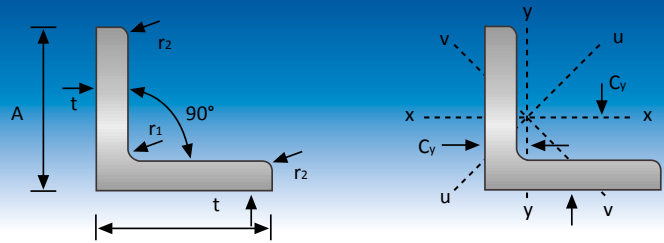
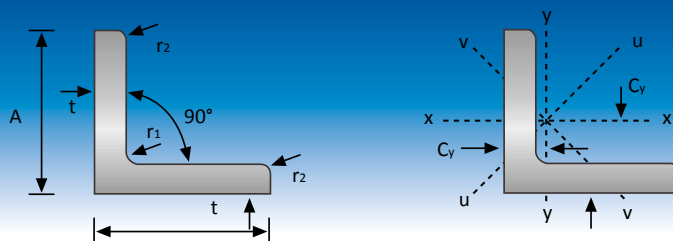


ANGLE BARS



Standard Sectional Dimension		Unit Weight	Radius		Sectional Area	Distance Centre Of Gravity	Second Moment of Area			Radius Of Gyration			Elastic Modulus
			Root	Toe			Axis	Axis	Axis	Axis	Axis	Axis	
			r1	r2									Cx and Cy
A x A	Thickness t (mm)	Kg/m	mm	mm	cm²	cm	cm⁴	cm⁴	cm⁴	cm	cm	cm	cm³
20 x 20	2.5	0.74	--	--	--	--	--	--	--	--	--	--	--
	3	0.86	3.5	2.4	1.11	0.593	0.381	0.601	0.160	0.585	0.735	0.380	0.271
25 x 25	2.5	0.95	--	--	--	--	--	--	--	--	--	--	--
	3	1.12	3.5	2.4	1.41	0.718	0.784	1.24	0.326	0.745	0.938	0.481	0.440
	4	1.5	3.5	2.4	1.84	0.758	1.00	1.58	0.422	0.737	0.926	0.479	0.574
	5	1.76	3.5	2.4	2.25	0.796	1.19	1.87	0.516	0.728	0.912	0.479	0.701
	6	2.24	--	--	--	--	--	--	--	--	--	--	--
30 x 30	2.5	1.14	--	--	--	--	--	--	--	--	--	--	--
	3	1.36	5	2.4	1.74	0.836	1.41	2.23	0.590	0.901	1.13	0.582	0.652
	4	1.76	5	2.4	2.27	0.879	1.81	2.86	0.758	0.893	1.12	0.578	0.853
	5	2.16	5	2.4	2.78	0.919	2.17	3.42	0.921	0.884	1.11	0.576	1.04
	6	2.74	--	--	--	--	--	--	--	--	--	--	--
38 x 38	2.5	1.46	--	--	--	--	--	--	--	--	--	--	--
	3	1.74	6	2.4	2.24	1.03	2.99	4.72	1.25	1.15	1.45	0.748	1.08
	4	2.26	6	2.4	2.93	1.07	3.85	6.10	1.61	1.15	1.44	0.741	1.41
	5	2.79	6	2.4	3.60	1.12	4.66	7.36	1.95	1.14	1.43	0.736	1.73
	6	3.50	6	2.4	4.25	1.15	5.40	8.51	2.29	1.13	1.41	0.733	2.04
50 x 50	3	2.33	7	2.4	2.99	1.32	7.06	11.1	2.97	1.54	1.93	0.997	1.92
	4	3.06	7	2.4	3.92	1.37	9.17	14.5	3.82	1.53	1.92	0.987	2.52
	5	3.77	7	2.4	4.83	1.41	11.2	17.7	4.64	1.52	1.91	0.980	3.11
	6	4.43	7	2.4	5.72	1.45	13	20.6	5.43	1.51	1.9	0.974	3.67
	8	5.78	7	2.4	7.44	1.53	16.5	25.9	6.97	1.49	1.87	0.968	4.74
60 x 60	5	4.55	8	2.4	5.86	1.65	19.8	31.4	8.24	1.84	2.31	1.19	4.56
	6	5.42	8	2.4	6.95	1.7	23.2	36.8	9.65	1.83	2.30	1.18	5.4
63 x 63	5	4.75	8	2.4	6.16	1.73	23.1	36.6	9.58	1.93	2.44	1.25	5.05
	6	5.71	8	2.4	7.31	1.77	27.1	42.9	11.2	1.92	2.42	1.24	5.98
65 x 65	5	5.00	9	2.4	6.40	1.77	25.5	40.3	10.6	2.00	2.51	1.29	5.39
	6	5.91	9	2.4	7.59	1.82	29.9	47.4	12.4	1.98	2.50	1.28	6.38
	8	7.66	9	2.4	9.91	1.90	38.2	60.4	15.9	1.96	2.47	1.27	8.29
	9	8.55	9	2.4	11.0	1.94	42.0	66.4	17.6	1.95	2.45	1.26	9.21
70 x 70	6	6.38	9	2.4	8.19	1.94	37.7	59.8	15.7	2.15	2.7	1.38	7.48
	7	7.38	9	2.4	9.46	1.98	43.1	68.3	17.9	2.13	2.69	1.38	8.59
	8	8.43	9	2.4	10.71	2.02	48.3	76.5	20.1	2.12	2.67	1.37	9.7
75 x 75	5	5.76	10	4.8	7.37	2.00	38.7	61.2	16.2	2.29	2.88	1.48	7.02
	6	6.85	10	4.8	8.76	2.04	45.7	72.4	19.0	2.28	2.88	1.47	8.38
	8	9.03	10	4.8	11.5	2.13	59.0	93.5	24.5	2.27	2.85	1.46	11.0
	9	9.96	10	4.8	12.8	2.17	65.3	103	27.2	2.26	2.84	1.46	12.3
	12	13.00	10	4.8	16.7	2.29	82.7	130	35.0	2.23	2.80	1.45	15.9
80 x 80	6	7.32	10	4.8	9.36	2.17	56.0	88.7	23.2	2.45	3.08	1.58	9.6
	8	9.66	10	4.8	12.3	2.26	72.4	115	30.0	2.43	3.06	1.56	12.6
	9	10.70	10	4.8	--	--	--	--	--	--	--	--	--

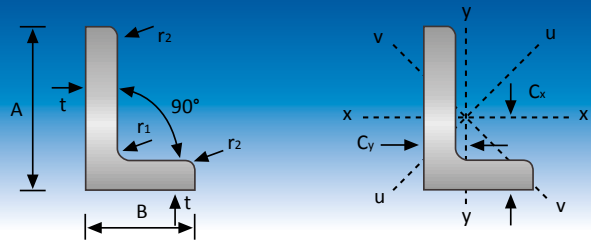
ANGLE BARS



Standard Sectional Dimension		Unit Weight	Radius		Sectional Area	Distance Centre Of Gravity	Second Moment of Area			Radius Of Gyration			Elastic Modulus
			Root	Toe			Axis	Axis	Axis	Axis	Axis	Axis	Axis
			r ₁	r ₂									
A x A	Thickness t (mm)	Kg/m	mm	mm	cm ²	cm	cm ⁴	cm ⁴	cm ⁴	cm	cm	cm	cm ³
90 x 90	6	8.28	11	4.8	10.6	2.41	81.0	128	33.7	2.76	3.48	1.78	12.3
	7	9.59	11	4.8	12.3	2.46	93.2	148	38.7	2.76	3.47	1.77	14.3
	8	10.90	11	4.8	13.9	2.50	105	167	43.5	2.75	3.46	1.77	16.2
	9	12.20	11	4.8	15.6	2.54	117	185	48.2	2.74	3.45	1.76	18.0
	10	13.30	11	4.8	17.2	2.58	128	202	52.9	2.73	3.43	1.76	19.9
100 x 100	6	9.20	12	4.8	11.9	2.65	113	178	47.0	3.08	3.88	1.99	15.3
	7	10.70	12	4.8	13.7	2.70	130	206	53.9	3.08	3.87	1.98	17.8
	8	12.20	12	4.8	15.6	2.75	146	232	60.6	3.07	3.86	1.97	20.2
	9	13.50	12	4.8	--	--	--	--	--	--	--	--	--
	10	15.00	12	4.8	19.2	2.83	178	283	73.8	3.05	3.84	1.96	24.8
	12	17.80	12	4.8	22.8	2.91	208	330	86.5	3.02	3.81	1.95	29.4
125 x 125	10	19.09	14	4.8	24.3	3.44	360	570	149	3.84	4.84	2.47	39.7
	12	22.67	14	4.8	28.9	3.53	422	669	174	3.82	4.81	2.46	47.0
150 x 150	10	23.00	16	4.8	29.5	4.06	635	1008	263	4.64	5.85	2.99	58.0
	12	27.30	16	4.8	35.0	4.14	748	1187	309	4.62	5.82	2.97	68.9
	15	33.80	16	4.8	43.2	4.26	909	1442	375	4.59	5.78	2.95	84.6
200 x 200	15	45.30	18	4.8	58.3	5.50	2237	3555	919	6.19	7.81	3.97	154
	20	59.90	18	4.8	76.6	5.70	2877	4569	1185	6.13	7.72	3.93	201

