	7.41	2.21	
50.60		254x254	101	257.3	132.1	11.94	19.56	12.7	11.1	6.58	2.37	
53.50		254x254	107	258.8	133.3	12.80	20.50	12.7	10.4	6.31	2.45	
57.29		254x254	115	258.8	134.6	13.46	22.10	12.7	10.0	5.86	2.51	
66.00		254x254	132	261.3	138.1	15.30	25.30	12.7	9.03	5.16	2.70	
74.41		254x254	149	262.6	139.7	17.27	28.45	12.7	8.09	4.62	2.85	
83.34		254x254	167	264.5	144.3	19.18	31.75	12.7	7.52	4.17	3.07	
254x178	45.39	356x254	91	253.9	176.4	9.53	16.38	15.2	18.5	7.75	3.16	
	50.60	356x254	101	254.9	178.3	10.54	18.29	15.2	16.9	6.97	3.27	
	55.06	356x254	110	255.8	180.0	11.43	20.94	15.2	15.8	6.11	3.32	
	61.01	356x254	122	257.3	181.7	12.95	21.72	15.2	14.0	5.92	3.53	
254x343	62.60	686x254	125	253.0	338.9	11.70	16.20	15.2	29.0	7.81	8.85	
	69.94	686x254	140	253.7	341.9	12.45	18.92	15.2	27.5	6.70	8.67	
	75.90	686x254	152	254.4	344.0	13.08	21.08	15.2	26.3	6.03	8.57	
	84.83	686x254	170	255.8	346.6	14.48	23.62	15.2	23.9	5.41	8.69	
267x381	73.66	762x267	147	265.4	376.6	13.21	17.02	16.5	28.5	7.80	10.4	
	80.36	762x267	161	266.1	378.8	13.84	19.30	16.5	27.4	6.89	10.2	
	86.31	762x267	173	266.6	381.2	14.35	21.59	16.5	26.6	6.17	10.0	
	92.27	762x267	185	267.1	383.2	14.86	23.62	16.5	25.8	5.65	9.90	
	98.22	762x267	196	267.8	384.9	15.62	25.40	16.5	24.6	5.27	9.91	

