

Technical Specification References

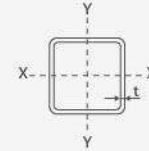
Classification	Specification	Designation of Grade	Mechanical Properties				Chemical Composition %										Impact Properties	
			Tensile Strength		Yield Strength Min.	Elongation Min.		C	Si	Mn	P	S	Mo	Al	CEV	Cu	Test Temperature	Min average absorbed energy for standard test piece
			N/mm ²			CHS	RHS or SHS											
			t < 3mm	3mm ≤ t ≤ 40mm	N/mm ²	%	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	
Cold formed welded structural hollow sections of non-alloy and fine grain steels	BS EN 10219	S235JRH	360-510	360-510	235	24	0.17	-	1.40	0.045	0.045	-	-	0.35	-	20	27	
		S275J0H	430-580	410-560	275	20	0.20	-	1.50	0.040	0.040	-	-	0.40	-	0	27	
		S275J2H	430-580	410-560	275	20	0.20	-	1.50	0.035	0.035	-	-	0.40	-	-20	27	
		S355J0H	510-680	470-630	355	20	0.22	0.55	1.60	0.040	0.040	-	-	0.45	-	0	27	
		S355J2H	510-680	470-630	355	20	0.22	0.55	1.60	0.035	0.035	-	-	0.45	-	-20	27	
Structural Steel Hollow Sections for Australian Standard	AS 1163	C 250	320	250	22	18	0.12	0.05	0.50	0.040	0.030	0.10	0.10	0.25	-	-	-	
		C 250 L0	320	250	22	18	0.12	0.05	0.50	0.040	0.030	0.10	0.10	0.25	-	0	27	
		C 350	430	350	20	16	0.20	0.25	1.60	0.040	0.030	0.10	0.10	0.39	-	-	-	
		C 350 L0	430	350	20	16	0.20	0.25	1.60	0.040	0.030	0.10	0.10	0.39	-	0	27	
		C 450	500	450	16	14	0.20	0.45	1.60	0.040	0.030	0.35	0.10	0.39	-	-	-	
		C 450 L0	500	450	16	14	0.20	0.45	1.60	0.040	0.030	0.35	0.10	0.39	-	0	27	
Carbon Steel Square Pipes for General Structural Purposes	JIS G 3466	STKR 400	400	245	-	23 (N1)	0.25	-	-	0.04	0.04	-	-	-	-	-	-	
		STKR 490	490	325	-	23 (N1)	0.18	0.55	1.50	0.04	0.04	-	-	-	-	-	-	
Carbon Steel Tubes For General	JIS G 3444	STK 290	290	-	30 (N1) 20 (N2)	-	-	-	-	0.050	0.050	-	-	-	-	-	-	
		STK 400	400	235	23 (N2) 18 (N2)	-	0.250	-	-	0.040	0.040	-	-	-	-	-	-	
		STK 500	500	355	15 (N1) 10 (N2)	-	0.300 to 1.00	0.300	0.350	0.040	0.040	-	-	-	-	-	-	
		STK 540	540	390	20 (N1) 16 (N2)	-	0.230	1.500	0.550	0.040	0.040	-	-	-	-	-	-	
Cold-Formed Welded Carbon Steel Structural	SHS & RHS	ASTM A-500	Grade A	310	270	As specified in ASTM A500 Specification	0.30	-	1.40	0.045	0.045	-	-	-	0.18 min	-	-	
			Grade B	400	315		0.30	-	1.40	0.045	0.045	-	-	-	0.18 min	-	-	
			Grade C	425	345		0.27	-	1.35	0.045	0.045	-	-	-	0.18 min	-	-	
			Grade D	400	250		0.30	-	1.40	0.045	0.045	-	-	-	0.18 min	-	-	
	CHS	ASTM A-500	Grade A	310	230		0.30	-	1.40	0.045	0.045	-	-	-	0.18 min	-	-	
			Grade B	400	290		0.30	-	1.40	0.045	0.045	-	-	-	0.18 min	-	-	
			Grade C	425	315		0.27	-	1.35	0.045	0.045	-	-	-	0.18 min	-	-	
			Grade D	400	250		0.30	-	1.40	0.045	0.045	-	-	-	0.18 min	-	-	
Lipped Channels & Plain Channels	JIS G 3350	SSC 400	400-540	245	21 (N2)	0.25	-	-	0.05	0.05	-	-	-	-	-			
High Tensile C Purlin	Equivalent to ASTM A446 Gr. B			450	345	12	0.40	-	-	0.20	0.04	-	-	-	-			

- NOTES :**
- The impact properties of steel qualities JR and J0 are verified by laboratory testing only when specified at the time of the inquiry and order.
 - The steel qualities J0 and J2 can be produced upon request with extra cost.
 - (N1) Test piece No. 11 and 12
 - (N2) Test piece No. 5
 - When the tensile test is carried out on No. 5 and 12 test piece for the tube under 8mm in wall thickness, the minimum elongation value shall be determined by reducing 1.5% per 1mm of decrease in wall thickness from the values given in the Table above and rounding off the value obtained to integer in accordance with JIS Z 8401.
 - t - thickness
 CHS - Circular Hollow Sections
 RHS - Rectangular Hollow Sections
 SHS - Square Hollow Sections

Tolerances - ASTM A-500

Tolerances	Square & Rectangular Hollow Sections		
	ASTM A-500		
Outside Dimension	Largest Outside Dia. Across Flats in (mm)	Tolerance, plus & minus in (mm)	
	2 ½ (63.5) and under	0.020 (0.50)	
	Over 2 ½ to 3 ½ (63.5 to 88.9), incl	0.025 (0.64)	
	Over 3 ½ to 5 ½ (88.9 to 139.7), incl	0.030 (0.76)	
	Over 5 ½ (139.7)	1%	
Thickness	Plus and minus 10% of nominal thickness, exclusive of weld area		
Tolerances of Length	Plus 2 in (50.8mm) and minus zero on ordered lengths. (Please specify if any lighter tolerances is required)		
Out of Roundness	-		
Concavity / Convexity	Shall not exceed the outside dimension tolerance		
Squareness of Size	Adjacent side may deviate from 90 degrees by plus and minus 2 degrees max.		
External Corner Profile	3T (max.)		
Twist	Specified Dia of Longest Side, in (mm)	Max. Twist in 3ft, in	Max. Twist in 1m, mm
	1 ½ (38.1) and under	0.050	1.390
	Over 1 ½ to 2 ½ (38.1 to 63.5), incl	0.062	1.720
	Over 2 ½ to 4 (63.5 to 101.6), incl	0.075	2.090
	Over 4 to 6 (101.6 to 152.4), incl	0.087	2.420
	Over 6 to 8 (152.4 to 203.2), incl	0.100	2.780
	Over 8 (203.2)	0.112	3.110
Straightness	$\frac{1}{8} \text{ in} \times \frac{\text{Total Length in ft}}{5}$		
Mass	-		

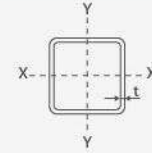
Square Hollow Sections



ASTM A - 500

Designation		Weight	Cross Sectional Area	Second Moment of Area	Radius of Gyration	Elastic Modulus	Plastic Modulus	Torsional inertia constant	Torsional modulus constant	Superficial Area per metre length	Superficial Area per metre length	Nominal Length per tonne	Ratio for Local Buckling
Size	Thickness												
B × B	T	M	A	I	i	W _{el}	W _{pl}	L _t	C _t	As	As	L	Flange
mm	mm	Kg/m	cm ²	cm ⁴	cm	cm ³	cm ³	cm ⁴	cm ³	m ² /m	m ² /m	m	B/T
19 × 19	1.6	0.822	1.05	0.51	0.70	0.54	0.67	0.88	0.82	0.07	0.07	1215.92	6.88
20 × 20	1.6	0.873	1.11	0.61	0.74	0.61	0.75	1.03	0.92	0.07	0.08	1145.92	7.50
20 × 20	2.0	1.050	1.34	0.69	0.72	0.69	0.88	1.21	1.06	0.07	0.07	952.80	5.00
25 × 25	1.6	1.160	1.43	1.28	0.94	1.02	1.24	2.12	1.54	0.09	0.10	889.79	10.63
25 × 25	2.0	1.364	1.74	1.48	0.92	1.19	1.47	2.53	1.80	0.09	0.09	733.39	7.50
25 × 25	2.3	1.600	1.95	1.61	0.91	1.29	1.62	2.80	1.97	0.09	0.09	652.55	5.87
25 × 25	2.5	1.640	2.09	1.69	0.90	1.35	1.71	2.97	2.07	0.09	0.09	609.79	5.00
25 × 25	3.0	2.010	2.41	1.84	0.87	1.47	1.91	3.33	2.27	0.09	0.09	528.97	3.33
30 × 30	1.6	1.410	1.75	2.31	1.15	1.54	1.84	3.77	2.32	0.11	0.12	727.24	13.75
30 × 30	2.0	1.678	2.14	2.72	1.13	1.81	2.21	4.54	2.75	0.11	0.11	596.11	10.00
30 × 30	2.3	1.970	2.41	2.99	1.11	2.00	2.45	5.07	3.03	0.11	0.11	528.11	8.04
30 × 30	2.5	2.032	2.59	3.16	1.10	2.10	2.61	5.40	3.20	0.11	0.11	492.03	7.00
30 × 30	3.0	2.480	3.01	3.50	1.08	2.34	2.96	6.15	3.58	0.11	0.11	423.47	5.00
32 × 32	1.6	1.510	1.88	2.84	1.23	1.78	2.12	4.62	2.68	0.12	0.12	677.72	15.00
32 × 32	1.8	1.690	2.09	3.11	1.22	1.95	2.33	5.11	2.94	0.12	0.12	609.23	12.78
32 × 32	2.0	1.860	2.30	3.36	1.21	2.10	2.54	5.58	3.18	0.12	0.12	554.59	11.00
32 × 32	2.3	2.110	2.60	3.71	1.20	2.32	2.84	6.24	3.52	0.12	0.12	490.68	8.91
32 × 32	2.5	2.189	2.79	3.92	1.19	2.45	3.02	6.66	3.72	0.12	0.12	456.75	7.80
32 × 32	3.0	2.670	3.25	4.38	1.16	2.74	3.44	7.62	4.18	0.12	0.12	392.18	5.67
32 × 32	3.2	2.830	3.42	4.54	1.15	2.84	3.59	7.96	4.34	0.12	0.12	372.19	5.00
35 × 35	1.6	1.626	2.07	3.79	1.35	2.16	2.57	6.11	3.26	0.13	0.14	614.91	16.88
35 × 35	2.0	1.992	2.54	4.51	1.33	2.58	3.09	7.41	3.89	0.13	0.13	502.12	12.50
35 × 35	2.3	2.255	2.87	4.99	1.32	2.85	3.46	8.31	4.32	0.13	0.13	443.53	10.22
35 × 35	2.5	2.425	3.09	5.29	1.31	3.02	3.69	8.89	4.58	0.13	0.13	412.39	9.00
35 × 35	3.0	2.832	3.61	5.95	1.28	3.40	4.23	10.22	5.18	0.13	0.13	353.05	6.67
38 × 38	1.6	1.810	2.26	4.92	1.47	2.59	3.06	7.90	3.90	0.15	0.15	562.75	18.75
38 × 38	2.0	2.230	2.78	5.88	1.46	3.10	3.70	9.60	4.67	0.15	0.15	458.73	14.00
38 × 38	2.3	2.540	3.15	6.54	1.44	3.44	4.15	10.80	5.20	0.14	0.14	404.64	11.52
38 × 38	2.5	2.660	3.39	6.94	1.43	3.65	4.44	11.56	5.53	0.14	0.14	375.88	10.20
38 × 38	3.0	3.240	3.97	7.85	1.41	4.13	5.10	13.35	6.28	0.14	0.14	321.02	7.67
38 × 38	4.0	3.947	5.03	9.26	1.36	4.87	6.22	16.38	7.48	0.14	0.14	253.36	4.50
40 × 40	1.6	1.877	2.39	5.79	1.56	2.90	3.41	9.27	4.36	0.15	0.16	532.63	20.00
40 × 40	1.9	2.200	2.80	6.66	1.54	3.33	3.96	10.79	5.02	0.15	0.15	454.53	16.05
40 × 40	2.0	2.306	2.94	6.94	1.54	3.47	4.13	11.28	5.23	0.15	0.15	433.74	15.00
40 × 40	2.3	2.616	3.33	7.73	1.52	3.86	4.64	12.70	5.83	0.15	0.15	382.30	12.39
40 × 40	2.5	2.817	3.59	8.22	1.51	4.11	4.97	13.61	6.21	0.15	0.15	354.94	11.00
40 × 40	3.0	3.303	4.21	9.32	1.49	4.66	5.72	15.75	7.07	0.15	0.15	302.71	8.33
40 × 40	4.0	4.198	5.35	11.07	1.44	5.54	7.01	19.44	8.48	0.15	0.15	238.20	5.00
50 × 50	1.6	2.410	3.03	11.71	1.96	4.68	5.46	18.48	7.03	0.19	0.20	420.19	26.25
50 × 50	1.9	2.797	3.56	13.55	1.95	5.42	6.37	21.61	8.15	0.19	0.19	357.57	21.32
50 × 50	2.0	2.934	3.74	14.15	1.95	5.66	6.66	22.63	8.51	0.19	0.19	340.89	20.00
50 × 50	2.3	3.410	4.25	15.86	1.93	6.34	7.52	25.61	9.55	0.19	0.19	299.58	16.74
50 × 50	2.5	3.602	4.59	16.94	1.92	6.78	8.07	27.53	10.22	0.19	0.19	277.59	15.00
50 × 50	3.0	4.245	5.41	19.47	1.90	7.79	9.39	32.13	11.76	0.19	0.19	235.55	11.67
50 × 50	4.0	5.454	6.95	23.74	1.85	9.49	11.73	40.42	14.43	0.19	0.19	183.35	7.50
50 × 50	4.5	6.020	7.67	25.50	1.82	10.20	12.76	44.09	15.56	0.18	0.19	166.12	6.11
50 × 50	5.0	6.560	8.36	27.04	1.80	10.82	13.70	47.46	16.56	0.18	0.18	152.45	5.00
50 × 50	6.0	7.562	9.63	29.45	1.75	11.78	15.32	53.23	18.20	0.18	0.18	132.24	3.33
60 × 60	1.6	2.882	3.67	20.68	2.37	6.89	7.99	32.38	10.35	0.23	0.24	346.95	32.50
60 × 60	2.3	4.060	5.17	28.31	2.34	9.44	11.09	45.16	14.19	0.23	0.23	246.30	21.09
60 × 60	2.5	4.387	5.59	30.34	2.33	10.11	11.93	48.66	15.22	0.23	0.23	227.93	19.00
60 × 60	3.0	5.187	6.61	35.13	2.31	11.71	13.95	57.09	17.65	0.23	0.23	192.77	15.00
60 × 60	4.0	6.710	8.55	43.55	2.26	14.52	17.64	72.64	21.97	0.23	0.23	149.03	10.00
60 × 60	4.5	7.433	9.47	47.20	2.23	15.73	19.32	79.76	23.87	0.22	0.23	134.54	8.33