Grades:
 EN 10025 S275JR, S355JR
 ASTM A36
 JIS G 3101 SS400

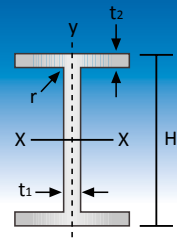
UNEQUAL ANGLE BARS



Standard Sectional Dimension		Unit Weight	Radius		Sectional Area	Distance Centre Of Gravity		Second Moment of Area				Radius Of Gyration				Elastic Modulus	
			Root	Toe				Axis		Axis		Axis		Axis		Axis	
			r1	r2				x-x	y-y	u-u	v-v	x-x	y-y	u-u	v-v	x-x	y-y
A x B	Thickness t (mm)	Kg/m	mm	mm	cm ²	cm		cm ⁴	cm ⁴	cm ⁴	cm ⁴	cm	cm	cm	cm	cm ³	cm ³
75 x 50	6	5.76	7	2.4	7.22	2.45	1.21	40.9	14.6	47.1	8.48	2.38	1.42	2.55	1.08	8.10	3.87
	8	7.35	7	2.4	9.44	2.53	1.29	52.4	18.6	60.1	10.9	2.36	1.40	2.52	1.07	10.5	5.01
100 x 75	7	9.32	10	5.0	11.9	3.06	1.84	118	56.9	144	30.7	3.15	2.19	3.49	1.61	17.0	10.1
	8	10.60	10	4.8	13.5	3.11	1.88	133	64.2	163	34.6	3.14	2.18	3.48	1.60	19.3	11.4
	9	11.80	10	4.8	15.1	3.15	1.92	148	71.1	181	38.4	3.13	2.17	3.46	1.60	21.6	12.7
	10	13.00	10	4.8	16.6	3.19	1.96	162	77.7	198	42.2	3.12	2.16	3.45	1.59	23.8	14.0
125 x 75	7	10.70	11	4.8	13.7	4.10	1.64	220	60.5	244	36.7	4.01	2.10	4.22	1.64	26.2	10.3
	9	13.60	11	4.8	17.4	4.19	1.73	276	75.5	306	45.8	3.99	2.09	4.20	1.62	33.2	13.1
	10	15.00	11	4.8	19.2	4.23	1.77	303	82.6	336	50.2	3.98	2.08	4.18	1.62	36.7	14.4
	12	17.80	11	4.8	22.7	4.32	1.84	355	96.0	392	58.8	3.95	2.06	4.16	1.61	43.4	17.0
150 x 75	7	12.10	12	5.0	15.5	5.17	1.50	364	63.1	386	40.8	4.85	2.02	5.00	1.62	37.0	10.5
	9	15.30	12	8.5	19.4	5.25	1.55	447	75.3	473	48.7	4.79	1.97	4.93	1.58	45.8	12.7
	10	17.00	11	4.8	21.7	5.32	1.62	503	86.3	533	55.8	4.82	2.00	4.96	1.60	52.0	14.7
	12	20.10	11	4.8	25.7	5.41	1.70	591	100	626	65.3	4.79	1.98	4.93	1.59	61.6	17.3
150 x 90	9	16.40	12	6.0	20.9	4.95	2.00	485	133	537	80.5	4.81	2.52	5.06	1.96	48.2	19.0
	10	18.20	12	4.8	23.2	5.00	2.04	536	147	595	89.2	4.81	2.52	5.06	1.96	53.7	21.2
	12	21.60	12	4.8	27.6	5.09	2.12	630	172	698	105	4.78	2.50	5.03	1.95	63.6	25.0
	15	26.60	12	4.8	34.0	5.21	2.24	764	207	844	127	4.74	2.47	4.99	1.93	78.1	30.6
150 x 100	9	17.10	12	6.0	21.8	4.77	2.30	502	181	579	104	4.79	2.88	5.15	2.18	49.1	23.5
	10	18.79	13	6.5	24.2	4.80	2.34	552	198	635	114	4.78	2.86	5.13	2.17	54.1	25.8
	12	22.40	12	8.5	28.6	4.88	2.41	642	228	738	132	4.74	2.83	5.08	2.15	63.4	30.1
200 x 100	10	23.00	15	4.8	29.4	6.95	2.03	1233	215	1309	138	6.48	2.70	6.68	2.17	94.5	27.0
	12	27.30	15	4.8	34.9	7.04	2.11	1454	252	1544	162	6.45	2.68	6.65	2.16	112	31.9
	15	33.70	15	4.8	43.1	7.17	2.23	1772	303	1879	197	6.41	2.65	6.60	2.14	138	39.0

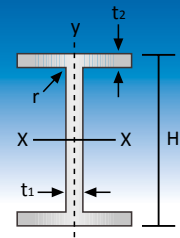
Grades:
EN 10025 S275JR
ASTM A36
JIS G 3101 SS400

UNIVERSAL BEAMS AND COLUMNS



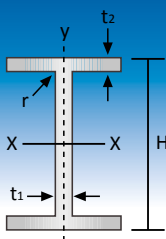
Depth x Width	Unit Weight	Standard Sectional Dimension(mm)					Sectional Area	Second Moment Of Area		Radius Of Gyration		Modulus Of Section		Plastic Modulus		Warping Constant	Torsional Constant
							A	I _x	I _y	i _x	i _y	S _x	S _y	Z _x	Z _y	C _w	J
	Kg/m	H	B	t ₁	t ₂	r	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁶ , x10 ³	cm ⁴
100 x 100	17.2	100	100	6	8	10	21.90	383	134	4.18	2.47	76.5	26.7	87.6	41.2	2.82	5.42
125 x 125	23.8	125	125	7	9	10	30.31	847	294	5.29	3.11	136	47	154	71.9	9.86	8.68
150 x 75	14.0	150	75	5	7	8	17.85	666	50	6.11	1.67	88.8	13.2	102	20.8	2.52	2.9
150 x 100	21.1	148	100	6	9	11	26.84	1,020	151	6.16	2.37	138	30.1	157	46.7	7.25	7.48
150 x 150	31.5	150	150	7	10	11	40.14	1,640	563	6.39	3.75	219	75.1	246	115	27.6	13.8
200 x 100	18.2	198	99	5	7	11	23.18	1,580	114	8.26	2.21	160	22.9	180	35.7	10.3	3.85
	21.3	200	100	6	8	11	27.16	1,840	134	8.23	2.22	184	26.8	210	41.9	12.3	5.89
200 x 150	30.6	194	150	6	9	13	39.01	2,690	507	8.30	3.61	277	67.6	309	104	43.3	11
200 x 200	49.9	200	200	8	12	13	63.53	4,720	1,600	8.62	5.02	472	160	526	244	141	30.2
	56.2	200	204	12	12	13	71.53	4,980	1,700	8.34	4.88	498	167	566	257	150	43.6
	65.7	208	202	10	16	13	83.69	6,530	2,200	8.83	5.13	628	218	710	332	203	67.2
250 x 125	25.7	248	124	5	8	12	32.68	3,540	255	10.4	2.79	286	41.1	319	63.6	36.6	6.69
	29.6	250	125	6	9	12	37.66	4,050	294	10.4	2.79	324	47	366	73.1	42.5	9.8
250 x 175	44.2	244	175	7	11	16	56.24	6,120	985	10.4	4.18	502	113	558	173	133	23.2
250 x 250	64.4	244	252	11	11	16	82.06	8,790	2,940	10.3	5.99	721	233	805	358	398	44.6
	66.5	248	249	8	13	16	84.7	9,930	3,350	10.8	6.29	801	269	883	408	462	46.6
	72.4	250	250	9	14	16	92.18	10,800	3,650	10.8	6.29	864	292	961	444	508	59.1
	82.2	250	255	14	14	16	104.7	11,500	3,880	10.5	6.09	920	304	1040	468	539	87.3
300 x 150	32.0	298	149	6	8	13	40.8	6,320	442	12.4	3.29	424	59.3	475	91.8	92.7	8.79
	36.7	300	150	7	9	13	46.78	7,210	508	12.4	3.29	481	67.7	542	105	107	12.7
300 x 200	56.8	294	200	8	12	18	72.38	11,300	1,600	12.5	4.70	769	160	859	247	318	36.1
	65.4	298	201	9	14	18	83.36	13,300	1,900	12.6	4.77	893	189	1000	291	382	53.6
300 x 300	84.5	294	302	12	12	18	107.7	16,900	5,520	12.5	7.16	1,150	366	1280	560	1100	69.1
	87.0	298	299	9	14	18	110.8	18,800	6,240	13.0	7.50	1,260	417	1390	634	1260	71.6
	94.0	300	300	10	15	18	119.8	20,400	6,750	13.0	7.51	1,360	450	1500	684	1370	89
	96.7	304	301	11	15	18	123.2	21,200	6,820	13.1	7.44	1,390	453	1550	690	1420	95.1
	106	300	305	15	15	18	134.8	21,500	7,100	12.6	7.26	1,430	466	1610	716	1440	128
	116	310	305	15	17	18	147.9	25,400	8,050	13.1	7.38	1,640	528	1840	809	1730	160
	142	310	310	20	20	18	180.8	29,900	9,950	12.9	7.42	1,930	642	2200	992	2090	293
350 x 175	41.4	346	174	6	9	14	52.68	11,100	792	14.5	3.88	642	91	716	140	224	13.7
	49.6	350	175	7	11	14	63.14	13,600	984	14.7	3.95	777	113	868	174	282	23
	57.8	354	176	8	13	14	73.68	16,100	1,180	14.8	4.00	910	134	1020	208	343	36.1
340 x 250	69.2	336	249	8	12	20	88.15	18,500	3,090	14.5	5.92	1,100	248	1210	380	810	44.9
	79.7	340	250	9	14	20	101.5	21,700	3,650	14.6	6.00	1,280	292	1410	447	969	66.4
350 x 350	106	338	351	13	13	20	135.3	28,200	9,380	14.4	8.33	1,670	535	1850	818	2470	101
	115	344	348	10	16	20	146.0	33,300	11,200	15.1	8.76	1,940	644	2120	980	3020	121
	131	344	354	16	16	20	166.6	35,300	11,800	14.6	8.42	2,050	667	2300	1030	3180	180
	137	350	350	12	19	20	173.9	40,300	13,600	15.2	8.84	2,300	777	2550	1180	3720	200
	156	350	357	19	19	20	198.4	42,800	14,400	14.7	8.52	2,450	807	2760	1240	3950	294
400 x 200	56.7	396	199	7	11	16	72.16	20,000	1,450	16.6	4.48	1,010	146	1130	224	535	27.1
	66.0	400	200	8	13	16	84.12	23,700	1,740	16.8	4.55	1,190	174	1330	268	649	42.1
	75.5	404	201	9	15	16	96.16	27,500	2,030	16.9	4.59	1,360	202	1530	312	768	62.1