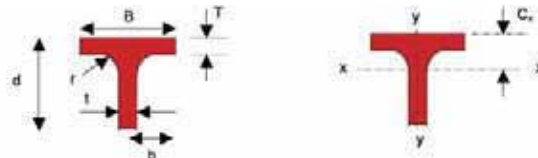
BEAMS AND COLUMNS



Imperial units

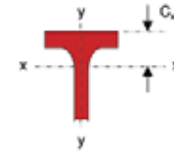
Designation	Second	Radius		Elastic		Plastic		Buckling	Torsional	Torsional	Sectional		
Serial	Moment	Of		Modulus		Modulus		Parameter	Index	Constant	Area		
Size	Of Area	Gyration		Modulus		Modulus							
	Axis	Axis	Axis	Axis	Axis	Axis	Axis	u	x	J	A		
	x-x	y-y	x-x	y-y	x-x	y-y	x-x						
mm	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³			cm ⁴	cm ²		
178x305	40.92	4818	605	9.60	3.40	229	68.0	419	109	0.716	24.2	24.5	52.2
	46.13	5427	718	9.61	3.50	254	80.3	465	128	0.708	21.5	35.4	58.8
191x229	33.60	2028	726	6.89	4.12	118	76.5	209	118	0.597	18.9	18.5	42.7
	37.10	2218	836	6.85	4.20	127	87.8	225	136	0.583	16.9	25.8	47.3
	41.00	2468	936	6.87	4.23	141	97.8	250	152	0.583	15.5	34.5	52.2
	44.60	2679	1045	6.86	4.29	151	109	269	169	0.576	14.1	45.2	56.9
	48.37	2937	1141	6.90	4.30	166	118	295	184	0.579	13.2	56.7	61.6
	49.20	2962	1174	6.88	4.33	166	122	296	189	0.573	12.9	60.5	62.6
	52.83	3252	1254	6.95	4.32	183	129	327	202	0.583	12.2	72.2	67.2
203x102	23.00	177	774	2.45	5.14	20.9	76.1	39.0	115	-	8.86	11.0	29.4
	26.00	200	889	2.46	5.18	23.4	87.0	44.5	132	-	7.92	15.8	33.1
	30.00	244	1032	2.53	5.20	28.4	100	54.4	152	-	7.04	23.5	38.2
	35.50	281	1269	2.49	5.30	31.8	123	63.6	187	-	5.96	40.0	45.2
	43.00	373	1564	2.61	5.34	41.9	150	84.6	228	-	5.11	68.1	54.8
	49.85	452	1844	2.67	5.39	50.0	175	103	267	-	4.51	105	63.5
203x127	24.55	321	762	3.20	4.93	31.7	75.4	57.0	114	-	10.7	12.1	31.3
	29.02	368	937	3.16	5.03	35.5	92.4	65.4	140	-	9.12	20.3	37.0
	33.48	427	1111	3.16	5.10	40.5	109	76.2	166	-	7.96	31.4	42.8
203x152	29.76	599	918	3.97	4.92	48.3	90.3	86.7	137	-	11.4	19.8	38.0
	33.48	568	1040	3.69	4.99	48.6	102	88.6	155	-	9.56	27.0	41.8
	37.20	778	1173	4.05	4.98	62.1	114	113	174	-	9.40	37.0	47.4
210x267	41.10	3510	1004	8.19	4.38	179	96.2	320	150	0.634	20.8	25.7	52.3
	46.10	3870	1195	8.12	4.51	193	114	343	177	0.613	18.3	37.7	58.7