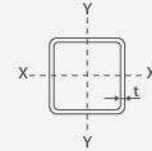
Square Hollow Sections



ASTM A - 500

Designation		Weight	Cross Sectional Area	Second Moment of Area	Radius of Gyration	Elastic Modulus	Plastic Modulus	Torsional inertia constant	Torsional modulus constant	Superficial Area per metre length	Nominal Length per tonne	Ratio for Local Buckling
Size	Thickness											
B x B	T	M	A	I	r	Z	S	J	C	As	L	Flange
mm	mm	Kg/m	cm ²	cm ⁴	cm	cm ³	cm ³	cm ⁴	cm ³	m ² /m	m	B/T
64 x 64	2.3	4.349	5.54	34.71	2.50	10.85	12.71	55.15	16.31	0.25	229.93	22.83
64 x 64	3.0	5.564	7.09	43.22	2.47	13.51	16.03	69.88	20.34	0.25	179.72	16.33
64 x 64	4.0	7.213	9.19	53.84	2.42	16.82	20.34	89.22	25.44	0.24	138.64	11.00
64 x 64	4.5	7.998	10.19	58.50	2.40	18.28	22.32	98.14	27.70	0.24	125.03	9.22
64 x 64	5.0	8.758	11.16	62.75	2.37	19.61	24.17	106.55	29.79	0.24	114.18	7.80
64 x 64	6.0	10.200	12.99	70.07	2.32	21.90	27.52	121.85	33.45	0.24	98.04	5.67
65 x 65	1.6	3.133	3.99	26.52	2.58	8.16	9.44	41.38	12.25	0.25	319.13	35.63
65 x 65	2.0	3.876	4.94	32.31	2.56	9.94	11.58	50.92	14.93	0.25	258.03	27.50
65 x 65	2.3	4.421	5.63	36.45	2.54	11.21	13.13	57.86	16.86	0.25	226.18	23.26
65 x 65	2.5	4.780	6.09	39.10	2.53	12.03	14.14	62.39	18.10	0.25	209.21	21.00
65 x 65	3.0	5.659	7.21	45.42	2.51	13.97	16.57	73.35	21.05	0.25	176.72	16.67
65 x 65	4.0	7.338	9.35	56.64	2.46	17.43	21.05	93.72	26.34	0.25	136.27	11.25
65 x 65	4.5	8.139	10.37	61.59	2.44	18.95	23.10	103.14	28.70	0.24	122.86	9.44
65 x 65	5.0	8.915	11.36	66.10	2.41	20.34	25.03	112.03	30.88	0.24	112.17	8.00
65 x 65	6.0	10.388	13.23	73.91	2.36	22.74	28.53	128.23	34.72	0.24	96.26	5.83
70 x 70	2.5	5.172	6.59	49.41	2.74	14.12	16.54	78.49	21.22	0.27	193.33	23.00
70 x 70	3.0	6.130	7.81	57.53	2.71	16.44	19.42	92.42	24.74	0.27	163.14	18.33
70 x 70	4.0	7.966	10.15	72.12	2.67	20.61	24.76	118.52	31.11	0.27	125.53	12.50
70 x 70	5.0	9.700	12.36	84.63	2.62	24.18	29.56	142.21	36.65	0.26	103.09	9.00
70 x 70	6.0	11.330	14.43	95.17	2.57	27.19	33.83	163.49	41.41	0.26	88.26	6.67
70 x 70	6.3	11.799	15.03	97.97	2.55	27.99	35.01	169.39	42.70	0.26	84.75	7.11
75 x 75	1.6	3.636	4.63	41.29	2.99	11.01	12.69	64.09	16.52	0.29	275.04	41.88
75 x 75	2.3	5.144	6.55	57.10	2.95	15.23	17.74	89.98	22.88	0.29	194.42	27.61
75 x 75	2.5	5.565	7.09	61.38	2.94	16.37	19.12	97.13	24.60	0.29	179.70	25.00
75 x 75	3.0	6.601	8.41	71.62	2.92	19.10	22.49	114.54	28.73	0.29	151.50	20.00
75 x 75	4.0	8.594	10.95	90.19	2.87	24.05	28.76	147.32	36.28	0.29	116.36	13.75
75 x 75	4.5	9.552	12.17	98.55	2.85	26.28	31.68	162.68	39.71	0.28	104.68	11.67
75 x 75	5.0	10.485	13.36	106.33	2.82	28.35	34.46	177.35	42.92	0.28	95.38	10.00
75 x 75	6.0	12.272	15.63	120.16	2.77	32.04	39.58	204.62	48.70	0.28	81.49	7.50
80 x 80	2.3	5.505	7.01	69.86	3.16	17.46	20.30	109.74	26.23	0.31	181.67	29.78
80 x 80	3.0	7.072	9.01	87.84	3.12	21.96	25.78	139.93	33.02	0.31	141.41	21.67
80 x 80	4.0	9.222	11.75	111.04	3.07	27.76	33.07	180.44	41.84	0.31	108.43	15.00
80 x 80	4.5	10.259	13.07	121.58	3.05	30.40	36.48	199.52	45.88	0.30	97.48	12.78
80 x 80	5.0	11.270	14.36	131.44	3.03	32.86	39.74	217.83	49.68	0.30	88.73	11.00
80 x 80	6.0	13.214	16.83	149.18	2.98	37.29	45.79	252.07	56.59	0.30	75.68	8.33
89 x 89	3.0	7.919	10.09	122.89	3.49	27.62	32.28	194.59	41.50	0.35	126.27	24.67
89 x 89	4.0	10.353	13.19	156.25	3.44	35.11	41.58	251.87	52.87	0.34	96.59	17.25
89 x 89	4.5	11.531	14.69	171.59	3.42	38.56	45.97	279.07	58.13	0.34	86.73	14.78
89 x 89	5.0	12.683	16.16	186.07	3.39	41.81	50.18	305.30	63.11	0.34	78.85	12.80
89 x 89	6.0	14.910	18.99	212.50	3.34	47.75	58.09	354.87	72.30	0.34	67.07	9.83
90 x 90	2.3	6.227	7.93	100.79	3.56	22.40	25.93	157.53	33.63	0.35	160.60	34.13
90 x 90	3.0	8.014	10.21	127.28	3.53	28.29	33.04	201.42	42.51	0.35	124.79	25.00
90 x 90	4.0	10.478	13.35	161.92	3.48	35.98	42.58	260.80	54.17	0.35	95.44	17.50
90 x 90	4.5	11.672	14.87	177.87	3.46	39.53	47.09	289.02	59.58	0.34	85.68	15.00
90 x 90	5.0	12.840	16.36	192.93	3.43	42.87	51.41	316.26	64.70	0.34	77.88	13.00
90 x 90	6.0	15.098	19.23	220.48	3.39	48.99	59.54	367.76	74.16	0.34	66.23	10.00
90 x 90	6.3	15.756	20.07	228.09	3.37	50.69	61.85	382.44	76.79	0.34	63.47	10.29
90 x 90	8.0	19.305	24.59	265.78	3.29	59.06	73.78	458.76	90.05	0.33	51.80	7.25
100 x 100	2.3	6.949	8.85	139.73	3.97	27.95	32.26	217.48	41.95	0.39	143.91	38.48
100 x 100	3.0	8.956	11.41	177.05	3.94	35.41	41.21	278.68	53.19	0.39	111.66	28.33
100 x 100	4.0	11.734	14.95	226.35	3.89	45.27	53.30	362.01	68.10	0.39	85.22	20.00
100 x 100	4.5	13.085	16.67	249.29	3.87	49.86	59.04	401.87	75.07	0.38	76.42	17.22
100 x 100	5.0	14.410	18.36	271.10	3.84	54.22	64.59	440.52	81.72	0.38	69.40	15.00
100 x 100	6.0	16.982	21.63	311.47	3.79	62.29	75.10	514.16	94.12	0.38	58.89	11.67
100 x 100	6.3	17.734	22.59	322.76	3.78	64.55	78.10	535.29	97.61	0.38	56.39	11.87
100 x 100	8.0	21.817	27.79	379.77	3.70	75.95	93.83	646.69	115.45	0.37	45.84	8.50
100 x 100	9.0	24.080	30.67	408.04	3.65	81.61	102.08	705.51	124.48	0.37	41.53	7.11