UNIVERSAL BEAMS AND COLUMNS

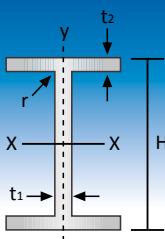


Depth x Width	Unit Weight	Standard Sectional Dimension(mm)					Sectional Area	Second Moment Of Area		Radius Of Gyration		Modulus Of Section		Plastic Modulus		Warping Constant	Torsional Constant
							A	I _x	I _y	i _x	i _y	S _x	S _y	Z _x	Z _y	C _w	J
	Kg/m	H	B	t ₁	t ₂	r	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁶ , x10 ³	cm ⁴
400 x 300	94.3	386	299	9	14	22	120.1	33,700	6,240	16.8	7.21	1,750	417	1920	637	2160	79.8
	107	390	300	10	16	22	136.0	38,700	7,210	16.9	7.28	1,980	481	2190	733	2520	113
400 x 400	140	388	402	15	15	22	178.5	49,000	16,300	16.6	9.56	2,530	811	2800	1240	5650	174
	147	394	398	11	18	22	186.8	56,100	18,900	17.3	10.1	2,850	950	3120	1440	6680	193
	168	394	405	18	18	22	214.4	59,700	20,000	16.7	9.66	3,030	988	3390	1510	7040	290
	172	400	400	13	21	22	218.7	66,600	22,400	17.5	10.1	3,330	1120	3670	1700	8040	304
	197	400	408	21	21	22	250.7	70,900	23,800	16.8	9.74	3,550	1170	3990	1790	8540	450
	200	406	403	16	24	22	254.9	78,000	26,200	17.5	10.1	3,840	1300	4280	1980	9550	467
	232	414	405	18	28	22	295.4	92,800	31,000	17.7	10.2	4,480	1530	5030	2330	11500	721
	283	428	407	20	35	22	360.7	119,000	39,400	18.2	10.5	5,560	1940	6310	2940	15200	1320
	415	458	417	30	50	22	528.6	187,000	60,500	18.8	10.7	8,170	2900	9540	4440	25100	3930
	605	498	432	45	70	22	770.1	298,000	94,400	19.7	11.1	12,000	4370	14500	6720	43100	11300
450 x 200	66.2	446	199	8	12	18	84.30	28,700	1,580	18.5	4.33	1,290	159	1450	247	742	38.6
	76.0	450	200	9	14	18	96.76	33,500	1,870	18.6	4.40	1,490	187	1680	291	887	57.1
450 x 300	106	434	299	10	15	24	135.0	46,800	6,690	18.6	7.04	2,160	448	2380	686	2930	105
	124	440	300	11	18	24	157.4	56,100	8,110	18.9	7.18	2,550	541	2820	828	3610	162
500 x 200	79.5	496	199	9	14	20	101.3	41,900	1,840	20.3	4.26	1,690	185	1910	290	1070	60.9
	89.7	500	200	10	16	20	114.2	47,800	2,140	20.5	4.33	1,910	214	2180	335	1250	85.8
	103	506	201	11	19	20	131.3	56,500	2,580	20.7	4.43	2,230	257	2540	401	1520	131
500 x 300	114	482	300	11	15	26	145.5	60,400	6,760	20.4	6.82	2,510	451	2790	695	3680	122
	128	488	300	11	18	26	163.5	71,000	8,110	20.8	7.04	2,910	541	3230	830	4470	170
600 x200	94.6	596	199	10	15	22	120.5	68,700	1,980	23.9	4.05	2,310	199	2650	315	1660	83.3
	106	600	200	11	17	22	134.4	77,600	2,280	24.0	4.12	2,590	228	2980	361	1930	114
	120	606	201	12	20	22	152.5	90,400	2,720	24.3	4.22	2,980	271	3430	429	2320	166
	134	612	202	13	23	22	170.7	103,000	3,180	24.6	4.32	3,370	315	3890	498	2740	235
600 x 300	137	582	300	12	17	28	174.5	103,000	7,670	24.3	6.63	3,540	511	3960	793	6110	177
	151	588	300	12	20	28	192.5	118,000	9,020	24.8	6.85	4,010	601	4490	928	7260	237
	175	594	302	14	23	28	222.4	137,000	10,600	24.8	6.90	4,610	702	5200	1080	8610	355
700 x 300	166	692	300	13	20	28	211.5	172,000	9,020	28.5	6.53	4,970	601	5630	936	10200	261
	185	700	300	13	24	28	235.5	201,000	10,800	29.2	6.77	5,740	720	6460	1120	12300	375
	215	708	302	15	28	28	273.6	237,000	12,900	29.4	6.87	6,690	854	7560	1320	14900	579
800 x 300	191	792	300	14	22	28	243.4	254,000	9,930	32.3	6.39	6,410	662	7290	1040	14700	342
	210	800	300	14	26	28	267.4	292,000	11,700	33.0	6.61	7,300	780	8240	1220	17500	477
	241	808	302	16	30	28	307.6	339,000	13,800	33.2	6.70	8,390	914	9530	1430	20800	717
900 x 300	213	890	299	15	23	28	270.9	345,000	10,300	35.7	6.17	7,750	689	8910	1080	19300	406
	243	900	300	16	28	28	309.8	411,000	12,600	36.4	6.38	9,130	840	10500	1320	24000	628
	286	912	302	18	34	28	364.0	498,000	15,700	37.0	6.57	10,920	1040	12500	1630	30100	1040
	307	918	303	19	37	28	391.3	542,000	17,200	37.2	6.63	11,810	1140	13500	1790	33300	1300