	50.50	4232	1346	8.11	4.57	208	128	371	199	0.606	16.6	50.3	64.3
	54.50	4591	1472	8.13	4.60	225	140	401	217	0.605	15.5	63.0	69.4
	61.00	5149	1694	8.14	4.67	250	160	446	249	0.600	13.8	88.9	77.7
	61.76	5240	1690	8.18	4.65	193	159	449	259	0.599	13.8	90.8	78.7
	69.20	5989	1934	8.24	4.68	292	181	522	284	0.609	12.5	125	88.2
229x305	50.60	5666	1458	9.38	4.76	254	128	456	200	0.644	21.6	38.3	64.4
	56.50	6244	1717	9.32	4.89	274	151	489	234	0.626	19.0	55.5	72.0
	62.50	6880	1966	9.29	4.97	298	172	531	267	0.617	17.1	76.9	79.7
	69.90	7724	2253	9.31	5.03	332	196	592	305	0.613	15.3	108	89.1
254x127	36.50	418	1954	3.00	6.48	39.2	154	74.1	232	-	8.63	28.8	46.5
	40.18	463	2155	3.01	6.50	43.3	169	82.8	256	-	7.91	37.9	51.1
	44.50	524	2429	3.04	6.55	48.6	190	94.1	287	-	7.24	51.1	56.6
	50.60	621	2779	3.10	6.57	57.3	216	112	328	-	6.47	73.9	64.5
	53.50	676	2964	3.15	6.59	62.2	229	122	348	-	6.20	85.9	68.2
	57.29	726	3196	3.15	6.62	66.3	247	132	375	-	5.80	106	73.0
	66.00	871	3766	3.22	6.69	78.4	288	159	438	-	5.17	159	84.1
	74.41	995	4299	3.24	6.74	89.5	327	185	499	-	4.61	225	94.6
254x178	83.34	1193	4904	3.35	6.79	105	371	219	566	-	4.24	312	106
	45.39	1204	2237	4.56	6.22	83.2	176	150	268	-	10.7	45.6	57.8
254x178x55	50.60	1358	2527	4.59	6.26	93.2	198	170	302	-	9.71	62.7	64.5
	55.06	1503	2924	4.55	6.34	102	229	189	348	-	8.57	91.1	72.7
254x343	61.01	1712	3088	4.70	6.31	117	240	215	366	-	8.30	105	77.6
	62.60	8930	2192	10.6	5.24	357	173	643	270	0.651	22.0	57.9	79.7
267x381	69.94	9906	2581	10.5	5.38	388	204	695	317	0.635	19.4	83.7	89.2
	75.90	10680	2900	10.5	5.47	414	228	738	355	0.624	17.7	110	96.9
	84.83	12010	3305	10.5	5.53	463	258	825	403	0.623	16.0	152	108
	73.66	13340	2661	11.9	5.32	489	201	892	315	0.680	22.8	78.1	93.8
267x381	80.36	14440	3041	11.9	5.45	522	229	944	359	0.667	20.8	103	102
	86.31	15470	3421	11.8	5.57	550	257	990	402	0.654	19.1	133	110
	92.27	16410	3763	11.8	5.65	577	282	1035	441	0.645	17.7	166	118
	98.22	17480	4079	11.8	5.70	612	305	1095	477	0.641	16.6	202	125