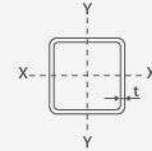
Square Hollow Sections



ASTM A - 500

Designation		Weight	Cross Sectional Area	Second Moment of Area	Radius of Gyration	Elastic Modulus	Plastic Modulus	Torsional inertia constant	Torsional modulus constant	Superficial Area per metre length	Nominal Length per tonne	Ratio for Local Buckling
Size	Thickness											
B x B	T	M	A	I	r	Z	S	J	C	As	L	Flange
mm	mm	Kg/m	cm ²	cm ⁴	cm	cm ³	cm ³	cm ⁴	cm ³	m ² /m	m	B/T
120 x 120	2.3	8.393	10.69	245.28	4.79	40.88	46.99	379.43	61.34	0.47	119.14	47.17
120 x 120	3.0	10.840	13.81	312.35	4.76	52.06	60.24	487.72	78.15	0.47	92.25	35.00
120 x 120	4.0	14.246	18.15	402.28	4.71	67.05	78.33	636.57	100.75	0.47	70.19	25.00
120 x 120	4.5	15.911	20.27	444.70	4.68	74.12	87.01	708.40	111.45	0.46	62.85	21.67
120 x 120	5.0	17.550	22.36	485.47	4.66	80.91	95.45	778.50	121.75	0.46	56.98	19.00
120 x 120	6.0	20.750	26.43	562.16	4.61	93.69	111.61	913.46	141.22	0.46	48.19	15.00
120 x 120	6.3	21.690	27.63	583.92	4.60	97.32	116.28	952.58	146.77	0.46	46.10	15.05
120 x 120	8.0	26.841	34.19	696.82	4.51	116.14	141.14	1162.31	175.79	0.45	37.26	11.00
120 x 120	9.0	29.732	37.87	755.21	4.47	125.87	154.54	1276.11	191.00	0.45	33.63	9.33
125 x 125	3.0	11.311	14.41	354.50	4.96	56.72	65.56	552.66	85.14	0.49	88.41	36.67
125 x 125	4.0	14.874	18.95	457.23	4.91	73.16	85.33	721.99	109.92	0.49	67.23	26.25
125 x 125	4.5	16.617	21.17	505.83	4.89	80.93	94.84	803.85	121.67	0.48	60.18	22.78
125 x 125	5.0	18.335	23.36	552.62	4.86	88.42	104.10	883.82	133.01	0.48	54.54	20.00
125 x 125	6.0	21.692	27.63	640.89	4.82	102.54	121.87	1038.10	154.49	0.48	46.10	15.83
125 x 125	6.3	22.679	28.89	666.02	4.80	106.56	127.01	1082.90	160.63	0.48	44.09	15.84
125 x 125	8.0	28.097	35.79	796.96	4.72	127.51	154.47	1323.83	192.86	0.47	35.59	11.63
125 x 125	9.0	31.145	39.67	865.20	4.67	138.43	169.34	1455.20	209.86	0.47	32.11	9.89
140 x 140	4.0	16.758	21.35	651.62	5.52	93.09	108.15	1023.32	139.80	0.55	59.67	30.00
140 x 140	5.0	20.690	26.36	790.56	5.48	112.94	132.30	1255.76	169.78	0.54	48.33	23.00
140 x 140	6.0	24.518	31.23	920.43	5.43	131.49	155.33	1478.77	197.90	0.54	40.79	18.33
140 x 140	6.3	25.647	32.67	957.65	5.41	136.81	162.02	1543.83	205.99	0.54	38.99	18.22
140 x 140	8.0	31.865	40.59	1153.92	5.33	164.85	198.05	1896.27	248.88	0.53	31.38	13.50
140 x 140	10.0	38.799	49.42	1354.07	5.23	193.44	236.46	2275.42	293.20	0.53	25.77	10.00
140 x 140	12.0	45.321	57.73	1522.77	5.14	217.54	270.65	2615.79	331.30	0.52	22.06	8.67
140 x 140	12.5	46.887	59.73	1560.25	5.11	222.89	278.56	2694.77	339.90	0.52	21.33	8.20
150 x 150	3.0	13.666	17.41	622.73	5.98	83.03	95.53	964.61	124.60	0.59	73.18	45.00
150 x 150	4.0	18.014	22.95	807.82	5.93	107.71	124.87	1264.76	161.73	0.59	55.51	32.50
150 x 150	4.5	20.150	25.67	896.30	5.91	119.51	139.08	1410.79	179.51	0.58	49.63	28.33
150 x 150	5.0	22.260	28.36	982.12	5.89	130.95	152.98	1554.13	196.79	0.58	44.92	25.00
150 x 150	6.0	26.402	33.63	1145.91	5.84	152.79	179.88	1832.69	229.84	0.58	37.88	20.00
150 x 150	6.3	27.625	35.19	1193.03	5.82	159.07	187.72	1914.13	239.38	0.58	36.20	19.81
150 x 150	8.0	34.377	43.79	1443.00	5.74	192.40	230.11	2357.13	290.21	0.57	29.09	14.75
150 x 150	9.0	38.210	48.67	1576.84	5.69	210.25	253.47	2602.92	317.65	0.57	26.17	12.67
150 x 150	12.5	50.812	64.73	1972.44	5.52	262.99	326.24	3375.93	400.19	0.56	19.68	9.00
160 x 160	4.0	19.270	24.55	987.17	6.34	123.40	142.78	1541.45	185.25	0.63	51.89	35.00
160 x 160	5.0	23.830	30.36	1202.36	6.29	150.29	175.16	1896.32	225.79	0.62	41.96	27.00
160 x 160	6.0	28.286	36.03	1405.48	6.25	175.69	206.24	2238.90	264.18	0.62	35.35	21.67
160 x 160	6.3	29.603	37.71	1464.11	6.23	183.01	215.31	2339.27	275.28	0.62	33.78	21.40
160 x 160	8.0	36.889	46.99	1776.69	6.15	222.09	264.57	2886.97	334.74	0.61	27.11	16.00
160 x 160	10.0	45.079	57.42	2103.07	6.05	262.88	317.88	3485.21	397.44	0.61	22.18	12.00
160 x 160	12.0	52.857	67.33	2386.83	5.95	298.35	366.31	4033.15	452.73	0.60	18.92	10.33
160 x 160	12.5	54.737	69.73	2451.37	5.93	306.42	377.66	4162.22	465.45	0.60	18.27	9.80
160 x 160	16.0	67.173	85.57	2835.11	5.76	354.39	448.95	4976.21	542.67	0.59	14.89	7.00
178 x 178	4.0	21.531	27.43	1373.47	7.08	154.32	178.05	2135.96	231.62	0.70	46.44	39.50
178 x 178	4.5	24.106	30.71	1527.36	7.05	171.61	198.64	2386.01	257.64	0.70	41.48	34.56
178 x 178	5.0	26.656	33.96	1677.44	7.03	188.48	218.86	2632.27	283.05	0.69	37.52	30.60
178 x 178	6.0	31.677	40.35	1966.30	6.98	220.93	258.22	3113.39	332.03	0.69	31.57	24.67
178 x 178	9.0	46.123	58.75	2745.45	6.84	308.48	367.73	4465.07	465.01	0.68	21.68	15.78
180 x 180	4.0	21.782	27.75	1421.74	7.16	157.97	182.21	2210.16	237.10	0.71	45.91	40.00
180 x 180	4.5	24.389	31.07	1581.26	7.13	175.70	203.30	2469.10	263.77	0.70	41.00	35.00
180 x 180	5.0	26.970	34.36	1736.87	7.11	192.99	224.02	2724.16	289.81	0.70	37.08	31.00
180 x 180	6.0	32.054	40.83	2036.52	7.06	226.28	264.35	3222.65	340.05	0.70	31.20	25.00
180 x 180	6.3	33.559	42.75	2123.45	7.05	235.94	276.17	3369.16	354.65	0.70	29.80	24.57
180 x 180	8.0	41.913	53.39	2590.73	6.97	287.86	340.68	4172.81	433.38	0.69	23.86	18.50
180 x 180	9.0	46.688	59.47	2845.92	6.92	316.21	376.70	4624.37	476.62	0.69	21.42	16.00

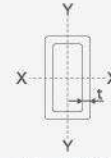
Square Hollow Sections



ASTM A - 500

Designation		Weight	Cross Sectional Area	Second Moment of Area	Radius of Gyration	Elastic Modulus	Plastic Modulus	Torsional inertia constant	Torsional modulus constant	Superficial Area per metre length	Nominal Length per tonne	Ratio for Local Buckling
Size	Thickness											
B x B	T	M	A	I	r	Z	S	J	C	As	L	Flange
mm	mm	Kg/m	cm ²	cm ⁴	cm	cm ³	cm ³	cm ⁴	cm ³	m ² /m	m	B/T
200 x 200	4.0	24.294	30.95	1968.13	7.97	196.81	226.44	3048.66	295.34	0.79	41.16	45.00
200 x 200	4.5	27.215	34.67	2191.54	7.95	219.15	252.86	3408.36	328.93	0.78	36.74	39.44
200 x 200	5.0	30.110	38.36	2410.09	7.93	241.01	278.87	3763.30	361.82	0.78	33.21	35.00
200 x 200	6.0	35.822	45.63	2832.75	7.88	283.27	329.67	4458.81	425.51	0.78	27.92	28.33
200 x 200	6.3	37.516	47.79	2955.84	7.86	295.58	344.59	4663.72	444.08	0.78	26.66	27.75
200 x 200	8.0	46.937	59.79	3621.63	7.78	362.16	426.39	5792.19	544.81	0.77	21.31	21.00
200 x 200	9.0	52.340	66.67	3988.56	7.73	398.86	472.35	6429.93	600.56	0.77	19.11	18.22
200 x 200	10.0	57.639	73.42	4337.63	7.69	433.76	516.73	7048.28	653.79	0.77	17.35	16.00
200 x 200	12.0	67.929	86.53	4983.59	7.59	498.36	600.81	8226.50	752.95	0.76	14.72	13.67
200 x 200	12.5	70.437	89.73	5134.46	7.56	513.45	620.86	8508.82	776.26	0.76	14.20	13.00
200 x 200	16.0	87.269	111.17	6076.38	7.39	607.64	750.65	10347.01	923.57	0.75	11.46	9.50
220 x 220	5.0	33.250	42.36	3238.02	8.74	294.37	339.73	5037.71	441.83	0.86	30.08	39.00
220 x 220	6.0	39.590	50.43	3813.36	8.70	346.67	402.18	5976.18	520.57	0.86	25.26	31.67
220 x 220	6.3	41.472	52.83	3981.43	8.68	361.95	420.56	6253.20	543.59	0.86	24.11	30.92
220 x 220	8.0	51.961	66.19	4894.99	8.60	445.00	521.70	7783.51	669.03	0.85	19.25	23.50
220 x 220	10.0	63.919	81.42	5887.19	8.50	535.20	634.16	9497.54	805.92	0.85	15.64	18.00
220 x 220	12.0	75.465	96.13	6793.08	8.41	617.55	739.66	11117.67	931.77	0.84	13.25	15.33
220 x 220	12.5	78.287	99.73	7006.43	8.38	636.95	764.96	11507.96	961.56	0.84	12.77	14.60
220 x 220	16.0	97.317	123.97	8358.20	8.21	759.84	930.30	14073.70	1152.18	0.83	10.28	10.75
250 x 250	5.0	37.960	48.36	4805.01	9.97	384.40	442.26	7443.01	576.84	0.98	26.34	45.00
250 x 250	6.0	45.242	57.63	5672.00	9.92	453.76	524.45	8842.52	681.15	0.98	22.10	36.67
250 x 250	6.3	47.407	60.39	5926.18	9.91	474.09	548.70	9256.55	711.76	0.98	21.09	35.68
250 x 250	8.0	59.497	75.79	7315.65	9.82	585.25	682.67	11551.86	879.34	0.97	16.81	27.25
250 x 250	9.0	66.470	84.67	8093.21	9.78	647.46	758.74	12861.53	973.36	0.97	15.04	23.78
250 x 250	10.0	73.339	93.42	8841.86	9.73	707.35	832.79	14141.09	1064.09	0.97	13.64	21.00
250 x 250	12.0	86.769	110.53	10254.21	9.63	820.34	974.94	16609.54	1235.93	0.96	11.52	17.83
250 x 250	12.5	90.062	114.73	10589.93	9.61	847.19	1009.24	17207.70	1276.94	0.96	11.10	17.00
250 x 250	16.0	112.389	143.17	12751.41	9.44	1020.11	1235.77	21181.29	1542.90	0.95	8.90	12.63
260 x 260	6.0	47.126	60.03	6404.54	10.33	492.66	568.80	9969.77	739.48	1.02	21.22	38.33
260 x 260	6.3	49.385	62.91	6692.87	10.31	514.84	595.20	10437.89	772.85	1.02	20.25	37.27
260 x 260	8.0	62.009	78.99	8271.50	10.23	636.27	741.13	13035.55	955.84	1.01	16.13	28.50
260 x 260	10.0	76.479	97.42	10010.85	10.14	770.07	905.01	15971.52	1158.13	1.01	13.08	22.00
260 x 260	12.0	90.537	115.33	11626.30	10.04	894.33	1060.56	18777.00	1346.91	1.00	11.05	18.67
260 x 260	12.5	93.987	119.73	12011.23	10.02	923.94	1098.17	19457.90	1392.05	1.00	10.64	17.80
260 x 260	16.0	117.413	149.57	14500.20	9.85	1115.40	1347.19	23993.57	1685.89	0.99	8.52	13.25
300 x 300	6.0	54.662	69.63	9963.67	11.96	664.24	764.23	15433.82	996.78	1.18	18.29	45.00
300 x 300	6.3	57.298	72.99	10419.05	11.95	694.60	800.07	16165.12	1042.41	1.18	17.45	43.62
300 x 300	9.0	80.600	102.67	14340.79	11.82	956.05	1112.62	22572.71	1436.09	1.17	12.41	29.33
300 x 300	12.0	105.609	134.53	18334.49	11.67	1222.30	1439.07	29322.97	1838.74	1.16	9.47	22.00
300 x 300	12.5	109.687	139.73	18963.85	11.65	1264.26	1491.37	30410.04	1902.41	1.16	9.12	21.00
300 x 300	16.0	137.509	175.17	23088.02	11.48	1539.20	1840.89	37714.09	2321.71	1.15	7.27	15.75
350 x 350	6.0	64.082	81.63	16007.75	14.00	914.73	1049.01	24682.71	1372.40	1.38	15.60	53.33
350 x 350	6.3	67.189	85.59	16749.46	13.99	957.11	1098.68	25861.94	1436.06	1.38	14.88	51.56
350 x 350	8.0	84.617	107.79	20849.89	13.91	1191.42	1375.23	32445.01	1788.28	1.37	11.82	39.75
350 x 350	9.0	94.730	120.67	23181.29	13.86	1324.65	1534.01	36238.47	1988.79	1.37	10.56	34.89
350 x 350	10.0	104.739	133.42	25453.75	13.81	1454.50	1689.92	39973.32	2184.43	1.37	9.55	31.00
350 x 350	12.0	124.449	158.53	29824.41	13.72	1704.25	1993.20	47266.76	2561.44	1.36	8.04	26.17
350 x 350	12.5	129.312	164.73	30881.22	13.69	1764.64	2067.25	49053.31	2652.76	1.36	7.73	25.00
350 x 350	16.0	162.629	207.17	37886.23	13.52	2164.93	2566.00	61145.35	3260.21	1.35	6.15	18.88