UNIVERSAL BEAMS AND COLUMNS



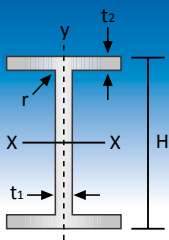
UNIVERSAL BEAMS AND COLUMNS



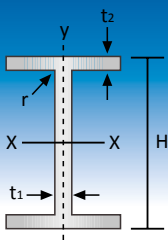
Depth x Width	Unit Weight	Standard Sectional Dimension (in)					Unit Weight	Standard Sectional Dimension (mm)				
	Lbs/ft	H	B	t ₁	t ₂	r	Kg/m	H	B	t ₁	t ₂	r
W12 x 4	14	11.91	3.97	0.20	0.22	0.30	21.1	302.5	100.8	5.1	5.7	7.6
	16	11.99	3.99	0.22	0.26	0.30	23.8	304.5	101.3	5.6	6.7	7.6
	19	12.16	4.00	0.24	0.35	0.30	28.3	308.9	101.7	6.0	8.9	7.6
	22	12.31	4.03	0.26	0.43	0.30	32.8	312.7	102.4	6.6	10.8	7.6
W12 x 6½	26	12.22	6.49	0.23	0.38	0.30	38.7	310.4	164.8	5.8	9.7	7.6
	30	12.34	6.52	0.26	0.44	0.30	44.6	313.4	165.6	6.6	11.2	7.6
	35	12.50	6.56	0.30	0.52	0.30	52.3	317.5	166.6	7.6	13.2	7.6
W12 x 8	40	11.94	8.00	0.30	0.52	0.60	59.7	303.3	203.3	7.5	13.1	15.2
	45	12.06	8.04	0.33	0.57	0.60	66.9	306.3	204.3	8.5	14.6	15.2
	50	12.19	8.08	0.37	0.64	0.60	74.5	309.6	205.2	9.4	16.3	15.2
W12 x 10	53	12.06	10.00	0.35	0.57	0.60	78.9	306.3	253.9	8.8	14.6	15.2
	58	12.19	10.01	0.36	0.64	0.60	86.4	309.6	254.3	9.1	16.3	15.2
W12 x 12	65	12.12	12.00	0.39	0.61	0.60	96.8	307.8	304.8	9.9	15.4	15.2
	72	12.25	12.04	0.43	0.67	0.60	107	311.2	305.8	10.9	17.0	15.2
	79	12.38	12.08	0.47	0.74	0.60	118	314.5	306.8	11.9	18.7	15.2
	87	12.53	12.13	0.52	0.81	0.60	130	318.3	308.0	13.1	20.6	15.2
	96	12.71	12.16	0.55	0.90	0.60	143	322.8	308.9	14.0	22.9	15.2
	106	12.89	12.22	0.61	0.99	0.60	158	327.4	310.4	15.5	25.1	15.2
	120	13.12	12.32	0.71	1.11	0.60	179	333.2	312.9	18.0	28.1	15.2
	136	13.41	12.40	0.79	1.25	0.60	203	340.6	315.0	20.1	31.8	15.2
	152	13.71	12.48	0.87	1.40	0.60	227	348.2	317.0	22.1	35.6	15.2
	161	13.88	12.54	0.91	1.48	0.60	240	352.5	318.4	23.0	37.7	15.2
	170	14.03	12.57	0.96	1.56	0.60	253	356.4	319.3	24.4	39.6	15.2
	190	14.38	12.67	1.06	1.74	0.60	283	365.3	321.8	26.9	44.1	15.2
	210	14.71	12.79	1.18	1.90	0.60	313	373.6	324.9	30.0	48.3	15.2
	230	15.05	12.89	1.28	2.07	0.60	343	382.3	327.5	32.6	52.6	15.2
	252	15.41	13.00	1.39	2.25	0.60	375	391.4	330.3	35.4	57.2	15.2
	279	15.85	13.14	1.53	2.47	0.60	415	402.6	333.8	38.9	62.7	15.2
	305	16.32	13.24	1.63	2.70	0.60	454	414.5	336.2	41.3	68.7	15.2
W14 x 5	22	13.74	5.00	0.23	0.33	0.40	32.8	349.0	127.0	5.8	8.5	10.2
	26	13.91	5.02	0.26	0.42	0.40	39.1	353.3	127.6	6.5	10.7	10.2
W14 x 6¾	30	13.84	6.73	0.27	0.39	0.40	45.0	351.5	170.9	6.9	9.8	10.2
	34	13.98	6.74	0.28	0.46	0.40	50.7	355.1	171.3	7.2	11.6	10.2
	38	14.10	6.77	0.31	0.52	0.40	56.7	358.1	172.0	7.9	13.1	10.2
W14 x 8	43	13.66	8.00	0.30	0.53	0.60	64.0	347.0	203.1	7.7	13.5	15.2
	48	13.79	8.03	0.34	0.59	0.60	71.5	350.3	204.0	8.6	15.1	15.2
	53	13.92	8.06	0.37	0.66	0.60	79.1	353.6	204.7	9.4	16.8	15.2
W14 x 10	61	13.89	10.00	0.37	0.65	0.60	90.8	352.8	253.9	9.5	16.4	15.2
	68	14.04	10.04	0.41	0.72	0.60	101	356.6	254.9	10.5	18.3	15.2
	74	14.17	10.07	0.45	0.78	0.60	110	359.9	255.8	11.4	19.9	15.2
	82	14.31	10.13	0.51	0.85	0.60	122	363.5	257.3	13.0	21.7	15.2

Sectional Area		Second Moment Of Area		Radius Of Gyration		Modulus Of Section		Plastic Modulus		Warping Constant	Torsional Constant
A		I _x	I _y	i _x	i _y	S _x	S _y	Z _x	Z _y	C _w	J
cm ²		cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁶ , x10 ³	cm ⁴
26.8		3,680	97.7	11.7	1.91	243	19.4	286	31.1	21	3.12
30.4		4,260	117	11.8	1.96	280	23.0	328	36.9	26	4.44
36.1		5,410	157	12.2	2.08	350	30.8	406	48.9	35	7.66
41.8		6,500	194	12.5	2.15	416	37.9	481	60.0	44	12.3
49.4		8,520	724	13.1	3.83	549	87.9	611	134	164	12.6
56.8		9,930	849	13.2	3.87	634	103	707	157	194	19.2
66.6		11,900	1020	13.4	3.91	750	122	837	188	236	30.9
76.0		12,900	1840	13.0	4.92	851	181	944	276	386	39.4
85.2		14,600	2080	13.1	4.94	953	204	1060	311	441	54.3
94.9		16,400	2350	13.1	4.98	1060	229	1190	351	505	74.3
100.5		17,700	3990	13.3	6.30	1160	314	1280	478	847	65.7
110.1		19,800	4470	13.4	6.37	1280	352	1420	534	961	87.2
123.3		22,200	7270	13.4	7.68	1440	477	1590	724	1550	91.7
136.2		24,800	8110	13.5	7.72	1590	530	1770	805	1750	122
149.7		27,600	9010	13.6	7.76	1760	587	1950	892	1970	161
165.2		30,800	10000	13.7	7.78	1940	649	2170	991	2220	215
182.2		34,700	11300	13.8	7.88	2150	732	2420	1110	2530	289
200.8		38,800	12500	13.9	7.89	2370	805	2680	1230	2860	381
227.7		44,600	14400	14.0	7.95	2680	920	3050	1400	3340	544
258		51,900	16600	14.2	8.02	3050	1050	3510	1610	3950	784
288.9		59,700	18900	14.4	8.09	3430	1190	3980	1830	4620	1090
305.8		64,200	20300	14.5	8.15	3640	1280	4250	1950	5020	1290
322.5		68,500	21500	14.6	8.16	3840	1350	4500	2060	5390	1500
360.4		78,800	24500	14.8	8.24	4310	1520	5100	2340	6320	2060
398.9		89,300	27700	15.0	8.33	4780	1710	5710	2620	7300	2740
436.8		100,600	30900	15.2	8.41	5260	1890	6330	2900	8370	3550
477.9		113,200	34500	15.4	8.50	5780	2090	7020	3210	9590	4580
528.4		129,500	39000	15.7	8.59	6430	2340	7890	3600	11230	6070
578.4		147,600	43700	16.0	8.69	7120	2600	8810	4010	13010	7880
41.74		8,270	291	14.1	2.64	474	45.8	542	71.8	84.1	8.71
49.77		10,200	372	14.3	2.73	577	58.2	661	91.1	109	15.1
57.29		12,100	817	14.5	3.78	689	95.6	777	148	238	16.3
64.53		14,200	973	14.8	3.88	800	114	896	175	287	23.9
72.18		16,100	1110	14.9	3.92	899	129	1010	200	331	33.6
81.46		17,800	1890	14.8	4.82	1030	186	1140	285	524	43.4
91.12		20,200	2140	14.9	4.85	1150	210	1280	322	600	59.9
100.8		22,600	2410	15.0	4.89	1280	236	1430	361	681	80.8
115.7		26,700	4480	15.2	6.22	1510	353	1680	538	1270	91.4
128.9		30,100	5060	15.3	6.27	1690	397	1880	605	1450	125
140.3		33,100	5560	15.4	6.30	1840	435	2050	663	1600	161
155.3		36,700	6170	15.4	6.30	2020	480	2270	734	1800	212