Structural Tees



Imperial units

Designation		Cut from		Width	Depth	Thickness		Root	Ratios For		Dimension
Serial Size	Mass Per Metre	Serial Size	Mass Per Metre	Of Section	Of Section	Web	Flange	Radius	Local Buckling		
Bxd				B	d	t	T	r	d/t	b/T	C _x
mm	kg/m		kg/m	mm	mm	mm	mm	mm			cm
279x229	56.55	457x279	113	280.3	231.3	10.80	17.27	10.2	21.4	8.12	4.58
	64.00	457x279	128	281.7	232.6	12.19	19.56	10.2	19.1	7.20	4.69
	72.18	457x279	144	283.1	236.1	13.59	22.10	10.2	17.4	6.40	4.84
	78.87	457x279	158	284.5	237.9	14.99	23.88	10.2	15.9	5.96	5.00
	88.55	457x279	177	286.1	240.9	16.64	26.92	10.2	14.5	5.31	5.15
292x419	87.80	838x292	176	291.6	417.3	13.97	18.80	17.8	29.9	7.76	11.3
	96.70	838x292	193	292.4	420.2	14.73	21.72	17.8	28.5	6.73	11.1
	104.9	838x292	210	293.0	422.9	15.37	24.38	17.8	27.5	6.01	10.9
	113.1	838x292	226	293.8	425.3	16.13	26.80	17.8	26.4	5.48	10.8
305x152	48.40	305x305	97	305.3	153.9	9.90	15.40	15.2	15.5	9.91	2.50
	53.57	305x305	107	305.8	155.6	10.92	17.02	15.2	14.2	8.98	2.60
	58.90	305x305	118	307.4	157.2	12.00	18.70	15.2	13.1	8.22	2.69
	64.73	305x305	129	308.0	159.1	13.08	20.57	15.2	12.2	7.49	2.79
	68.50	305x305	137	309.2	160.2	13.80	21.70	15.2	11.6	7.12	2.86
	71.43	305x305	143	308.9	161.4	13.97	22.86	15.2	11.6	6.76	2.88
	79.00	305x305	158	311.2	163.5	15.80	25.00	15.2	10.3	6.22	3.04
	89.29	305x305	179	312.9	166.6	18.03	28.07	15.2	9.24	5.57	3.25
	101.2	305x305	202	315.0	170.3	20.07	31.75	15.2	8.49	4.96	3.44
	113.1	305x305	226	317.0	174.1	22.10	35.56	15.2	7.88	4.46	3.64
	126.5	305x305	253	319.3	178.2	24.38	39.62	15.2	7.31	4.03	3.86
	141.4	305x305	283	321.8	182.6	26.92	44.07	15.2	6.78	3.65	4.11
305x305	74.60	610x305	149	304.8	306.1	11.80	19.70	16.5	25.9	7.74	6.45
	89.50	610x305	179	307.1	310.0	14.10	23.60	16.5	22.0	6.51	6.69
305x457	100.5	914x305	201	303.5	451.5	15.24	20.07	19.0	29.6	7.56	12.6
	111.6	914x305	223	304.2	455.3	15.88	23.88	19.0	28.7	6.37	12.1
	119.1	914x305	238	304.8	457.3	16.51	25.91	19.0	27.7	5.88	12.0
	126.5	914x305	253	305.6	459.4	17.27	27.94	19.0	26.6	5.47	12.0
	135.4	914x305	271	306.7	461.4	18.42	29.97	19.0	25.0	5.12	12.1
	144.4	914x305	289	307.7	463.4	19.43	32.00	19.0	23.8	4.81	12.2
305x508	156.3	914x305	313	309.4	466.0	21.08	34.54	19.0	22.1	4.48	12.4
	111.0	1016x305	222	300.0	485.0	16.00	21.10	29.0	30.3	7.11	13.9
	124.0	1016x305	248	300.0	490.0	16.50	26.00	29.0	29.7	5.77	13.2
	136.0	1016x305	272	300.0	495.0	16.50	31.00	29.0	30.0	4.84	12.5
	157.0	1016x305	314	300.0	500.0	19.10	35.90	29.0	26.2	4.18	12.9
	175.0	1016x305	350	302.0	504.0	21.10	40.00	29.0	23.9	3.78	13.1
312x267	75.15	533x312	150	312.2	271.3	12.70	20.32	12.7	21.4	7.68	5.53
	82.59	533x312	165	313.4	273.2	13.97	22.22	12.7	19.6	7.05	5.66
	90.78	533x312	182	314.7	275.3	15.24	24.38	12.7	18.1	6.45	5.78
	98.22	533x312	196	316.0	277.2	16.51	26.29	12.7	16.8	6.01	5.91
	109.4	533x312	219	317.8	280.2	18.29	29.21	12.7	15.3	5.44	6.08
324x305	77.38	610x324	155	323.9	305.6	12.70	19.05	12.7	24.1	8.50	6.59
	87.06	610x324	174	325.1	308.1	13.97	21.59	12.7	22.1	7.53	6.65
	97.47	610x324	195	326.5	310.9	15.37	24.38	12.7	20.2	6.70	6.73
	108.6	610x324	217	327.7	314.2	16.51	27.69	12.7	19.0	5.92	6.75
	120.5	610x324	241	329.1	317.5	17.91	30.99	12.7	17.7	5.31	6.85
356x343	109.0	686x356	218	355.0	348.0	15.40	24.80	15.0	22.6	7.16	7.49
	120.0	686x356	240	356.0	350.0	16.80	27.40	15.0	20.8	6.50	7.59
	132.0	686x356	264	358.0	353.0	18.40	30.20	15.0	19.2	5.93	7.74
368x178	66.97	356x368	134	368.8	178.1	11.28	18.03	15.2	15.8	10.2	2.80
	73.66	356x368	147	370.0	179.8	12.32	19.81	15.2	14.6	9.34	2.89
	81.10	356x368	162	371.0	181.9	13.34	21.84	15.2	13.6	8.49	2.98
	89.29	356x368	179	372.6	183.9	14.99	23.88	15.2	12.3	7.80	3.14
	98.22	356x368	196	374.0	186.2	16.38	26.16	15.2	11.4	7.15	3.27