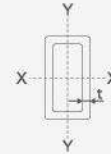
Rectangular Hollow Sections



ASTM A - 500

Designation		Weight	Cross Sectional Area	Second Moment of Area	Second Moment of Area	Radius of Gyration	Radius of Gyration	Elastic Modulus	Elastic Modulus	Plastic Modulus	Plastic Modulus	Torsional inertia constant	Torsional modulus constant	Superficial Area per metre length	Nominal Length per tonne	Ratio for Local Buckling	Ratio for Local Buckling
Size	Thickness																
B x H	T	M	A	I _x	I _y	i _x	i _y	Z _x	Z _y	S _x	S _y	J	C	A _s	L	Flange	Web
mm	mm	Kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³	m ² /m	m	B/T	H/T
19x38	1.6	1.330	1.66	2.91	0.97	1.33	0.77	1.53	1.02	1.95	1.20	2.46	1.79	0.11	769.41	6.88	18.75
20x40	2.0	1.678	2.14	4.05	1.34	1.38	0.79	2.02	1.34	2.61	1.60	3.45	2.36	0.11	596.11	5.00	15.00
20x40	2.5	2.032	2.59	4.69	1.54	1.35	0.77	2.35	1.54	3.09	1.88	4.06	2.72	0.11	492.03	3.00	11.00
20x40	3.0	2.361	3.01	5.21	1.68	1.32	0.75	2.60	1.68	3.50	2.12	4.57	3.00	0.11	423.47	1.67	8.33
25x38	1.6	1.490	1.85	3.55	1.85	1.39	1.00	1.87	1.48	2.30	1.72	3.99	2.45	0.12	689.45	10.63	18.75
25x50	1.6	1.790	2.23	7.02	2.37	1.77	1.03	2.81	1.90	3.53	2.17	5.85	3.29	0.14	570.82	10.63	26.25
25x50	2.0	2.149	2.74	8.38	2.81	1.75	1.01	3.35	2.25	4.26	2.62	7.06	3.92	0.14	465.43	7.50	20.00
25x50	2.3	2.510	3.10	9.31	3.10	1.73	1.00	3.72	2.48	4.78	2.92	7.90	4.34	0.14	410.64	5.87	16.74
25x50	2.5	2.621	3.34	9.89	3.28	1.72	0.99	3.95	2.62	5.11	3.12	8.43	4.60	0.14	381.51	5.00	15.00
25x50	3.0	3.190	3.91	11.17	3.67	1.69	0.97	4.47	2.93	5.86	3.56	9.64	5.18	0.14	325.95	3.33	11.67
25x75	1.6	2.380	3.03	19.74	3.47	2.55	1.07	5.26	2.78	6.81	3.11	9.93	5.05	0.19	420.19	10.63	41.88
25x75	1.9	2.797	3.56	22.84	3.98	2.53	1.06	6.09	3.18	7.94	3.61	11.50	5.80	0.19	357.57	8.16	34.47
25x75	2.0	2.934	3.74	23.84	4.14	2.53	1.05	6.36	3.31	8.31	3.77	12.01	6.04	0.19	340.89	7.50	32.50
25x75	2.3	3.338	4.25	26.70	4.59	2.51	1.04	7.12	3.67	9.37	4.23	13.46	6.72	0.19	299.58	5.87	27.61
25x75	2.5	3.602	4.59	28.52	4.87	2.49	1.03	7.60	3.89	10.06	4.53	14.38	7.14	0.19	277.59	5.00	25.00
25x75	3.0	4.245	5.41	32.72	5.49	2.46	1.01	8.72	4.39	11.69	5.21	16.50	8.10	0.19	235.55	3.33	20.00
25x75	4.0	5.454	6.95	39.72	6.46	2.39	0.96	10.59	5.17	14.56	6.39	20.01	9.61	0.19	183.35	1.25	13.75
25x75	4.5	6.020	7.67	42.56	6.81	2.36	0.94	11.35	5.45	15.82	6.89	21.40	10.19	0.18	166.12	0.56	11.67
30x50	2.0	2.306	2.94	9.54	4.29	1.80	1.21	3.81	2.86	4.74	3.33	9.77	4.84	0.15	433.74	10.00	20.00
30x50	2.5	2.817	3.59	11.30	5.05	1.77	1.19	4.52	3.37	5.70	3.98	11.74	5.72	0.15	354.94	7.00	15.00
30x50	3.0	3.303	4.21	12.83	5.70	1.75	1.16	5.13	3.80	6.57	4.58	13.53	6.49	0.15	302.71	5.00	11.67
30x50	4.0	4.198	5.35	15.25	6.69	1.69	1.12	6.10	4.46	8.05	5.58	16.53	7.71	0.15	238.20	2.50	7.50
30x50	5.0	4.990	6.36	16.87	7.33	1.63	1.07	6.75	4.88	9.20	6.34	18.77	8.55	0.14	200.42	1.00	5.00
30x60	1.6	2.129	2.71	12.49	4.25	2.15	1.25	4.16	2.83	5.19	3.20	10.35	4.90	0.17	469.78	13.75	32.50
30x60	1.9	2.498	3.18	14.43	4.88	2.13	1.24	4.81	3.25	6.04	3.72	12.03	5.64	0.17	400.26	10.79	26.58
30x60	2.3	2.977	3.79	16.82	5.65	2.11	1.22	5.61	3.76	7.11	4.37	14.14	6.56	0.17	335.93	8.04	21.09
30x60	3.0	3.774	4.81	20.50	6.80	2.06	1.19	6.83	4.53	8.82	5.39	17.48	7.95	0.17	264.94	5.00	15.00
30x80	1.6	2.631	3.35	25.79	5.54	2.77	1.29	6.45	3.69	8.22	4.11	15.11	6.62	0.21	380.07	13.75	45.00
30x80	1.9	3.095	3.94	29.94	6.38	2.76	1.27	7.48	4.25	9.60	4.79	17.58	7.65	0.21	323.11	10.79	37.11
30x80	2.3	3.699	4.71	35.13	7.42	2.73	1.25	8.78	4.94	11.36	5.64	20.69	8.91	0.21	270.34	8.04	29.78
30x80	3.0	4.716	6.01	43.35	8.99	2.69	1.22	10.84	6.00	14.23	7.01	25.65	10.87	0.21	212.02	5.00	21.67
30x110	2.0	4.190	5.34	71.62	9.00	3.66	1.30	13.02	6.00	17.15	6.69	27.35	11.11	0.27	238.69	10.00	50.00
30x110	2.5	5.172	6.59	86.79	10.74	3.63	1.28	15.78	7.16	20.97	8.11	33.03	13.29	0.27	193.33	7.00	39.00
30x110	3.0	6.129	7.81	100.91	12.29	3.59	1.25	18.35	8.19	24.59	9.44	38.25	15.26	0.27	163.15	5.00	31.67
30x110	4.0	7.966	10.15	126.08	14.87	3.52	1.21	22.92	9.91	31.29	11.82	47.38	18.59	0.27	125.53	2.50	22.50
35x65	1.6	2.380	3.03	16.87	6.47	2.36	1.46	5.19	3.70	6.39	4.17	15.10	6.32	0.19	420.19	16.88	35.63
35x65	1.9	2.797	3.56	19.54	7.46	2.34	1.45	6.01	4.26	7.46	4.85	17.61	7.30	0.19	357.57	13.42	29.21
35x65	2.0	2.934	3.74	20.40	7.78	2.34	1.44	6.28	4.44	7.80	5.07	18.42	7.62	0.19	340.89	12.50	27.50
35x65	2.3	3.338	4.25	22.88	8.69	2.32	1.43	7.04	4.96	8.81	5.72	20.79	8.53	0.19	299.58	10.22	23.26
35x65	2.5	3.602	4.59	24.45	9.26	2.31	1.42	7.52	5.29	9.45	6.13	22.31	9.10	0.19	277.59	9.00	21.00
35x65	3.0	4.245	5.41	28.10	10.57	2.28	1.40	8.65	6.04	10.99	7.11	25.91	10.44	0.19	235.55	6.67	16.67
35x65	4.0	5.454	6.95	34.28	12.72	2.22	1.35	10.55	7.27	13.73	8.83	32.24	12.68	0.19	183.35	3.75	11.25
38x65	1.6	2.455	3.13	17.83	7.79	2.39	1.58	5.49	4.10	6.70	4.63	17.39	6.91	0.20	407.29	18.75	35.63
38x65	1.9	2.886	3.68	20.68	9.00	2.37	1.56	6.36	4.74	7.82	5.40	20.30	8.00	0.20	346.48	15.00	29.21
38x65	2.0	3.028	3.86	21.59	9.39	2.37	1.56	6.64	4.94	8.18	5.64	21.24	8.35	0.20	330.28	14.00	27.50
38x65	2.3	3.446	4.39	24.23	10.50	2.35	1.55	7.46	5.53	9.24	6.37	24.01	9.36	0.20	290.17	11.52	23.26
38x65	2.5	3.720	4.74	25.91	11.20	2.34	1.54	7.97	5.90	9.92	6.83	25.79	10.00	0.20	268.81	10.20	21.00
38x65	3.0	4.387	5.59	29.83	12.83	2.31	1.51	9.18	6.75	11.55	7.93	30.02	11.50	0.20	227.96	7.67	16.67
38x65	3.2	4.646	5.92	31.29	13.42	2.30	1.51	9.63	7.06	12.17	8.35	31.62	12.05	0.20	215.23	6.88	15.31
38x65	4.0	5.643	7.19	36.52	15.53	2.25	1.47	11.24	8.17	14.46	9.89	37.55	14.04	0.19	177.22	4.50	11.25