UNIVERSAL BEAMS AND COLUMNS



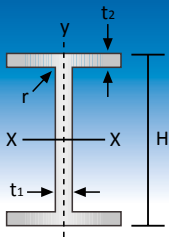
UNIVERSAL BEAMS AND COLUMNS



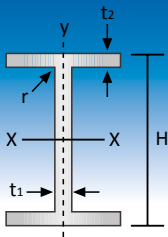
Depth x Width	Unit Weight	Standard Sectional Dimension (in)					Unit Weight	Standard Sectional Dimension (mm)				
	Lbs/ft	H	B	t ₁	t ₂	r	Kg/m	H	B	t ₁	t ₂	r
W14 x 14½	90	14.02	14.52	0.44	0.71	0.60	134	356.1	368.8	11.2	18.0	15.2
	99	14.16	14.57	0.48	0.78	0.60	148	359.7	370.0	12.3	19.8	15.2
	109	14.32	14.61	0.52	0.86	0.60	162	363.7	371.0	13.3	21.8	15.2
	120	14.48	14.67	0.59	0.94	0.60	179	367.8	372.6	15.0	23.9	15.2
	132	14.66	14.72	0.65	1.03	0.60	197	372.4	374.0	16.4	26.2	15.2
W14 x 16	145	14.78	15.50	0.68	1.09	0.60	216	375.4	393.7	17.3	27.7	15.2
	159	14.98	15.57	0.74	1.19	0.60	237	380.5	395.4	18.9	30.2	15.2
	176	15.22	15.65	0.83	1.31	0.60	262	386.6	397.5	21.1	33.3	15.2
	193	15.48	15.71	0.89	1.44	0.60	288	393.2	399.0	22.6	36.6	15.2
	211	15.72	15.80	0.98	1.56	0.60	314	399.3	401.3	24.9	39.6	15.2
	233	16.04	15.89	1.07	1.72	0.60	347	407.4	403.6	27.2	43.7	15.2
	257	16.38	16.00	1.17	1.89	0.60	383	416.1	406.3	29.8	48.0	15.2
	283	16.74	16.11	1.29	2.07	0.60	422	425.2	409.2	32.8	52.6	15.2
	311	17.12	16.23	1.41	2.26	0.60	463	434.8	412.2	35.8	57.4	15.2
	342	17.54	16.36	1.54	2.47	0.60	509	445.5	415.5	39.1	62.7	15.2
W16 x 5½	26	15.69	5.50	0.25	0.35	0.40	39.1	398.5	139.7	6.4	8.8	10.2
	31	15.88	5.52	0.28	0.44	0.40	46.3	403.4	140.3	7.0	11.2	10.2
W16 x 7	36	15.86	6.98	0.30	0.43	0.40	53.5	402.8	177.4	7.5	10.9	10.2
	40	16.01	7.00	0.30	0.50	0.40	59.5	406.7	177.7	7.7	12.8	10.2
	45	16.13	7.04	0.35	0.57	0.40	67.4	409.7	178.7	8.8	14.4	10.2
	50	16.26	7.07	0.38	0.63	0.40	74.8	413.0	179.6	9.7	16.0	10.2
	57	16.43	7.12	0.43	0.72	0.40	84.9	417.3	180.8	10.9	18.2	10.2
W16 x 10½	67	16.33	10.24	0.39	0.67	0.40	100	414.8	260.0	10.0	16.9	10.2
	77	16.52	10.30	0.46	0.76	0.40	115	419.6	261.5	11.6	19.3	10.2
	89	16.75	10.37	0.52	0.87	0.40	132	425.4	263.3	13.3	22.2	10.2
	100	16.97	10.43	0.59	0.98	0.40	149	431.0	264.8	14.9	25.0	10.2
W18 x 6	35	17.70	6.00	0.30	0.43	0.40	52.1	449.6	152.4	7.6	10.8	10.2
	40	17.90	6.02	0.31	0.52	0.40	59.5	454.7	152.8	8.0	13.3	10.2
	46	18.06	6.06	0.36	0.61	0.40	68.5	458.7	153.9	9.1	15.4	10.2
W18 x 7½	41	17.70	7.45	0.32	0.43	0.40	60	449.6	189.2	8.1	10.8	10.2
	45	17.86	7.48	0.33	0.50	0.40	67	453.6	189.9	8.5	12.7	10.2
	50	17.99	7.50	0.35	0.57	0.40	74.3	456.9	190.4	9.0	14.5	10.2
	55	18.11	7.53	0.39	0.63	0.40	82.0	460.0	191.3	9.9	16.0	10.2
	60	18.24	7.56	0.41	0.70	0.40	89.3	463.3	191.9	10.5	17.7	10.2
	65	18.35	7.59	0.45	0.75	0.40	96.8	466.1	192.8	11.4	19.1	10.2
	66	18.39	7.59	0.45	0.77	0.40	98	467.2	192.8	11.4	19.6	10.2
	71	18.47	7.63	0.50	0.81	0.40	106	469.1	193.9	12.6	20.6	10.2

Sectional Area		Second Moment Of Area		Radius Of Gyration		Modulus Of Section		Plastic Modulus		Warping Constant	Torsional Constant
A		I _x	I _y	i _x	i _y	S _x	S _y	Z _x	Z _y	C _w	J
cm ²		cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁶ , x10 ³	cm ⁴
170.6		41,500	15100	15.6	9.41	2330	819	2560	1240	4300	169
187.9		46,200	16700	15.7	9.43	2570	903	2840	1370	4830	224
206.3		51,500	18600	15.8	9.50	2830	1000	3140	1520	5420	296
228.1		57,300	20600	15.8	9.50	3120	1110	3480	1680	6090	394
250.4		63,800	22900	16.0	9.56	3430	1220	3840	1860	6840	518
275.5		71,300	28200	16.1	10.12	3800	1430	4270	2170	8510	638
301.3		79,100	31100	16.2	10.16	4160	1570	4700	2390	9550	827
334.2		89,100	34900	16.3	10.22	4610	1760	5250	2670	10900	1120
366.4		99,800	38800	16.5	10.29	5080	1940	5820	2960	12300	1470
399.5		111,000	42700	16.7	10.34	5560	2130	6390	3240	13800	1870
441.8		125,000	47900	16.8	10.41	6140	2370	7140	3620	15800	2510
487.4		142,000	53700	17.1	10.50	6830	2640	7970	4040	18200	3330
537.4		160,000	60200	17.3	10.58	7530	2940	8890	4490	20800	4400
589.7		180,000	67100	17.5	10.67	8280	3260	9880	4980	23900	5740
648.2		204,000	75100	17.7	10.76	9160	3610	11010	5540	27500	7510
702.2		227,000	82800	18.0	10.86	9970	3960	12070	6070	31000	9430
49.86		12,600	401	15.9	2.84	632	57.4	728	90.3	152	11.3
58.99		15,600	516.9	16.3	2.96	773	73.7	887	115	198	19
68.14		18,600	1020	16.5	3.87	924	115	1050	177	389	22.9
75.73		21,500	1200	16.8	3.98	1060	135	1190	208	464	32.9
85.88		24,500	1370	16.9	3.99	1200	153	1350	238	535	47.1
95.32		27,400	1550	17.0	4.03	1330	173	1510	268	609	64.1
108.2		31,600	1800	17.1	4.08	1510	199	1730	310	714	93.2
126.9		39,700	4950	17.7	6.25	1910	381	2130	581	1960	100
146		46,100	5760	17.8	6.28	2200	441	2460	673	2300	150
168.5		54,000	6760	17.9	6.33	2540	514	2860	787	2740	228
190.1		61,800	7750	18.0	6.38	2870	585	3250	899	3190	324
66.34		21,200	639	17.9	3.10	943	83.9	1090	132	307	21.4
75.79		25,400	793	18.3	3.23	1120	104	1280	163	385	33.7
87.23		29,600	939	18.4	3.28	1290	122	1490	192	460	51.2
76.6		25,400	1220	18.2	3.99	1130	129	1290	201	587	26
85.5		29,400	1450	18.5	4.12	1300	153	1470	237	704	38
94.62		33,300	1670	18.8	4.20	1460	175	1650	272	816	52.1
104.5		37,100	1870	18.8	4.23	1610	196	1830	304	920	69.7
113.8		41,000	2090	19.0	4.29	1770	218	2010	338	1030	91.3
123.3		44,700	2290	19.0	4.31	1920	238	2190	370	1140	115
125.3		45,700	2350	19.1	4.33	1960	244	2230	379	1170	122
134.7		48,800	2510	19.0	4.32	2080	259	2390	405	1260	147