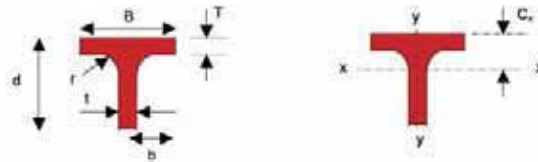


Imperial units

Designation Serial Size	Mass Per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter u	Torsional Index x	Torsional Constant J	Sectional Area A
		Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y				
mm	kg/m	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³			cm ⁴	cm ²
279x229	56.55	2987	3172	6.44	6.64	161	226	284	345	-	13.9	58.8	72.0
	64.00	3387	3647	6.45	6.69	182	259	323	396	-	12.4	85.0	81.5
	72.18	3902	4184	6.51	6.74	208	296	371	453	-	11.1	122	92.1
	78.87	4340	4589	6.57	6.76	231	323	414	495	-	10.3	155	100
	88.55	4938	5262	6.61	6.82	261	368	470	566	-	9.22	220	113
292x419	87.80	19410	3897	13.2	5.90	639	267	1163	419	0.675	23.3	110	112
	96.70	21260	4539	13.1	6.06	687	310	1239	486	0.659	20.8	153	124
	104.9	22890	5126	13.1	6.18	729	350	1307	547	0.647	19.0	201	134
	113.1	24560	5681	13.0	6.27	775	387	1385	604	0.639	17.5	256	144
305x152	48.40	858	3655	3.73	7.70	66.5	239	123	362	-	9.64	45.5	61.72
	53.57	965	4059	3.76	7.72	74.5	265	139	402	-	8.81	60.8	68.17
	58.90	1080	4530	3.79	7.77	82.9	295	156	447	-	8.09	80.3	75.09
	64.73	1205	5013	3.82	7.80	91.8	326	175	494	-	7.44	106	82.47
	68.50	1287	5351	3.84	7.83	97.8	346	188	525	-	7.09	124	87.20
	71.43	1330	5620	3.82	7.86	100	364	195	552	-	6.79	142	90.96
	79.00	1533	6285	3.90	7.90	115	404	225	614	-	6.25	188	101
	89.29	1807	7175	3.99	7.94	135	459	266	698	-	5.63	267	114
	101.2	2107	8282	4.04	8.02	155	526	311	802	-	5.06	384	129
	113.1	2434	9455	4.11	8.09	177	597	361	910	-	4.60	535	144
	126.5	2824	10770	4.18	8.17	202	674	419	1030	-	4.20	736	161
141.4	3288	12260	4.27	8.25	232	762	488	1166	-	3.84	1010	180	
305x305	74.60	7397	4655	8.82	7.00	306	305	538	468	0.483	16.4	99.8	95.0
	89.50	9026	5705	8.90	7.07	371	372	656	571	0.484	13.8	170	114
305x457	100.5	26340	4693	14.3	6.05	809	309	1477	487	0.688	23.5	145	128
	111.6	28940	5621	14.2	6.28	867	370	1565	580	0.666	20.7	210	143
	119.1	30670	6135	14.2	6.36	911	403	1639	631	0.659	19.3	257	152
	126.5	32610	6668	14.2	6.43	961	436	1727	685	0.654	18.1	312	161
	135.4	35080	7233	14.2	6.47	1031	472	1852	741	0.654	17.0	383	173
	144.4	37400	7800	14.3	6.51	1095	507	1965	798	0.652	16.0	460	184
	156.3	40900	8564	14.3	6.55	1195	554	2146	875	0.653	14.9	580	199
305x508	111.0	33450	4782	15.4	5.82	965	319	1778	504	0.701	23.1	191	141
	124.0	36990	5886	15.3	6.10	1033	392	1953	617	0.689	20.1	287	158
	136.0	39550	7011	15.1	6.36	1070	467	1921	729	0.648	17.6	412	173
	157.0	46440	8125	15.2	6.37	1252	542	2251	850	0.651	15.4	625	200
	175.0	52090	9239	15.3	6.45	1398	612	2512	964	0.651	14.0	851	222
312x267	75.15	5599	5158	7.64	7.33	259	330	457	505	0.320	13.9	108	96.0
	82.59	6221	5707	7.68	7.36	287	364	508	558	0.325	12.8	142	105
	90.78	6881	6341	7.71	7.40	316	403	562	618	0.322	11.7	186	116
	98.22	7532	6924	7.76	7.44	345	438	616	673	0.325	10.9	234	125
	109.4	8506	7827	7.81	7.49	388	493	695	759	0.326	9.92	320	139
324x305	77.38	7854	5400	8.92	7.39	328	333	576	511	0.469	16.8	98.0	98.8
	87.06	8815	6189	8.92	7.47	365	381	643	584	0.461	15.0	139	111
	97.47	9904	7081	8.93	7.55	407	434	719	667	0.455	13.4	197	124
	108.6	10970	8132	8.89	7.66	445	496	790	763	0.439	12.0	279	139
	120.5	12200	9220	8.90	7.74	490	560	874	862	0.431	10.8	384	154
356x343	109.0	14010	9258	10.0	8.17	513	522	904	801	0.475	14.8	227	139
	120.0	15430	10320	10.1	8.22	563	580	996	891	0.472	13.5	303	153
	132.0	17180	11570	10.1	8.29	624	646	1106	995	0.471	12.3	404	168
368x178	66.97	1530	7540	4.23	9.39	102	409	190	618	-	9.63	84.6	85.5
	73.66	1701	8366	4.25	9.43	113	452	212	684	-	8.83	111	94.0
	81.10	1887	9299	4.27	9.48	124	501	236	759	-	8.09	148	103
	89.29	2152	10300	4.35	9.51	141	553	271	838	-	7.45	195	114
	98.22	2408	11410	4.39	9.55	157	610	305	926	-	6.86	255	125