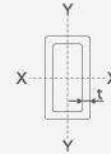
Rectangular Hollow Sections



ASTM A - 500

Designation		Weight	Cross Sectional Area	Second Moment of Area	Second Moment of Area	Radius of Gyration	Radius of Gyration	Elastic Modulus	Elastic Modulus	Plastic Modulus	Plastic Modulus	Torsional inertia constant	Torsional modulus constant	Superficial Area per metre length	Nominal Length per tonne	Ratio for Local Buckling	Ratio for Local Buckling
Size	Thickness																
B x H	T	M	A	I _x	I _y	i _x	i _y	Z _x	Z _y	S _x	S _y	J	C	As	L	Flange	Web
mm	mm	Kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³	m ² /m	m	B/T	H/T
38 x 75	1.6	2.706	3.45	25.34	8.85	2.71	1.60	6.76	4.66	8.34	5.21	21.15	8.03	0.22	369.49	18.75	41.88
38 x 75	1.9	3.184	4.06	29.44	10.24	2.69	1.59	7.85	5.39	9.75	6.08	24.71	9.30	0.22	314.03	15.00	34.47
38 x 75	2.0	3.342	4.26	30.77	10.68	2.69	1.58	8.20	5.62	10.21	6.36	25.86	9.71	0.22	299.25	14.00	32.50
38 x 75	2.3	3.807	4.85	34.61	11.97	2.67	1.57	9.23	6.30	11.55	7.19	29.24	10.90	0.22	262.65	11.52	27.61
38 x 75	2.5	4.113	5.24	37.06	12.78	2.66	1.56	9.88	6.73	12.42	7.72	31.42	11.66	0.22	243.15	10.20	25.00
38 x 75	3.0	4.858	6.19	42.83	14.67	2.63	1.54	11.42	7.72	14.49	8.98	36.62	13.43	0.22	205.86	7.67	20.00
38 x 75	3.2	5.149	6.56	44.99	15.37	2.62	1.53	12.00	8.09	15.29	9.46	38.60	14.09	0.22	194.23	6.88	18.44
38 x 75	4.0	6.271	7.99	52.84	17.85	2.57	1.50	14.09	9.40	18.26	11.25	45.93	16.48	0.21	159.48	4.50	13.75
38 x 75	4.5	6.938	8.84	57.12	19.17	2.54	1.47	15.23	10.09	19.95	12.25	50.04	17.77	0.21	144.13	3.44	11.67
40 x 60	2.0	2.934	3.74	18.41	9.83	2.22	1.62	6.14	4.92	7.47	5.65	20.70	8.12	0.19	340.89	15.00	25.00
40 x 60	2.5	3.602	4.59	22.07	11.74	2.19	1.60	7.36	5.87	9.06	6.84	25.14	9.72	0.19	277.59	11.00	19.00
40 x 60	3.0	4.245	5.41	25.38	13.44	2.17	1.58	8.46	6.72	10.53	7.94	29.28	11.17	0.19	235.55	8.33	15.00
40 x 60	4.0	5.454	6.95	30.99	16.28	2.11	1.53	10.33	8.14	13.16	9.89	36.67	13.65	0.19	183.35	5.00	10.00
40 x 60	5.0	6.560	8.36	35.33	18.43	2.06	1.48	11.78	9.21	15.38	11.52	42.85	15.60	0.18	152.45	3.00	7.00
40 x 80	1.6	2.882	3.67	30.71	10.52	2.89	1.69	7.68	5.26	9.47	5.87	25.23	9.08	0.23	346.95	20.00	45.00
40 x 80	1.9	3.393	4.32	35.73	12.19	2.88	1.68	8.93	6.09	11.08	6.85	29.49	10.53	0.23	294.70	16.05	37.11
40 x 80	2.3	4.060	5.17	42.08	14.27	2.85	1.66	10.52	7.14	13.15	8.11	34.95	12.37	0.23	246.30	12.39	29.78
40 x 80	3.0	5.187	6.61	52.25	17.56	2.81	1.63	13.06	8.78	16.54	10.16	43.88	15.28	0.23	192.77	8.33	21.67
40 x 80	4.0	6.710	8.55	64.79	21.49	2.75	1.59	16.20	10.74	20.91	12.77	55.24	18.84	0.23	149.03	5.00	15.00
40 x 100	2.5	5.172	6.59	79.32	18.78	3.47	1.69	15.86	9.39	20.23	10.59	50.52	16.76	0.27	193.33	11.00	35.00
40 x 100	3.0	6.129	7.81	92.34	21.67	3.44	1.67	18.47	10.84	23.75	12.38	59.05	19.39	0.27	163.15	8.33	28.33
40 x 100	4.0	7.966	10.15	115.70	26.69	3.38	1.62	23.14	13.35	30.26	15.65	74.53	24.04	0.27	125.53	5.00	20.00
40 x 100	5.0	9.700	12.36	135.60	30.76	3.31	1.58	27.12	15.38	36.09	18.52	87.92	27.90	0.26	103.10	3.00	15.00
50 x 70	2.0	3.562	4.54	31.48	18.76	2.63	2.03	8.99	7.50	10.80	8.58	37.45	12.20	0.23	280.78	20.00	30.00
50 x 70	2.5	4.387	5.59	38.01	22.59	2.61	2.01	10.86	9.04	13.16	10.45	45.75	14.72	0.23	227.93	15.00	23.00
50 x 70	3.0	5.187	6.61	44.05	26.10	2.58	1.99	12.59	10.44	15.40	12.21	53.62	17.06	0.23	192.77	11.67	18.33
50 x 70	4.0	6.710	8.55	54.67	32.22	2.53	1.94	15.62	12.89	19.48	15.41	68.07	21.19	0.23	149.03	7.50	12.50
50 x 70	5.0	8.130	10.36	63.46	37.20	2.48	1.90	18.13	14.88	23.06	18.20	80.77	24.64	0.22	123.01	5.00	9.00
50 x 75	1.6	3.008	3.83	30.51	16.39	2.82	2.07	8.14	6.56	9.75	7.40	33.67	10.78	0.24	332.46	26.25	41.88
50 x 75	1.9	3.542	4.51	35.54	19.05	2.81	2.05	9.48	7.62	11.42	8.65	39.46	12.55	0.24	282.29	21.32	34.47
50 x 75	2.0	3.719	4.74	37.16	19.91	2.80	2.05	9.91	7.96	11.96	9.06	41.35	13.12	0.24	268.92	20.00	32.50
50 x 75	2.3	4.241	5.40	41.90	22.41	2.79	2.04	11.17	8.96	13.56	10.26	46.92	14.78	0.24	235.81	16.74	27.61
50 x 75	2.5	4.584	5.84	44.95	24.00	2.77	2.03	11.99	9.60	14.59	11.04	50.54	15.85	0.24	218.17	15.00	25.00
50 x 75	3.0	5.423	6.91	52.17	27.76	2.75	2.00	13.91	11.10	17.09	12.91	59.27	18.38	0.24	184.40	11.67	20.00
50 x 75	4.0	7.024	8.95	64.96	34.34	2.69	1.96	17.32	13.74	21.66	16.33	75.33	22.88	0.24	142.37	7.50	13.75
50 x 75	4.5	7.786	9.92	70.56	37.19	2.67	1.94	18.82	14.87	23.75	17.88	82.66	24.86	0.23	128.44	6.11	11.67
50 x 75	5.0	8.522	10.86	75.65	39.75	2.64	1.91	20.17	15.90	25.71	19.33	89.52	26.67	0.23	117.34	5.00	10.00
50 x 75	6.0	9.917	12.63	84.37	44.06	2.58	1.87	22.50	17.63	29.23	21.92	101.82	29.79	0.23	100.84	3.33	7.50
50 x 90	2.0	4.190	5.34	57.88	23.37	3.29	2.09	12.86	9.35	15.74	10.50	53.37	15.88	0.27	238.69	20.00	40.00
50 x 90	2.5	5.172	6.59	70.26	28.24	3.27	2.07	15.61	11.29	19.25	12.82	65.30	19.24	0.27	193.33	15.00	31.00
50 x 90	3.0	6.129	7.81	81.85	32.74	3.24	2.05	18.19	13.10	22.60	15.03	76.67	22.36	0.27	163.15	11.67	25.00
50 x 90	4.0	7.966	10.15	102.71	40.71	3.18	2.00	22.82	16.28	28.82	19.09	97.70	27.96	0.27	125.53	7.50	17.50
50 x 90	5.0	9.700	12.36	120.60	47.37	3.12	1.96	26.80	18.95	34.41	22.70	116.47	32.75	0.26	103.10	5.00	13.00
50 x 100	1.6	3.636	4.63	61.29	21.08	3.64	2.13	12.26	8.43	15.04	9.33	50.08	14.53	0.29	275.04	26.25	57.50
50 x 100	1.9	4.288	5.46	71.62	24.55	3.62	2.12	14.32	9.82	17.65	10.94	58.75	16.94	0.29	233.20	21.32	47.63
50 x 100	2.0	4.504	5.74	74.98	25.67	3.62	2.12	15.00	10.27	18.50	11.46	61.59	17.73	0.29	222.05	20.00	45.00
50 x 100	2.3	5.143	6.55	84.83	28.95	3.60	2.10	16.97	11.58	21.03	13.01	69.95	20.02	0.29	194.42	16.74	38.48
50 x 100	2.5	5.565	7.09	91.20	31.06	3.59	2.09	18.24	12.42	22.67	14.01	75.39	21.49	0.29	179.70	15.00	35.00
50 x 100	3.0	6.600	8.41	106.46	36.06	3.56	2.07	21.29	14.42	26.66	16.44	88.56	25.01	0.29	151.50	11.67	28.33
50 x 100	4.0	8.594	10.95	134.14	44.95	3.50	2.03	26.83	17.98	34.10	20.93	112.99	31.35	0.29	116.36	7.50	20.00
50 x 100	4.5	9.552	12.17	146.61	48.87	3.47	2.00	29.32	19.55	37.56	23.00	124.25	34.18	0.28	104.69	6.11	17.22
50 x 100	5.0	10.485	13.36	158.19	52.45	3.44	1.98	31.64	20.98	40.84	24.95	134.87	36.80	0.28	95.38	5.00	15.00
50 x 100	6.0	12.272	15.63	178.75	58.67	3.38	1.94	35.75	23.47	46.90	28.52	154.20	41.43	0.28	81.49	3.33	11.67
50 x 100	6.3	12.520	15.95	175.68	58.19	3.32	1.91	35.14	23.27	46.87	28.63	158.08	42.07	0.27	79.87	2.94	10.87