UNIVERSAL BEAMS AND COLUMNS



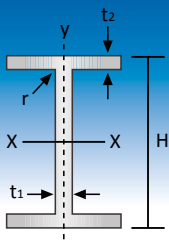
UNIVERSAL BEAMS AND COLUMNS



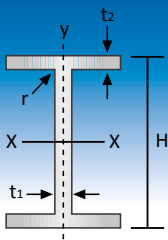
Depth x Width	Unit Weight	Standard Sectional Dimension (in)					Unit Weight	Standard Sectional Dimension (mm)				
	Lbs/ft	H	B	t ₁	t ₂	r	Kg/m	H	B	t ₁	t ₂	r
w18 x 11	76	18.21	11.04	0.43	0.68	0.40	113	462.5	280.3	10.8	17.3	10.2
	86	18.39	11.09	0.48	0.77	0.40	128	467.1	281.7	12.2	19.6	10.2
	97	18.59	11.15	0.54	0.87	0.40	145	472.2	283.1	13.6	22.1	10.2
	106	18.73	11.20	0.59	0.94	0.40	158	475.5	284.5	15.0	23.9	10.2
	119	18.97	11.26	0.65	1.06	0.40	177	481.8	286.1	16.6	26.9	10.2
	130	19.25	11.16	0.67	1.20	0.40	194	489.0	283.5	17.0	30.5	10.2
	143	19.49	11.22	0.73	1.32	0.40	213	495.0	285.0	18.5	33.5	10.2
	158	19.72	11.30	0.81	1.44	0.40	235	500.9	287.0	20.6	36.6	10.2
	175	20.04	11.37	0.89	1.59	0.40	260	509.0	288.9	22.6	40.4	10.2
	192	20.35	11.46	0.96	1.75	0.40	286	516.9	291.0	24.4	44.4	10.2
	211	20.67	11.56	1.06	1.91	0.40	315	525.0	293.5	26.9	48.5	10.2
	234	21.06	11.65	1.16	2.11	0.40	349	534.9	295.9	29.5	53.6	10.2
	258	21.46	11.77	1.28	2.30	0.40	384	545.1	299.0	32.5	58.4	10.2
	283	21.85	11.89	1.40	2.50	0.40	421	555.0	302.0	35.6	63.5	10.2
	311	22.32	12.00	1.52	2.74	0.40	463	566.9	304.9	38.6	69.6	10.2
W21 x 6½	44	20.66	6.50	0.35	0.45	0.50	65.7	524.8	165.1	8.9	11.4	12.7
	50	20.83	6.53	0.38	0.54	0.50	74.7	529.1	165.9	9.7	13.6	12.7
	57	21.06	6.56	0.41	0.65	0.50	84.8	534.9	166.5	10.3	16.5	12.7
W21 x 8½	48	20.60	8.14	0.35	0.43	0.50	71.5	523.2	206.8	8.9	10.9	12.7
	55	20.80	8.22	0.38	0.52	0.50	82.2	528.3	208.8	9.6	13.2	12.7
	62	20.99	8.24	0.40	0.61	0.50	92.6	533.1	209.3	10.2	15.6	12.7
	68	21.13	8.27	0.43	0.69	0.50	101	536.7	210.1	10.9	17.4	12.7
	73	21.24	8.30	0.46	0.74	0.50	109	539.5	210.7	11.6	18.8	12.7
	83	21.43	8.35	0.52	0.83	0.50	123	544.3	212.2	13.1	21.2	12.7
	93	21.62	8.42	0.58	0.93	0.50	138	549.1	213.9	14.7	23.6	12.7
W21 x 12½	101	21.36	12.29	0.50	0.80	0.50	151	542.5	312.2	12.7	20.3	12.7
	111	21.51	12.34	0.55	0.87	0.50	165	546.4	313.4	14.0	22.2	12.7
	122	21.68	12.39	0.60	0.96	0.50	181	550.7	314.7	15.2	24.4	12.7
	132	21.83	12.44	0.65	1.04	0.50	197	554.5	316.0	16.5	26.3	12.7
	147	22.06	12.51	0.72	1.15	0.50	219	560.3	317.8	18.3	29.2	12.7
	166	22.48	12.42	0.75	1.36	0.50	247	571.0	315.5	19.1	34.5	12.7
	182	22.72	12.50	0.83	1.48	0.50	272	577.1	317.5	21.1	37.6	12.7
	201	23.03	12.57	0.91	1.63	0.50	300	585.0	319.4	23.1	41.0	12.7
	223	23.35	12.67	1.00	1.79	0.50	331	593.1	321.9	25.4	45.5	12.7
	248	23.74	12.78	1.11	1.99	0.50	370	603.0	324.5	28.3	50.5	12.7
	275	24.13	12.89	1.22	2.19	0.50	409	612.9	327.4	31.0	55.6	12.7
	300	24.53	12.99	1.32	2.38	0.50	447	623.1	329.9	33.5	60.5	12.7
	333	25.00	13.13	1.46	2.62	0.50	495	635.0	333.5	37.1	66.5	12.7
W24 x 7	55	23.57	7.00	0.39	0.50	0.50	81.8	598.7	177.9	10.0	12.8	12.7
	62	23.74	7.04	0.43	0.59	0.50	92.2	603.0	178.8	10.9	15.0	12.7

Sectional Area		Second Moment Of Area		Radius Of Gyration		Modulus Of Section		Plastic Modulus		Warping Constant	Torsional Constant
A		I _x	I _y	i _x	i _y	S _x	S _y	Z _x	Z _y	C _w	J
cm ²		cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁶ , x10 ³	cm ⁴
144.1		55,500	6350	19.6	6.64	2400	453	2670	693	3150	119
163.5		63,700	7310	19.7	6.69	2730	519	3050	794	3660	173
184.2		72,700	8370	19.9	6.74	3080	591	3460	906	4230	246
201.1		79,700	9190	19.9	6.76	3350	646	3780	992	4680	315
225.9		91,000	10500	20.1	6.82	3780	734	4280	1130	5430	445
246.6		103,000	11600	20.4	6.86	4210	818	4760	1260	6090	609
271.0		114,000	12900	20.5	6.90	4610	905	5270	1400	6880	804
299.1		127,000	14500	20.6	6.96	5070	1010	5840	1550	7770	1060
331.1		144,000	16300	20.9	7.02	5660	1130	6520	1740	8910	1420
363.8		161,000	18300	21.0	7.09	6230	1260	7240	1940	10180	1880
400.7		180,000	20500	21.2	7.15	6860	1400	8030	2170	11600	2470
444.3		204,000	23200	21.4	7.23	7630	1570	9000	2440	13400	3320
489.3		229,000	26100	21.6	7.30	8400	1750	10000	2730	15410	4340
536.8		257,000	29300	21.9	7.39	9260	1940	11100	3030	17600	5620
590.4		290,000	33100	22.2	7.49	10200	2170	12300	3400	20330	7390
83.71		35,000	859	20.4	3.20	1330	104	1560	166	563	33.1
95.19		41,100	1040	20.8	3.31	1550	125	1810	200	688	48.9
108.0		48,600	1270	21.2	3.43	1820	153	2110	243	853	74.4
91.09		39,800	1610	20.9	4.20	1520	156	1750	244	1050	34.6
104.7		47,500	2010	21.3	4.38	1800	193	2060	300	1330	52.5
117.9		55,300	2390	21.7	4.50	2070	228	2370	356	1600	77
129.2		61,600	2700	21.8	4.57	2300	257	2620	400	1810	102
138.8		66,800	2940	21.9	4.60	2480	279	2830	435	1990	127
157.1		76,200	3390	22.0	4.65	2800	320	3210	500	2310	182
176.1		86,100	3860	22.1	4.68	3140	361	3610	568	2660	253
191.9		101,000	10300	22.9	7.33	3720	660	4140	1010	7020	218
210.8		111,000	11400	22.9	7.35	4060	728	4560	1120	7820	286
231.2		123,000	12700	23.1	7.41	4470	807	5030	1240	8780	377
250.4		134,000	13900	23.1	7.45	4830	880	5460	1350	9650	474
278.8		151,000	15600	23.3	7.48	5390	982	6120	1520	11000	648
315		178,000	18100	23.8	7.58	6230	1150	7080	1760	13000	988
346		197,000	20100	23.9	7.62	6830	1270	7800	1950	14600	1290
381.9		221,000	22500	24.1	7.68	7560	1410	8680	2180	16600	1720
421.8		248,000	25400	24.2	7.76	8360	1580	9660	2440	19000	2290
471.2		281,000	28900	24.4	7.83	9320	1780	10900	2760	21900	3140
521		317,000	32600	24.7	7.91	10300	1990	12100	3100	25300	4190
568.8		353,000	36400	24.9	8.00	11300	2210	13400	3440	28600	5390
631.2		400,000	41300	25.2	8.09	12600	2480	15000	3870	33200	7220
104.2		55,900	1210	23.2	3.41	1870	136	2190	218	1030	50.3
117.5		64,600	1440	23.4	3.50	2140	161	2510	258	1240	72.4