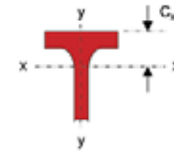
BEAMS AND COLUMNS

Structural Tees



Imperial units

Designation	Mass	Cut from	Mass	Width	Depth	Thickness		Root	Ratios For		Dimension
Serial Size	Per Metre	Serial Size	Per Metre	Of Section	Of Section	Web	Flange	Radius	Local Buckling		
Bxd				B	d	t	T	r	d/t	b/T	C _x
mm	kg/m		kg/m	mm	mm	mm	mm	mm			cm
381x381	129.0	762x381	258	381.0	387.0	16.60	27.10	17.0	23.3	7.03	8.41
	142.0	762x381	284	382.0	390.0	18.00	30.10	17.0	21.7	6.35	8.50
	157.0	762x381	314	384.0	393.0	19.70	33.40	17.0	19.9	5.75	8.63
400x419	150.0	838x400	300	400.0	428.0	18.20	29.20	18.0	23.5	6.85	9.62
	165.0	838x400	330	401.0	431.0	19.70	32.40	18.0	21.9	6.19	9.70
	179.0	838x400	358	403.0	434.0	21.10	35.60	18.0	20.6	5.66	9.76
406x178	107.9	356x406	216	393.7	187.7	17.27	27.69	15.2	10.9	7.11	3.28
	118.3	356x406	237	395.4	190.2	18.92	30.23	15.2	10.1	6.54	3.43
	131.0	356x406	262	397.5	193.3	21.08	33.27	15.2	9.17	5.97	3.63
	143.6	356x406	287	399.0	188.7	22.61	36.58	15.2	8.35	5.45	3.63
	157.0	356x406	314	401.3	199.6	24.89	39.62	15.2	8.02	5.06	3.98
	173.4	356x406	347	403.6	203.7	27.18	43.69	15.2	7.49	4.62	4.20
	191.2	356x406	382	406.3	208.0	29.84	48.01	15.2	6.97	4.23	4.45
	211.0	356x406	422	409.0	213.0	32.80	52.60	15.0	6.49	3.89	4.73
	232.0	356x406	464	412.0	217.0	35.80	57.40	15.0	6.06	3.59	4.98
	255.0	356x406	510	416.0	223.0	39.10	62.70	15.0	5.70	3.32	5.30
	276.0	356x406	552	418.0	228.0	42.00	67.60	15.0	5.43	3.09	5.58
	296.0	356x406	592	421.0	232.0	45.00	72.30	15.0	5.16	2.91	5.84
	317.0	356x406	634	424.0	237.0	47.60	77.10	15.0	4.98	2.75	6.10
	339.0	356x406	678	428.0	242.0	51.20	81.50	15.0	4.73	2.63	6.39
372.0	356x406	744	432.0	249.0	55.60	88.90	15.0	4.48	2.43	6.79	
406x508	129.0	1016x406	258	400.0	485.0	16.50	21.10	29.0	29.4	9.48	12.4
	148.0	1016x406	296	400.0	491.0	16.50	27.10	29.0	29.8	7.38	11.4
	160.0	1016x406	320	400.0	495.0	16.50	31.00	29.0	30.0	6.45	10.9
	186.0	1016x406	372	400.0	500.0	19.10	36.10	29.0	26.2	5.54	11.2
	206.0	1016x406	412	402.0	504.0	21.10	40.00	29.0	23.9	5.03	11.4
419x457	171.0	914x419	342	418.0	456.0	19.30	32.00	24.0	23.6	6.53	10.2
	182.0	914x419	364	419.0	458.0	20.30	34.30	24.0	22.6	6.11	10.2
	194.0	914x419	388	420.0	461.0	21.30	36.60	24.0	21.6	5.74	10.3
	209.0	914x419	418	422.0	464.0	22.50	39.90	24.0	20.6	5.29	10.3
	224.0	914x419	448	423.0	467.0	24.00	42.70	24.0	19.5	4.95	10.5
457x508	143.0	1016x457	286	450.0	485.0	18.00	21.10	29.0	26.9	10.7	12.2
	164.0	1016x457	328	450.0	491.0	18.00	27.10	29.0	27.3	8.30	11.2
	182.0	1016x457	364	450.0	496.0	18.00	32.00	29.0	27.6	7.03	10.6
	199.0	1016x457	398	451.0	500.0	19.10	35.90	29.0	26.2	6.28	10.5
	222.0	1016x457	444	453.0	504.0	21.10	40.00	29.0	23.9	5.66	10.8
	244.0	1016x457	488	455.0	508.0	23.10	43.90	29.0	22.0	5.18	11.0