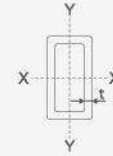
Rectangular Hollow Sections



ASTM A - 500

Designation		Weight	Cross Sectional Area	Second Moment of Area	Second Moment of Area	Radius of Gyration	Radius of Gyration	Elastic Modulus	Elastic Modulus	Plastic Modulus	Plastic Modulus	Torsional inertia constant	Torsional modulus constant	Superficial Area per metre length	Nominal Length per tonne	Ratio for Local Buckling	Ratio for Local Buckling
Size	Thickness																
B x H	T	M	A	I _x	I _y	i _x	i _y	Z _x	Z _y	S _x	S _y	J	C	As	L	Flange	Web
mm	mm	Kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³	m ² /m	m	B/T	H/T
50 x 125	2.3	6.046	7.70	148.24	35.50	4.39	2.15	23.72	14.20	29.94	15.75	93.92	25.25	0.34	165.39	16.74	49.35
50 x 125	2.5	6.546	8.34	159.61	38.12	4.37	2.14	25.54	15.25	32.31	16.98	101.26	27.13	0.34	152.76	15.00	45.00
50 x 125	3.0	7.778	9.91	187.02	44.35	4.34	2.12	29.92	17.74	38.11	19.96	119.03	31.64	0.34	128.57	11.67	36.67
50 x 125	4.0	10.164	12.95	237.53	55.56	4.28	2.07	38.01	22.22	49.03	25.53	152.13	39.82	0.34	98.38	7.50	26.25
50 x 125	4.5	11.319	14.42	260.68	60.55	4.25	2.05	41.71	24.22	54.17	28.12	167.45	43.52	0.33	88.35	6.11	22.78
50 x 125	5.0	12.447	15.86	282.46	65.16	4.22	2.03	45.19	26.07	59.10	30.58	181.95	46.95	0.33	80.34	5.00	20.00
50 x 125	6.0	14.627	18.63	322.00	73.28	4.16	1.98	51.52	29.31	68.32	35.12	208.52	53.10	0.33	68.37	3.33	15.83
50 x 125	6.3	15.261	19.44	332.83	75.45	4.14	1.97	53.25	30.18	70.92	36.39	215.86	54.75	0.33	65.53	3.94	15.84
50 x 150	2.3	6.949	8.85	235.71	42.04	5.16	2.18	31.43	16.82	40.28	18.49	118.46	30.49	0.39	143.91	16.74	60.22
50 x 150	3.0	8.956	11.41	298.55	52.65	5.12	2.15	39.81	21.06	51.43	23.49	150.22	38.28	0.39	111.66	11.67	45.00
50 x 150	4.0	11.734	14.95	381.39	66.16	5.05	2.10	50.85	26.47	66.47	30.13	192.14	48.30	0.39	85.22	7.50	32.50
50 x 150	4.5	13.085	16.67	419.82	72.23	5.02	2.08	55.98	28.89	73.60	33.24	211.60	52.85	0.38	76.42	6.11	28.33
50 x 150	5.0	14.410	18.36	456.29	77.87	4.99	2.06	60.84	31.15	80.48	36.20	230.05	57.11	0.38	69.40	5.00	25.00
50 x 150	6.0	16.982	21.63	523.47	87.89	4.92	2.02	69.80	35.16	93.48	41.72	263.99	64.77	0.38	58.89	3.33	20.00
50 x 150	6.3	17.734	22.59	542.15	90.59	4.90	2.00	72.29	36.24	97.19	43.27	273.40	66.85	0.38	56.39	3.94	19.81
60 x 80	2.0	4.190	5.34	49.53	31.87	3.05	2.44	12.38	10.62	14.73	12.11	61.22	17.08	0.27	238.69	25.00	35.00
60 x 80	2.5	5.172	6.59	60.13	38.61	3.02	2.42	15.03	12.87	18.02	14.81	75.07	20.73	0.27	193.33	19.00	27.00
60 x 80	3.0	6.130	7.81	70.05	44.89	3.00	2.40	17.51	14.96	21.16	17.37	88.35	24.14	0.27	163.14	15.00	21.67
60 x 80	4.0	7.966	10.15	87.92	56.12	2.94	2.35	21.98	18.71	26.99	22.12	113.12	30.32	0.27	125.53	10.00	15.00
60 x 80	5.0	9.700	12.36	103.28	65.66	2.89	2.31	25.82	21.89	32.24	26.38	135.53	35.67	0.26	103.09	7.00	11.00
60 x 100	2.5	5.957	7.59	103.09	46.88	3.69	2.49	20.62	15.63	25.11	17.68	103.25	26.23	0.31	167.86	19.00	35.00
60 x 100	3.0	7.072	9.01	120.57	54.65	3.66	2.46	24.11	18.22	29.57	20.79	121.67	30.64	0.31	141.41	15.00	28.33
60 x 100	4.0	9.222	11.75	152.58	68.68	3.60	2.42	30.52	22.89	37.94	26.60	156.27	38.68	0.31	108.43	10.00	20.00
60 x 100	5.0	11.270	14.36	180.77	80.83	3.55	2.37	36.15	26.94	45.59	31.88	187.86	45.75	0.30	88.73	7.00	15.00
60 x 100	6.0	13.214	16.83	205.30	91.20	3.49	2.33	41.06	30.40	52.54	36.64	216.44	51.92	0.30	75.68	5.00	11.67
60 x 100	6.3	13.777	17.55	211.97	93.99	3.48	2.31	42.39	31.33	54.49	37.96	224.42	53.59	0.30	72.58	5.52	11.87
60 x 120	2.5	6.742	8.59	161.23	55.15	4.33	2.53	26.87	18.38	33.20	20.56	132.57	31.75	0.35	148.31	19.00	43.00
60 x 120	3.0	8.014	10.21	189.12	64.40	4.30	2.51	31.52	21.47	39.18	24.21	156.34	37.14	0.35	124.79	15.00	35.00
60 x 120	4.0	10.478	13.35	240.74	81.25	4.25	2.47	40.12	27.08	50.49	31.08	201.12	47.05	0.35	95.44	10.00	25.00
60 x 120	4.5	11.672	14.87	264.52	88.88	4.22	2.44	44.09	29.63	55.82	34.30	222.14	51.58	0.34	85.68	8.33	21.67
60 x 120	5.0	12.840	16.36	286.97	95.99	4.19	2.42	47.83	32.00	60.95	37.38	242.23	55.85	0.34	77.88	7.00	19.00
60 x 120	6.0	15.098	19.23	328.01	108.77	4.13	2.38	54.67	36.26	70.57	43.12	279.67	63.60	0.34	66.23	5.00	15.00
60 x 120	6.3	15.756	20.07	339.34	112.24	4.11	2.36	56.56	37.41	73.30	44.73	290.18	65.73	0.34	63.47	5.52	15.05
75 x 100	2.3	6.046	7.70	112.28	72.30	3.82	3.06	22.46	19.28	26.64	21.92	138.34	30.98	0.34	165.39	27.61	38.48
75 x 100	3.0	7.778	9.91	141.75	91.07	3.78	3.03	28.35	24.29	33.93	27.89	176.64	39.09	0.34	128.57	20.00	28.33
75 x 100	3.2	8.264	10.53	149.79	96.17	3.77	3.02	29.96	25.64	35.95	29.53	187.25	41.30	0.34	121.01	18.44	26.25
75 x 100	4.0	10.164	12.95	180.25	115.42	3.73	2.99	36.05	30.78	43.70	35.86	228.25	49.70	0.34	98.38	13.75	20.00
75 x 100	4.5	11.319	14.42	197.95	126.55	3.71	2.96	39.59	33.75	48.30	39.61	252.68	54.60	0.33	88.35	11.67	17.22
75 x 100	5.0	12.447	15.86	214.64	137.00	3.68	2.94	42.93	36.53	52.72	43.21	276.18	59.22	0.33	80.34	10.00	15.00
75 x 100	6.0	14.627	18.63	245.11	155.96	3.63	2.89	49.02	41.59	61.00	49.93	320.42	67.71	0.33	68.37	7.50	11.67
75 x 100	6.3	15.261	19.44	253.51	161.16	3.61	2.88	50.70	42.97	63.35	51.83	332.96	70.06	0.33	65.53	7.90	11.87
75 x 125	2.3	6.949	8.85	191.52	87.51	4.65	3.14	30.64	23.33	36.99	26.10	189.93	39.08	0.39	143.91	27.61	49.35
75 x 125	3.0	8.956	11.41	242.85	110.52	4.61	3.11	38.86	29.47	47.26	33.29	242.86	49.46	0.39	111.66	20.00	36.67
75 x 125	4.0	11.734	14.95	310.76	140.65	4.56	3.07	49.72	37.51	61.13	42.96	314.53	63.14	0.39	85.22	13.75	26.25
75 x 125	4.5	13.085	16.67	342.40	154.54	4.53	3.04	54.78	41.21	67.73	47.55	348.61	69.50	0.38	76.42	11.67	22.78
75 x 125	5.0	14.410	18.36	372.51	167.68	4.50	3.02	59.60	44.71	74.10	51.96	381.52	75.55	0.38	69.40	10.00	20.00
75 x 125	6.0	16.982	21.63	428.29	191.76	4.45	2.98	68.53	51.14	86.17	60.28	443.81	86.75	0.38	58.89	7.50	15.83
75 x 125	9.0	24.080	30.67	561.83	247.73	4.28	2.84	89.89	66.06	117.14	81.40	602.36	113.63	0.37	41.53	4.33	9.89