UNIVERSAL BEAMS AND COLUMNS



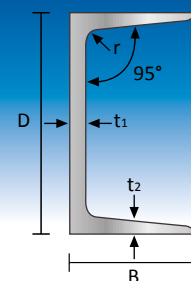
UNIVERSAL BEAMS AND COLUMNS



Depth x Width	Unit Weight	Standard Sectional Dimension (in)					Unit Weight	Standard Sectional Dimension (mm)				
	Lbs/ft	H	B	t ₁	t ₂	r	Kg/m	H	B	t ₁	t ₂	r
W24 x 9	68	23.73	8.96	0.41	0.59	0.50	102	602.7	227.7	10.5	14.9	12.7
	76	23.92	8.99	0.44	0.68	0.50	114	607.6	228.3	11.2	17.3	12.7
	84	24.10	9.02	0.47	0.77	0.50	125	612.1	229.1	11.9	19.6	12.7
	94	24.31	9.07	0.52	0.87	0.50	140	617.5	230.3	13.1	22.2	12.7
	103	24.53	9.00	0.55	0.98	0.50	153	623.1	228.6	14.0	24.9	12.7
W24 x 12½	104	24.06	12.75	0.50	0.75	0.65	156	611.1	323.9	12.7	19.1	16.5
	117	24.26	12.80	0.55	0.85	0.65	175	616.2	325.1	14.0	21.6	16.5
	131	24.48	12.85	0.61	0.96	0.65	196	621.8	326.5	15.4	24.4	16.5
	146	24.74	12.90	0.65	1.09	0.65	219	628.4	327.7	16.5	27.7	16.5
	162	25.00	12.96	0.70	1.22	0.65	242	635.0	329.1	17.9	31.0	16.5
	176	25.24	12.89	0.75	1.34	0.65	263	641.1	327.4	19.1	34.0	16.5
	192	25.47	12.95	0.81	1.46	0.65	286	646.9	328.9	20.6	37.1	16.5
	207	25.71	13.01	0.87	1.57	0.65	308	653.0	330.5	22.1	39.9	16.5
	229	26.02	13.11	0.96	1.73	0.65	341	660.9	333.0	24.4	43.9	16.5
	250	26.34	13.19	1.04	1.89	0.65	373	669.0	334.9	26.4	48.0	16.5
	279	26.73	13.31	1.16	2.09	0.65	416	678.9	337.9	29.5	53.1	16.5
	306	27.13	13.41	1.26	2.28	0.65	455	689.1	340.5	32.0	57.9	16.5
	335	27.52	13.52	1.38	2.48	0.65	499	699.0	343.4	35.1	63.0	16.5
	370	27.99	13.66	1.52	2.72	0.65	552	710.9	347.0	38.6	69.1	16.5
W27 x 10	84	26.71	9.96	0.46	0.64	0.60	126	678.4	253.0	11.7	16.3	15.2
	94	26.92	9.99	0.49	0.74	0.60	140	683.8	253.7	12.4	18.9	15.2
	102	27.09	10.02	0.52	0.83	0.60	152	688.1	254.4	13.1	21.1	15.2
	114	27.29	10.07	0.57	0.93	0.60	170	693.2	255.8	14.5	23.6	15.2
	129	27.63	10.01	0.61	1.10	0.60	192	701.8	254.3	15.5	27.9	15.2
W30 x 10½	90	29.53	10.40	0.47	0.61	1.10	137	750.1	264.2	11.94	15.49	28
	99	29.65	10.45	0.52	0.67	1.10	151	753.1	265.4	13.21	17.02	28
	108	29.83	10.48	0.54	0.76	1.10	164	757.7	266.1	13.84	19.3	28
	116	30.01	10.50	0.56	0.85	1.10	177	762.3	266.6	14.35	21.59	28
	124	30.17	10.52	0.59	0.93	1.10	188	766.3	267.1	14.86	23.62	28
	132	30.31	10.54	0.61	1.00	1.10	200	769.9	267.8	15.62	25.4	28
	148	30.67	10.48	0.65	1.18	1.10	224	779.0	266.2	16.51	29.97	28
W33 x 11½	118	32.86	11.48	0.55	0.74	1.18	180	834.6	291.6	13.97	18.8	30
	130	33.09	11.51	0.58	0.86	1.18	198	840.5	292.4	14.73	21.72	30
	141	33.30	11.54	0.61	0.96	1.18	214	845.8	293.0	15.37	24.38	30
	152	33.49	11.57	0.64	1.06	1.18	231	850.6	293.8	16.13	26.8	30
	169	33.82	11.50	0.67	1.22	1.18	255	859.0	292.1	17.02	30.99	30
W36 x 12	135	35.55	11.95	0.60	0.79	1.18	205	903.0	303.5	15.24	20.07	30
	150	35.85	11.98	0.63	0.94	1.18	228	910.6	304.2	15.88	23.88	30
	160	36.01	12.00	0.65	1.02	1.18	242	914.7	304.8	16.51	25.91	30
	170	36.17	12.03	0.68	1.10	1.18	257	918.7	305.6	17.27	27.94	30
	182	36.33	12.07	0.73	1.18	1.18	275	922.8	306.7	18.42	29.97	30
	194	36.49	12.11	0.76	1.26	1.18	292	926.8	307.7	19.43	32.00	30
	210	36.69	12.18	0.830	1.36	1.18	317	931.9	309.4	21.08	34.54	30
	232	37.12	12.12	0.87	1.57	1.18	349	942.8	307.8	22.1	39.88	30

Sectional Area		Second Moment Of Area		Radius Of Gyration		Modulus Of Section		Plastic Modulus		Warping Constant	Torsional Constant
A		I _x	I _y	i _x	i _y	S _x	S _y	Z _x	Z _y	C _w	J
cm²		cm⁴	cm⁴	cm	cm	cm³	cm³	cm³	cm³	cm⁶, x10³	cm⁴
129.4		76,200	2940	24.3	4.77	2530	258	2900	403	2530	79.2
144.6		87,500	3440	24.6	4.88	2880	301	3290	470	2990	113
159.4		98,600	3940	24.9	4.97	3220	344	3680	536	3450	155
178.7		112,000	4530	25.0	5.03	3630	393	4160	615	4000	220
195.5		125,000	4970	25.3	5.04	4010	435	4590	680	4440	297
198.8		130,000	10800	25.6	7.37	4250	667	4770	1030	9480	206
223		148,000	12400	25.8	7.46	4800	763	5390	1170	10900	291
249.9		168,000	14200	25.9	7.54	5400	870	6090	1340	12600	410
278.4		192,000	16300	26.3	7.65	6110	995	6870	1530	14700	575
308.9		216,000	18400	26.4	7.72	6800	1120	7700	1730	16800	790
334.4		237,000	19900	26.6	7.71	7390	1220	8390	1880	18300	1020
364.4		261,000	22000	26.8	7.77	8070	1340	9200	2070	20500	1310
392.8		285,000	24100	26.9	7.83	8730	1460	10000	2250	22600	1630
434.5		319,000	27100	27.1	7.90	9650	1630	11100	2520	25700	2180
475.1		354,000	30100	27.3	7.96	10600	1800	12200	2800	29000	2830
530.2		400,000	34300	27.5	8.04	11800	2030	13700	3160	33400	3870
580.1		446,000	38300	27.7	8.13	12900	2250	15100	3510	37900	5010
636.2		496,000	42700	27.9	8.19	14200	2490	16700	3900	43000	6490
702.9		558,000	48400	28.2	8.30	15700	2790	18600	4380	49500	8610
160		119,000	4410	27.3	5.25	3510	349	4010	546	4820	120
178		136,000	5160	27.6	5.38	3980	407	4550	635	5680	169
194		151,000	5800	27.9	5.47	4390	456	5010	713	6440	222
216.4		170,000	6600	28.0	5.52	4900	516	5620	808	7380	307
244		198,000	7670	28.5	5.61	5640	603	6460	943	8680	464
174.4		156,000	4780	29.9	5.24	4160	362	4790	575	6420	154
192.1		172,000	5330	29.9	5.27	4570	402	5270	639	7180	199
209		191,000	6090	30.2	5.40	5040	458	5820	727	8260	251
225		211,000	6850	30.6	5.52	5540	514	6360	813	9350	313
239.8		228,000	7540	30.8	5.61	5950	565	6840	892	10300	380
255.1		245,000	8170	31.0	5.66	6360	610	7320	964	11300	456
285		283,000	9470	31.5	5.76	7270	712	8350	1120	13200	662
228.7		253,000	7800	33.3	5.84	6060	535	6990	849	12900	274
252.2		287,000	9090	33.7	6.00	6830	622	7840	983	15200	362
273.1		318,000	10300	34.1	6.14	7520	703	8610	1100	17200	462
293.8		347,000	11400	34.4	6.23	8160	776	9350	1220	19200	578
324.4		394,000	12900	34.9	6.31	9170	883	10500	1390	22100	805
261.1		333,000	9400	35.7	6.00	7380	619	8540	986	18200	349
290		385,000	11300	36.4	6.24	8460	743	9730	1170	22000	480
308.1		414,000	12300	36.7	6.32	9050	807	10400	1270	24100	577
327.5		445,000	13300	36.9	6.37	9690	870	11100	1380	26400	694
350.5		479,000	14500	37.0	6.43	10400	946	12000	1500	28700	844
372.3		512,000	15600	37.1	6.47	11000	1010	12800	1610	31100	1010
403.3		557,000	17100	37.2	6.51	12000	1110	13800	1760	34300	1270
444		633,000	19500	37.8	6.63	13400	1270	15500	2010	39500	1760

CHANNELS (TAPERED FLANGE)



Designation Size	Thickness (t)mm	Unit Weight	Thickness		Root Toe		Sectional Area	Centre of Gravity	Second Moment Of Area		Radius Of Gyration		Elastic Modulus	
			Web	Flange	Radius				I _x	I _y	r _x	r _y	Z _x	Z _y
			t	T	r ₁	r ₂								
D x B x t (mm)		Kg/m	mm	mm	mm	mm	cm ²	cm	cm ⁴	cm ⁴	cm	cm	cm ³	cm ⁴
50 x 25	3.5	2.56	5.0	6.0	6	3	4.92	0.81	16.8	2.49	1.85	0.71	6.73	1.48
	4	2.92												
75 x 40	3.8	5.30												
	5	6.92	5.0	7.0	8	4	8.82	1.27	75.9	12.4	2.93	1.19	20.2	4.54
100 x 50	3.8	7.30												
	5	9.36	5.0	7.5	8	4	11.9	1.55	189	26.7	3.99	1.50	37.8	7.82
	6	10.60												
125 x 65	5.2	11.66												
	6	13.40	6.0	8.0	8	4	17.1	1.94	425	65.5	4.99	1.96	68.0	14.4
150 x 75	5.5	14.66												
	6.5	18.60	6.5	10.0	10	5	23.7	2.31	864	122	6.04	2.27	115	23.6
	9	24.00	9.0	12.5	15	7.5	30.5	2.31	1060	151	5.90	2.22	141	29.1
180 x 75	7	21.40	7.0	10.5	11	5.5	27.2	2.15	1380	137	7.12	2.24	154	25.5
200 x 80	7.5	24.60	7.5	11.0	12	6	31.3	2.24	1950	177	7.89	2.38	195	30.8
200 x 90	8	30.30	8.0	13.5	14	7	38.7	2.77	2490	286	8.02	2.72	249	45.9
250 x 90	9	34.60	9.0	13.0	14	7	44.1	2.42	4180	306	9.74	2.63	335	46.5
300 x 90	9	38.10	9.0	12.0	14	7	48.6	2.23	6440	325	11.5	2.59	429	48.0
380 x 100	10.5	54.50	10.5	16.0	18	9	69.4	2.41	14500	557	14.5	2.83	762	73.3