Imperial units

Designation Serial Size	Mass Per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter u	Torsional Index x	Torsional Constant J	Sectional Area A
		Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y				
mm	kg/m	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³			cm ⁴	cm ²
381x381	129.0	20680	12510	11.2	8.73	683	657	1204	1008	0.497	15.2	319	164
	142.0	22840	14000	11.2	8.80	749	733	1324	1127	0.493	13.8	429	181
	157.0	25380	15790	11.3	8.88	827	822	1468	1266	0.489	12.5	581	200
400x419	150.0	30210	15600	12.6	9.04	910	780	1607	1201	0.532	15.6	427	191
	165.0	33240	17440	12.6	9.12	995	870	1760	1341	0.528	14.2	572	210
	179.0	36230	19450	12.6	9.22	1077	965	1910	1490	0.522	13.0	747	229
406x178	107.9	2602	14090	4.35	10.1	168	716	331	1085	-	6.51	315	138
	118.3	2922	15580	4.40	10.2	187	788	374	1196	-	6.01	410	151
	131.0	3353	17430	4.48	10.2	214	877	430	1332	-	5.52	548	167
	143.6	3305	19380	4.27	10.3	217	971	452	1475	-	4.85	719	181
	157.0	4230	21360	4.60	10.3	265	1065	547	1620	-	4.73	923	200
	173.4	4828	23970	4.68	10.4	299	1188	626	1809	-	4.36	1233	221
	191.2	5542	26870	4.77	10.5	339	1323	719	2017	-	4.02	1638	244
	211.0	6419	30040	4.89	10.6	387	1469	829	2243	-	3.73	2157	269
	232.0	7280	33520	4.97	10.7	436	1627	942	2487	-	3.45	2806	295
	255.0	8480	37700	5.11	10.8	499	1813	1087	2774	-	3.22	3671	324
	276.0	9591	41250	5.23	10.8	557	1974	1221	3024	-	3.04	4593	351
296.0	10680	45090	5.32	10.9	615	2142	1356	3284	-	2.87	5633	377	
317.0	11910	49130	5.43	11.0	677	2317	1501	3556	-	2.73	6825	404	
339.0	13430	53440	5.58	11.1	754	2497	1669	3838	-	2.62	8154	432	
372.0	15630	59970	5.74	11.2	863	2776	1920	4271	-	2.45	10580	474	
406x508	129.0	37390	11290	15.1	8.28	1035	564	1867	876	0.632	22.7	230	165
	148.0	40850	14490	14.7	8.77	1082	724	1920	1116	0.585	19.1	377	189
	160.0	42850	16570	14.5	9.01	1109	828	1959	1272	0.560	17.1	512	204
	186.0	50380	19300	14.6	9.03	1299	965	2301	1486	0.563	14.9	790	237
	206.0	56440	21710	14.7	9.10	1449	1080	2573	1668	0.564	13.6	1064	262
419x457	171.0	38770	19510	13.3	9.46	1095	934	1936	1437	0.533	15.1	592	218
	182.0	41230	21070	13.3	9.53	1159	1006	2052	1549	0.529	14.2	718	232
	194.0	43990	22640	13.4	9.58	1229	1078	2179	1662	0.527	13.4	861	247
	209.0	47320	25040	13.3	9.70	1312	1187	2331	1830	0.520	12.4	1094	266
	224.0	51060	26990	13.4	9.73	1411	1276	2513	1971	0.521	11.7	1334	285
457x508	143.0	41160	16070	15.0	9.39	1134	714	2039	1106	0.607	22.1	269	182
	164.0	44940	20620	14.7	9.93	1186	916	2098	1410	0.556	18.7	435	209
	182.0	47640	24340	14.4	10.3	1221	1082	2152	1658	0.521	16.4	632	231
	199.0	51900	27490	14.3	10.4	1316	1219	2323	1868	0.510	14.8	858	254
	222.0	58190	31040	14.3	10.5	1468	1371	2601	2104	0.510	13.4	1173	283
	244.0	64590	34530	14.4	10.5	1623	1518	2885	2334	0.511	12.4	1540	311

BEAMS AND COLUMNS