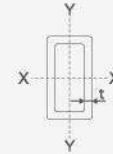
Rectangular Hollow Sections



ASTM A - 500

Designation		Weight M	Cross Sectional Area A	Second Moment of Area I_x	Second Moment of Area I_y	Radius of Gyration i_x	Radius of Gyration i_y	Elastic Modulus Z_x	Elastic Modulus Z_y	Plastic Modulus S_x	Plastic Modulus S_y	Torsional inertia constant J	Torsional modulus constant C	Superficial Area per metre length As	Nominal Length per tonne L	Ratio for Local Buckling Flange B/T	Ratio for Local Buckling Web H/T
Size B x H	Thickness T																
mm	mm	Kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³	m ² /m	m	B/T	H/T
75 x 150	2.3	7.852	10.00	298.43	102.71	5.46	3.20	39.79	27.39	48.77	30.28	243.63	47.18	0.44	127.36	27.61	60.22
75 x 150	3.0	10.133	12.91	379.59	129.97	5.42	3.17	50.61	34.66	62.45	38.69	311.78	59.82	0.44	98.69	20.00	45.00
75 x 150	4.0	13.304	16.95	488.00	165.88	5.37	3.13	65.07	44.24	81.07	50.06	404.26	76.59	0.44	75.16	13.75	32.50
75 x 150	4.5	14.851	18.92	538.94	182.54	5.34	3.11	71.86	48.68	89.97	55.48	448.36	84.42	0.43	67.33	11.67	28.33
75 x 150	5.0	16.372	20.86	587.74	198.36	5.31	3.08	78.37	52.90	98.61	60.71	491.02	91.89	0.43	61.08	10.00	25.00
75 x 150	6.0	19.337	24.63	679.08	227.56	5.25	3.04	90.54	60.68	115.08	70.63	572.03	105.80	0.43	51.71	7.50	20.00
75 x 150	6.3	20.207	25.74	704.87	235.70	5.23	3.03	93.98	62.85	119.82	73.47	595.22	109.72	0.43	49.49	7.90	19.81
75 x 150	8.0	24.957	31.79	837.44	276.74	5.13	2.95	111.66	73.80	144.91	88.39	716.84	129.72	0.42	40.07	5.38	14.75
75 x 150	9.0	27.612	35.17	904.94	297.04	5.07	2.91	120.66	79.21	158.29	96.25	780.62	139.84	0.42	36.22	4.33	12.67
80 x 100	2.5	6.742	8.59	126.86	90.17	3.84	3.24	25.37	22.54	29.98	25.77	165.84	35.73	0.35	148.31	27.00	35.00
80 x 100	3.0	8.014	10.21	148.81	105.64	3.82	3.22	29.76	26.41	35.39	30.40	196.12	41.91	0.35	124.79	21.67	28.33
80 x 100	4.0	10.478	13.35	189.47	134.17	3.77	3.17	37.89	33.54	45.62	39.15	253.79	53.38	0.35	95.44	15.00	20.00
80 x 100	5.0	12.840	16.36	225.94	159.61	3.72	3.12	45.19	39.90	55.09	47.24	307.55	63.72	0.34	77.88	11.00	15.00
80 x 100	6.0	15.098	19.23	258.39	182.10	3.67	3.08	51.68	45.53	63.82	54.67	357.38	72.98	0.34	66.23	8.33	11.67
80 x 100	6.3	15.756	20.07	267.36	188.30	3.65	3.06	53.47	47.08	66.30	56.77	371.55	75.56	0.34	63.47	8.70	11.87
80 x 120	2.5	7.527	9.59	195.75	105.19	4.52	3.31	32.63	26.30	39.07	29.65	215.82	43.23	0.39	132.85	27.00	43.00
80 x 120	3.0	8.956	11.41	230.20	123.43	4.49	3.29	38.37	30.86	46.20	35.02	255.47	50.80	0.39	111.66	21.67	35.00
80 x 120	4.0	11.734	14.95	294.59	157.29	4.44	3.24	49.10	39.32	59.77	45.23	331.24	64.93	0.39	85.22	15.00	25.00
80 x 120	4.5	13.085	16.67	324.58	172.95	4.41	3.22	54.10	43.24	66.22	50.07	367.34	71.51	0.38	76.42	12.78	21.67
80 x 120	5.0	14.410	18.36	353.14	187.78	4.39	3.20	58.86	46.94	72.45	54.74	402.27	77.77	0.38	69.40	11.00	19.00
80 x 120	6.0	16.982	21.63	406.06	215.03	4.33	3.15	67.68	53.76	84.25	63.55	468.54	89.40	0.38	58.89	8.33	15.00
80 x 120	6.3	17.734	22.59	420.87	222.60	4.32	3.14	70.14	55.65	87.63	66.06	487.49	92.66	0.38	56.39	8.70	15.05
80 x 140	4.0	12.990	16.55	429.60	180.42	5.10	3.30	61.37	45.10	75.51	51.31	411.60	76.48	0.43	76.98	15.00	30.00
80 x 140	5.0	15.980	20.36	517.06	215.94	5.04	3.26	73.87	53.99	91.80	62.24	500.51	91.83	0.42	62.58	11.00	23.00
80 x 140	6.0	18.866	24.03	597.00	247.96	4.98	3.21	85.29	61.99	107.09	72.43	583.80	105.83	0.42	53.00	8.33	18.33
80 x 140	6.3	19.712	25.11	619.55	256.91	4.97	3.20	88.51	64.23	111.48	75.35	607.69	109.77	0.42	50.73	8.70	18.22
80 x 140	8.0	24.329	30.99	735.24	302.12	4.87	3.12	105.03	75.53	134.69	90.68	733.44	129.98	0.41	41.10	6.00	13.50
80 x 160	3.0	10.840	13.81	463.81	159.03	5.80	3.39	57.98	39.76	71.41	44.26	380.34	68.59	0.47	92.25	21.67	48.33
80 x 160	3.2	11.529	14.69	491.40	168.25	5.78	3.38	61.42	42.06	75.80	46.95	403.61	72.60	0.47	86.74	20.00	45.00
80 x 160	4.0	14.246	18.15	597.71	203.54	5.74	3.35	74.71	50.89	92.86	57.39	494.10	88.03	0.47	70.19	15.00	35.00
80 x 160	4.5	15.911	20.27	660.92	224.31	5.71	3.33	82.62	56.08	103.15	63.66	548.53	97.16	0.46	62.85	12.78	30.56
80 x 160	5.0	17.550	22.36	721.69	244.11	5.68	3.30	90.21	61.03	113.16	69.74	601.34	105.90	0.46	56.98	11.00	27.00
80 x 160	6.0	20.750	26.43	836.01	280.89	5.62	3.26	104.50	70.22	132.32	81.31	702.06	122.27	0.46	48.19	8.33	21.67
80 x 160	6.3	21.690	27.63	868.46	291.21	5.61	3.25	108.56	72.80	137.85	84.63	731.00	126.89	0.46	46.10	8.70	21.40
80 x 160	8.0	26.841	34.19	1036.68	343.77	5.51	3.17	129.59	85.94	167.29	102.20	883.90	150.75	0.45	37.26	6.00	16.00
80 x 160	9.0	29.732	37.87	1123.54	370.19	5.45	3.13	140.44	92.55	183.12	111.55	965.01	162.98	0.45	33.63	4.89	13.78
100 x 150	3.0	11.311	14.41	460.64	247.64	5.65	4.15	61.42	49.53	73.48	55.76	507.20	81.40	0.49	88.41	28.33	45.00
100 x 150	4.0	14.874	18.95	594.60	318.57	5.60	4.10	79.28	63.71	95.67	72.50	661.63	104.94	0.49	67.23	20.00	32.50
100 x 150	4.5	16.617	21.17	658.06	351.96	5.58	4.08	87.74	70.39	106.34	80.53	736.08	116.08	0.48	60.18	17.22	28.33
100 x 150	5.0	18.335	23.36	719.20	384.02	5.55	4.05	95.89	76.80	116.73	88.34	808.68	126.81	0.48	54.54	15.00	25.00
100 x 150	6.0	21.692	27.63	834.69	444.19	5.50	4.01	111.29	88.84	136.68	103.30	948.34	147.07	0.48	46.10	11.67	20.00
100 x 150	6.3	22.679	28.89	867.59	461.25	5.48	4.00	115.68	92.25	142.45	107.62	988.79	152.85	0.48	44.09	11.87	19.81
100 x 150	8.0	28.097	35.79	1039.29	549.48	5.39	3.92	138.57	109.90	173.31	130.63	1205.34	183.05	0.47	35.59	8.50	14.75
100 x 150	9.0	31.145	39.67	1128.91	594.97	5.33	3.87	150.52	118.99	190.02	143.03	1322.62	198.88	0.47	32.11	7.11	12.67
100 x 180	4.0	16.758	21.35	926.04	373.89	6.59	4.18	102.89	74.78	125.89	84.02	853.85	127.06	0.55	59.67	20.00	40.00
100 x 180	5.0	20.690	26.36	1124.20	451.77	6.53	4.14	124.91	90.35	154.02	102.59	1044.79	153.88	0.54	48.33	15.00	31.00
100 x 180	6.0	24.518	31.23	1309.61	523.83	6.48	4.10	145.51	104.77	180.83	120.22	1226.68	178.88	0.54	40.79	11.67	25.00
100 x 180	6.3	25.647	32.67	1362.79	544.34	6.46	4.08	151.42	108.87	188.62	125.33	1279.49	186.04	0.54	38.99	11.87	24.57
100 x 180	8.0	31.865	40.59	1643.36	651.30	6.36	4.01	182.60	130.26	230.60	152.71	1563.27	223.69	0.53	31.38	8.50	18.50
100 x 180	10.0	38.799	49.42	1929.60	757.94	6.25	3.92	214.40	151.59	275.31	181.61	1863.46	261.98	0.53	25.77	6.00	14.00
100 x 180	12.0	45.321	57.73	2170.58	845.29	6.13	3.83	241.18	169.06	315.08	207.03	2127.12	294.19	0.52	22.06	5.33	12.00
100 x 180	12.5	46.887	59.73	2224.02	864.29	6.10	3.80	247.11	172.86	324.26	212.86	2187.31	301.35	0.52	21.33	5.00	11.40

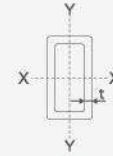
Rectangular Hollow Sections



ASTM A - 500

Designation		Weight	Cross Sectional Area	Second Moment of Area	Second Moment of Area	Radius of Gyration	Radius of Gyration	Elastic Modulus	Elastic Modulus	Plastic Modulus	Plastic Modulus	Torsional inertia constant	Torsional modulus constant	Superficial Area per metre length	Nominal Length per tonne	Ratio for Local Buckling	Ratio for Local Buckling
Size	Thickness																
B x H	T	M	A	I _x	I _y	i _x	i _y	Z _x	Z _y	S _x	S _y	J	C	As	L	Flange	Web
mm	mm	Kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³	m ² /m	m	B/T	H/T
100 x 200	4.0	18.014	22.95	1199.71	410.78	7.23	4.23	119.97	82.16	148.04	91.70	985.38	141.81	0.59	55.51	20.00	45.00
100 x 200	4.5	20.150	25.67	1331.44	454.64	7.20	4.21	133.14	90.93	164.89	102.02	1097.11	157.12	0.58	49.63	17.22	39.44
100 x 200	5.0	22.260	28.36	1459.25	496.94	7.17	4.19	145.93	99.39	181.37	112.09	1206.29	171.94	0.58	44.92	15.00	35.00
100 x 200	6.0	26.402	33.63	1703.31	576.91	7.12	4.14	170.33	115.38	213.27	131.50	1417.03	200.10	0.58	37.88	11.67	28.33
100 x 200	6.3	27.625	35.19	1773.55	599.74	7.10	4.13	177.36	119.95	222.56	137.13	1478.26	208.17	0.58	36.20	11.87	27.75
100 x 200	8.0	34.377	43.79	2146.21	719.19	7.00	4.05	214.62	143.84	272.79	167.43	1807.90	250.80	0.57	29.09	8.50	21.00
100 x 200	9.0	38.210	48.67	2345.70	781.90	6.94	4.01	234.57	156.38	300.45	183.98	1988.03	273.47	0.57	26.17	7.11	18.22
100 x 200	10.0	41.939	53.42	2530.97	839.27	6.88	3.96	253.10	167.85	326.73	199.61	2157.95	294.43	0.57	23.84	6.00	16.00
100 x 200	12.0	49.089	62.53	2860.07	938.79	6.76	3.87	286.01	187.76	375.21	228.15	2467.14	331.47	0.56	20.37	5.33	13.67
100 x 200	12.5	50.812	64.73	2933.93	960.64	6.73	3.85	293.39	192.13	386.49	234.73	2538.05	339.76	0.56	19.68	5.00	13.00
100 x 300	6.0	35.822	45.63	4776.79	842.35	10.23	4.30	318.45	168.47	411.43	187.90	2403.46	306.21	0.78	27.92	11.67	45.00
100 x 300	6.3	37.516	47.79	4983.86	876.71	10.21	4.28	332.26	175.34	430.01	196.17	2508.20	318.89	0.78	26.66	11.87	43.62
100 x 300	8.0	46.937	59.79	6102.25	1058.60	10.10	4.21	406.82	211.72	531.75	241.03	3074.25	386.43	0.77	21.31	8.50	33.50
100 x 300	10.0	57.639	73.42	7300.57	1245.94	9.97	4.12	486.70	249.19	643.86	289.61	3680.82	456.86	0.77	17.35	6.00	26.00
100 x 300	12.0	67.929	86.53	8375.45	1406.31	9.84	4.03	558.36	281.26	747.87	333.75	4223.82	518.12	0.76	14.72	5.33	22.00
100 x 300	12.5	70.437	89.73	8625.31	1442.42	9.80	4.01	575.02	288.48	772.62	344.11	4349.71	532.07	0.76	14.20	5.00	21.00
100 x 300	16.0	87.269	111.17	10169.41	1653.73	9.56	3.86	677.96	330.75	932.09	409.21	5122.06	615.28	0.75	11.46	3.25	15.75
120 x 200	4.0	19.270	24.55	1353.39	617.66	7.43	5.02	135.34	102.94	163.72	115.45	1345.35	172.49	0.63	51.89	25.00	45.00
120 x 200	5.0	23.830	30.36	1649.42	750.14	7.37	4.97	164.94	125.02	200.87	141.45	1652.00	209.87	0.62	41.96	19.00	35.00
120 x 200	6.0	28.286	36.03	1929.20	874.35	7.32	4.93	192.92	145.72	236.55	166.33	1946.73	245.12	0.62	35.35	15.00	28.33
120 x 200	6.3	29.603	37.71	2010.01	910.03	7.30	4.91	201.00	151.67	246.96	173.58	2032.82	255.28	0.62	33.78	15.05	27.75
120 x 200	8.0	36.889	46.99	2441.30	1098.91	7.21	4.84	244.13	183.15	303.51	212.82	2500.31	309.46	0.61	27.11	11.00	21.00
120 x 200	10.0	45.079	57.42	2892.30	1293.24	7.10	4.75	289.23	215.54	364.73	255.03	3005.82	366.04	0.61	22.18	8.00	16.00
120 x 200	12.0	52.857	67.33	3284.77	1459.22	6.98	4.66	328.48	243.20	420.33	293.08	3463.05	415.33	0.60	18.92	7.00	13.67
120 x 200	12.5	54.737	69.73	3374.04	1496.50	6.96	4.63	337.40	249.42	433.36	301.96	3569.78	426.56	0.60	18.27	6.60	13.00
150 x 200	4.0	21.154	26.95	1583.92	1021.03	7.67	6.16	158.39	136.14	187.24	154.07	1942.03	218.55	0.69	47.27	32.50	45.00
150 x 200	4.5	23.682	30.17	1761.49	1134.54	7.64	6.13	176.15	151.27	208.87	171.82	2168.52	242.99	0.68	42.23	28.33	39.44
150 x 200	5.0	26.185	33.36	1934.67	1245.04	7.62	6.11	193.47	166.00	230.12	189.23	2391.38	266.83	0.68	38.19	25.00	35.00
150 x 200	6.0	31.112	39.63	2268.03	1457.13	7.56	6.06	226.80	194.28	271.47	223.08	2826.19	312.72	0.68	32.14	20.00	28.33
150 x 200	6.3	32.570	41.49	2364.69	1518.47	7.55	6.05	236.47	202.46	283.57	232.99	2953.79	326.04	0.68	30.70	19.81	27.75
150 x 200	8.0	40.657	51.79	2883.92	1846.71	7.46	5.97	288.39	246.23	349.59	286.91	3651.96	397.62	0.67	24.60	14.75	21.00
150 x 200	9.0	45.275	57.67	3167.13	2024.77	7.41	5.93	316.71	269.97	386.40	316.92	4042.83	436.76	0.67	22.09	12.67	18.22
150 x 200	10.0	49.789	63.42	3434.30	2192.05	7.36	5.88	343.43	292.27	421.73	345.67	4418.93	473.78	0.67	20.08	11.00	16.00
150 x 200	12.0	58.509	74.53	3921.83	2495.37	7.25	5.79	392.18	332.72	488.01	399.48	5126.67	541.66	0.66	17.09	9.50	13.67
150 x 200	12.5	60.624	77.23	4034.20	2564.89	7.23	5.76	403.42	341.98	503.68	412.17	5294.29	557.39	0.66	16.50	9.00	13.00
150 x 250	4.0	24.294	30.95	2696.87	1234.24	9.33	6.32	215.75	164.57	259.61	183.27	2664.68	275.38	0.79	41.16	32.50	57.50
150 x 250	4.5	27.215	34.67	3003.79	1372.78	9.31	6.29	240.30	183.04	289.92	204.55	2976.93	306.49	0.78	36.74	28.33	50.56
150 x 250	5.0	30.110	38.36	3304.18	1507.95	9.28	6.27	264.33	201.06	319.76	225.48	3284.54	336.90	0.78	33.21	25.00	45.00
150 x 250	6.0	35.822	45.63	3885.56	1768.35	9.23	6.23	310.84	235.78	378.05	266.28	3885.80	395.65	0.78	27.92	20.00	36.67
150 x 250	6.3	37.516	47.79	4054.99	1843.91	9.21	6.21	324.40	245.86	395.17	278.25	4062.55	412.74	0.78	26.66	19.81	35.68
150 x 250	8.0	46.937	59.79	4972.24	2250.41	9.12	6.13	397.78	300.06	489.07	343.71	5032.43	505.13	0.77	21.31	14.75	27.25
150 x 250	9.0	52.340	66.67	5478.35	2472.70	9.06	6.09	438.27	329.69	541.84	380.37	5577.71	556.01	0.77	19.11	12.67	23.78
150 x 250	10.0	57.639	73.42	5960.20	2682.88	9.01	6.04	476.82	357.72	592.79	415.67	6104.27	604.41	0.77	17.35	11.00	21.00
150 x 250	12.0	67.929	86.53	6852.69	3068.13	8.90	5.95	548.22	409.08	689.34	482.28	7101.02	693.98	0.76	14.72	9.50	17.83
150 x 250	12.5	70.437	89.73	7061.28	3157.33	8.87	5.93	564.90	420.98	712.37	498.11	7338.44	714.91	0.76	14.20	9.00	17.00
150 x 250	16.0	87.269	111.17	8364.10	3706.26	8.67	5.77	669.13	494.17	861.37	599.93	8868.06	845.90	0.75	11.46	6.38	12.63
150 x 300	6.0	40.532	51.63	6073.51	2079.57	10.85	6.35	404.90	277.28	499.63	309.48	4988.47	478.60	0.88	24.67	20.00	45.00
150 x 300	6.3	42.461	54.09	6342.66	2169.35	10.83	6.33	422.84	289.25	522.52	323.52	5216.27	499.48	0.88	23.55	19.81	43.62
150 x 300	8.0	53.217	67.79	7807.95	2654.12	10.73	6.26	520.53	353.88	648.55	400.51	6468.20	612.69	0.87	18.79	14.75	33.50
150 x 300	10.0	65.489	83.42	9403.90	3173.71	10.62	6.17	626.93	423.16	788.86	485.67	7856.25	735.12	0.87	15.27	11.00	26.00
150 x 300	12.0	77.349	98.53	10865.21	3640.89	10.50	6.08	724.35	485.45	920.67	565.08	9152.51	846.44	0.86	12.93	9.50	22.00
150 x 300	12.5	80.249	102.23	11209.94	3749.78	10.47	6.06	747.33	499.97	952.31	584.05	9462.22	872.59	0.86	12.46	9.00	21.00
150 x 300	16.0	99.829	127.17	13399.06	4427.91	10.26	5.90	893.27	590.39	1159.29	707.13	11469.38	1037.78	0.85	10.02	6.38	15.75

