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																
$B \times H$	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
19 × 38	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
20 × 40	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	596.10	5.00	15.00
	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	492.01	3.00	11.00
	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
25 × 38	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
25 × 50	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
	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	465.42	7.50	20.00
	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
	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	381.50	5.00	15.00
	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
25 × 75	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
	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	357.56	8.16	34.47
	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	340.88	7.50	32.50
	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
	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
	3.0	4.246	5.41	32.72	5.49	2.46	1.01	8.72	4.39	11.69	5.21	16.50	8.10	0.19	235.54	3.33	20.00
	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	183.34	1.25	13.75
	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	166.11	0.56	11.67
30 × 50	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	433.73	10.00	20.00
	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	354.93	7.00	15.00
	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
	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	238.19	2.50	7.50
	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	200.41	1.00	5.00
30 × 60	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	469.77	13.75	32.50
	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
	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	335.92	8.04	21.09
	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
30 × 80	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
	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	323.10	10.79	37.11
	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
	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
30 × 110	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
	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
	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
	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
35 × 65	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
	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	357.56	13.42	29.21
	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	340.88	12.50	27.50
	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
	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
	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
	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	183.34	3.75	11.25
38 × 65	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
	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
	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
	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	290.16	11.52	23.26
	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	268.80	10.20	21.00
	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	227.95	7.67	16.67
	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
	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
38 × 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
	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	314.02	15.00	34.47
	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	299.24	14.00	32.50
	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	262.64	11.52	27.61
	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
	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	205.85	7.67	20.00
	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	194.22	6.88	18.44
	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	159.47	4.50	13.75
	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	144.12	3.44	11.67
40 × 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	340.88	15.00	25.00
	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
	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
	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	183.34	5.00	10.00
	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	152.44	3.00	7.00
40 × 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
	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
	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	246.29	12.39	29.78
	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
	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	149.02	5.00	15.00
40 × 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
	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
	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
	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	103.09	3.00	15.00
50 × 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	280.77	20.00	30.00
	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	227.92	15.00	23.00
	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
	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	149.02	7.50	12.50
	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	123.00	5.00	9.00
50 × 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
	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
	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
	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
	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	218.16	15.00	25.00
	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
	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	142.36	7.50	13.75
	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	128.43	6.11	11.67
	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
	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

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																
$B \times H$	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 × 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
	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
	3.0	6.130	7.81	81.85	32.74	3.24	2.05	18.19	13.10	22.60	15.03	76.67	22.36	0.27	163.14	11.67	25.00
	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
	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	103.09	5.00	13.00
50 × 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
	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
	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
	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
	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
	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
	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
	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	104.68	6.11	17.22
	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
	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
	6.3	12.520	16.29	184.27	60.30	3.36	1.92	36.85	24.12	48.59	29.50	159.50	42.67	0.28	79.87	3.94	11.87
50 × 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
	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
	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
	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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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
	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 × 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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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
	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
75 × 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
	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
	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
	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
	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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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
	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

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																
$B \times H$	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
80 × 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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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
	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
	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
100 × 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
	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
	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
	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
	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
	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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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
	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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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
	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
180 × 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
	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
	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
	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
	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
	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
	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

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 × 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*
200 × 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
	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
	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
	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
	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
	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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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
	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 × 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
	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
	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
	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
	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
	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
	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

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