Rectangular Hollow Sections



ASTM A - 500

Designation		Weight	Cross Sectional Area	Second Moment of Area	Second Moment of Area	Radius of Gyration	Radius of Gyration	Elastic Modulus	Elastic Modulus	Plastic Modulus	Plastic Modulus	Torsional inertia constant	Torsional modulus constant	Superficial Area per metre length	Nominal Length per tonne	Ratio for Local Buckling	Ratio for Local Buckling
Size	Thickness																
B x H	T	M	A	I _x	I _y	i _x	i _y	Z _x	Z _y	S _x	S _y	J	C	As	L	Flange	Web
mm	mm	Kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³	m ² /m	m	B/T	H/T
180 x 260	5.0	33.250	42.36	4121.36	2349.53	9.86	7.45	317.03	261.06	377.44	294.02	4694.89	425.87	0.86	30.08	31.00	47.00
180 x 260	6.3	41.472	52.83	5070.57	2884.11	9.80	7.39	390.04	320.46	467.33	363.71	5822.48	523.52	0.86	24.11	24.57	37.27
180 x 260	8.0	51.961	66.19	6238.69	3538.10	9.71	7.31	479.90	393.12	579.85	450.76	7238.70	643.59	0.85	19.25	18.50	28.50
180 x 260	10.0	63.919	81.42	7509.51	4244.26	9.60	7.22	577.65	471.58	705.01	547.31	8819.90	774.24	0.85	15.64	14.00	22.00
180 x 260	12.0	75.465	96.13	8671.80	4884.69	9.50	7.13	667.06	542.74	822.48	637.64	10308.81	893.91	0.84	13.25	12.00	18.67
180 x 260	12.5	78.287	99.73	8945.82	5034.85	9.47	7.11	688.14	559.43	850.67	659.26	10666.56	922.17	0.84	12.77	11.40	17.80
180 x 260	16.0	97.317	123.97	10684.44	5979.23	9.28	6.94	821.88	664.36	1034.87	800.12	13007.89	1102.20	0.83	10.28	8.25	13.25
200 x 300	4.5	34.280	43.67	5661.87	3051.65	11.39	8.36	377.46	305.17	448.70	340.84	6185.06	500.88	0.98	29.17	39.44	61.67
200 x 300	5.0	37.960	48.36	6241.05	3360.92	11.36	8.34	416.07	336.09	495.65	376.37	6835.78	551.89	0.98	26.34	35.00	55.00
200 x 300	6.0	45.242	57.63	7370.23	3962.19	11.31	8.29	491.35	396.22	587.83	446.07	8115.23	651.24	0.98	22.10	28.33	45.00
200 x 300	6.3	47.407	60.39	7701.46	4138.12	11.29	8.28	513.43	413.81	615.04	466.62	8493.34	680.36	0.98	21.09	27.75	43.62
200 x 300	8.0	59.497	75.79	9513.66	5097.04	11.20	8.20	634.24	509.70	765.35	579.99	10586.01	839.54	0.97	16.81	21.00	33.50
200 x 300	9.0	66.470	84.67	10528.93	5631.42	11.15	8.16	701.93	563.14	850.72	644.25	11777.22	928.65	0.97	15.04	18.22	29.33
200 x 300	10.0	73.339	93.42	11507.24	6144.30	11.10	8.11	767.15	614.43	933.86	706.73	12938.91	1014.48	0.97	13.64	16.00	26.00
200 x 300	12.0	86.769	110.53	13354.97	7107.11	10.99	8.02	890.33	710.71	1093.47	826.41	15173.45	1176.60	0.96	11.52	13.67	22.00
200 x 300	12.5	90.062	114.73	13794.58	7334.98	10.97	8.00	919.64	733.50	1131.99	855.24	15713.54	1215.19	0.96	11.10	13.00	21.00
200 x 300	16.0	112.389	143.17	16628.72	8791.69	10.78	7.84	1108.58	879.17	1386.49	1045.05	19285.47	1464.41	0.95	8.90	9.50	15.75
200 x 400	4.5	41.345	52.67	11315.63	3911.76	14.66	8.62	565.78	391.18	689.55	428.81	9188.59	672.87	1.18	24.19	39.44	83.89
200 x 400	5.0	45.810	58.36	12489.82	4311.75	14.63	8.60	624.49	431.18	762.43	473.87	10158.74	742.01	1.18	21.83	35.00	75.00
200 x 400	6.0	54.662	69.63	14789.35	5091.63	14.57	8.55	739.47	509.16	905.99	562.47	12068.52	877.05	1.18	18.29	28.33	61.67
200 x 400	6.3	57.298	72.99	15466.59	5320.41	14.56	8.54	773.33	532.04	948.49	588.65	12633.53	916.73	1.18	17.45	27.75	59.49
200 x 400	8.0	72.057	91.79	19195.28	6572.45	14.46	8.46	959.76	657.25	1184.31	733.59	15766.03	1134.45	1.17	13.88	21.00	46.00
200 x 400	9.0	80.600	102.67	21303.00	7274.28	14.40	8.42	1065.15	727.43	1319.09	816.15	17553.73	1256.98	1.17	12.41	18.22	40.44
200 x 400	10.0	89.039	113.42	23348.08	7950.97	14.35	8.37	1167.40	795.10	1450.98	896.73	19300.70	1375.49	1.17	11.23	16.00	36.00
200 x 400	12.0	105.609	134.53	27252.93	9230.63	14.23	8.28	1362.65	923.06	1706.13	1052.01	22672.41	1600.78	1.16	9.47	13.67	30.33
200 x 400	12.5	109.687	139.73	28191.01	9535.50	14.20	8.26	1409.55	953.55	1768.13	1089.61	23489.86	1654.71	1.16	9.12	13.00	29.00
200 x 400	16.0	137.509	175.17	34339.42	11507.00	14.00	8.11	1716.97	1150.70	2182.32	1339.45	28926.44	2006.37	1.15	7.27	9.50	22.00
250 x 350	6.0	54.662	69.63	12457.31	7458.44	13.38	10.35	711.85	596.68	842.61	670.85	14553.72	966.84	1.18	18.29	36.67	53.33
250 x 350	6.3	57.298	72.99	13027.96	7797.37	13.36	10.34	744.45	623.79	882.15	702.23	15241.44	1010.98	1.18	17.45	35.68	51.56
250 x 350	8.0	72.057	91.79	16170.48	9659.06	13.27	10.26	924.03	772.73	1101.63	876.27	19066.32	1253.96	1.17	13.88	27.25	39.75
250 x 350	10.0	89.039	113.42	19672.08	11723.53	13.17	10.17	1124.12	937.88	1349.92	1072.79	23408.63	1524.56	1.17	11.23	21.00	31.00
250 x 350	12.0	105.609	134.53	22966.89	13655.73	13.07	10.08	1312.39	1092.46	1587.60	1260.54	27580.05	1779.21	1.16	9.47	17.83	26.17
250 x 350	12.5	109.687	139.73	23758.83	14118.57	13.04	10.05	1357.65	1129.49	1645.37	1306.12	28596.12	1840.44	1.16	9.12	17.00	25.00
250 x 350	16.0	137.509	175.17	28954.92	17138.71	12.86	9.89	1654.57	1371.10	2031.60	1610.17	35407.57	2242.77	1.15	7.27	12.63	18.88
300 x 400	6.3	67.189	85.59	20349.49	13136.65	15.42	12.39	1017.47	875.78	1196.52	985.10	24778.66	1404.61	1.38	14.88	43.62	59.49
300 x 400	8.0	84.617	107.79	25342.70	16336.49	15.33	12.31	1267.13	1089.10	1497.91	1232.55	31072.40	1748.39	1.37	11.82	33.50	46.00
300 x 400	9.0	94.730	120.67	28183.86	18152.65	15.28	12.26	1409.19	1210.18	1670.99	1374.52	34696.32	1943.94	1.37	10.56	29.33	40.44
300 x 400	10.0	104.739	133.42	30954.74	19920.57	15.23	12.22	1547.74	1328.04	1840.98	1513.86	38262.14	2134.64	1.37	9.55	26.00	36.00
300 x 400	12.0	124.449	158.53	36288.45	23314.01	15.13	12.13	1814.42	1554.27	2171.73	1784.67	45219.08	2501.78	1.36	8.04	22.00	30.33
300 x 400	12.5	129.312	164.73	37579.03	24133.12	15.10	12.10	1878.95	1608.87	2252.50	1850.74	46921.85	2590.65	1.36	7.73	21.00	29.00
300 x 400	16.0	162.629	207.17	46142.73	29547.33	14.92	11.94	2307.14	1969.82	2796.72	2295.29	58431.43	3181.00	1.35	6.15	15.75	22.00