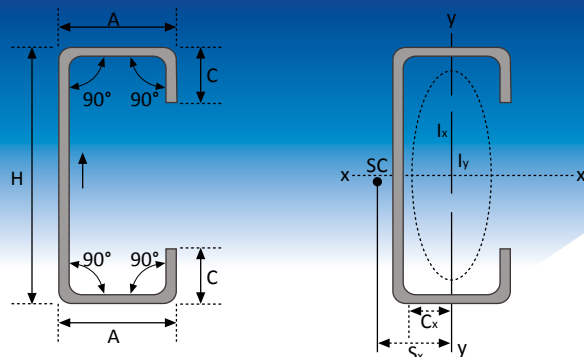
Grades:

ASTM A36

EN 10025 S275JR, S355JR

JIS G 3101 SS400

LIP CHANNELS



Standard Sectional Dimension		Unit Weight	Sectional Area	Centre of Gravity		Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Centre Of Shear	
			A	C _x	C _y	I _x	I _y	i _x	i _y	Z _x	Z _y	S _x	S _y
H x A x C	Thickness t (mm)	kg/m	cm ²	cm	cm	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm	cm
75 x 45 x 15	1.6	2.32	2.952	0	1.72	27.1	8.71	3.03	1.72	7.24	3.13	4.1	0
	2.3	3.25	4.137	0	1.72	37.1	11.8	3.00	1.69	9.9	4.24	4.0	0
	3.0	4.13	5.258	0	1.71	46	14.25	2.96	1.65	12.27	5.11	4.0	0
100 x 50 x 20	2.3	4.06	5.172	0	1.86	80.7	19.0	3.95	1.92	16.1	6.06	4.4	0
	3.0	5.18	6.608	0	1.86	101	23.4	3.91	1.88	20.2	7.45	4.4	0
	4.0	6.71	8.548	0	1.86	127	28.7	3.85	1.83	25.4	9.13	4.3	0
	4.5	7.43	9.469	0	1.86	139	30.9	3.82	1.81	27.7	9.82	4.3	0
125 x 50 x 20	2.3	4.51	5.747	0	1.69	137	20.6	4.88	1.89	21.9	6.22	4.1	0
	3.0	5.77	7.358	0	1.69	172	25.4	4.83	1.83	27.5	7.56	4.1	0
	4.0	7.50	9.548	0	1.68	217	31.1	4.77	1.81	34.7	9.38	4.0	0
	4.5	8.32	10.59	0	1.68	238	33.5	4.74	1.78	38.0	10.0	4.0	0
150 x 65 x 20	2.3	5.50	7.012	0	2.12	248	41.1	5.94	2.42	33.0	9.37	5.2	0
	3.0	7.07	9.008	0	2.11	314	51.1	5.90	2.38	41.9	11.7	5.1	0
	4.0	9.22	11.75	0	2.11	401	63.7	5.84	2.33	53.5	14.5	5.0	0
	4.5	10.25	13.07	0	2.10	441	69.2	5.82	2.30	58.8	15.7	5.0	0
175 x 75 x 20	2.3	6.31	8.047	0	2.35	389	61.0	6.96	2.75	44.5	11.8	5.7	0
	3.0	8.13	10.36	0	2.34	495	76.4	6.91	2.72	56.6	14.8	5.7	0
	3.2	8.63	11.01	0	2.34	524.33	80.51	6.90	2.70	59.92	15.61	5.7	0
	4.5	11.84	15.09	0	2.33	702	105	6.82	2.63	80.3	20.2	5.6	0
200 x 75 x 20	2.3	6.76	8.622	0	2.20	531	63.7	7.85	2.72	53.1	12.0	5.5	0
	3.0	8.71	11.11	0	2.19	676	79.8	7.80	2.68	67.6	15.0	5.4	0
	4.5	12.73	16.22	0	2.19	963	109	7.71	2.60	96.3	20.6	5.3	0
200 x 75 x 25	2.3	6.95	8.852	0	2.33	545	69.7	7.85	2.81	54.5	13.5	5.8	0
	3.0	8.96	11.41	0	2.33	694	87.5	7.80	2.77	69.4	16.9	5.7	0
	4.0	11.70	14.95	0	2.32	895	110	7.74	2.72	89.5	21.3	5.7	0
	4.5	13.10	16.67	0	2.32	990	121	7.71	2.69	99.0	23.3	5.6	0
250 x 75 x 20	2.3	7.67	9.772	0	1.95	897	68.1	9.58	2.64	71.8	12.3	5.0	0
	3.0	9.90	12.61	0	1.95	1145	85.3	9.53	2.60	91.6	15.4	4.9	0
	4.0	13.00	16.55	0	1.95	1480	107	9.46	2.54	118	19.3	4.9	0
	4.5	14.50	18.47	0	1.95	1639	117	9.42	2.52	131	21.0	4.8	0
250 x 75 x 25	2.3	7.85	10.00	0	2.08	921	74.8	9.60	2.73	73.7	13.8	5.3	0
	3.0	10.10	12.91	0	2.08	1177	93.8	9.55	2.70	94.1	17.3	5.2	0
	4.0	13.30	16.95	0	2.07	1522	118	9.48	2.64	122	21.8	5.1	0
	4.5	14.90	18.92	0	2.07	1690	129	9.44	2.62	135	23.8	5.1	0

Grades:
JIS G 3350 SSC400

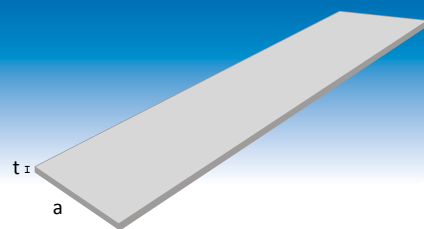
CHEQUERED PLATES



Thickness	Width x Length		
	4' x 8'	5' x 10'	5' x 20'
	1219mm x 2438mm	1524mm x 3048mm	1524mm x 6096mm
mm	Kg / Pc	Kg / Pc	Kg / Pc
2.5	63.35	99.17	198.35
3.0	75.02	117.40	234.81
4.0	98.35	153.87	307.75
4.5	110.00	172.11	344.22
5.0	121.70	190.35	380.69
6.0	145.00	226.81	453.63
8.0	191.72	299.75	599.50
9.0	215.06	336.22	672.44
10.0	238.38	372.69	745.38
12.0	285.08	445.63	891.26

Grades:
ASTM A36
JIS G 3101 SS400

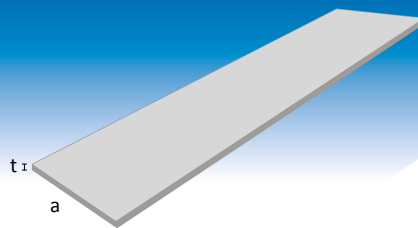
FLAT BARS



Standard Sectional Dimension		Unit Weight	Sectional Area
(mm) a	Thickness t (mm)		A
		Kg/m	cm ²
12	3	0.283	0.360
16		0.377	0.480
19		0.447	0.570
25		0.589	0.750
32		0.754	0.960
38		0.895	1.14
50		1.18	1.50
65		1.53	1.95
75		1.77	2.25
100		2.36	3.00
12	4	0.377	0.48
15		0.471	0.60
18		0.565	0.72
25		0.785	1.00
25	4.5	0.883	1.13
32		1.13	1.44
35		1.24	1.58
38		1.34	1.71
44		1.55	1.98
50		1.77	2.25
65		2.30	2.93
75		2.65	3.38
100		3.553	4.50
25	5	0.981	1.25
32		1.256	1.60
38		1.492	1.90
50		1.963	2.50
25	6	1.18	1.50
32		1.51	1.92
35		1.65	2.10
38		1.79	2.28
40		1.88	2.40
44		2.07	2.64
50		2.36	3.00
65		3.06	3.90
75		3.53	4.50
90		4.24	5.40
100		4.71	6.00
125		5.89	7.50
150		7.065	9.00
175		8.24	10.5
200		9.42	12.0

Standard Sectional Dimension		Unit Weight	Sectional Area
(mm) a	Thickness t (mm)		A
		Kg/m	cm ²
25	8	1.57	2.00
32		2.01	2.56
38		2.39	3.04
44		2.76	3.52
50		3.14	4.00
65		4.08	5.20
75		4.71	6.00
90		5.65	7.20
100		6.28	8.00
125		7.85	10.0
150		9.42	12.0
200		12.56	16.0
19	9	1.34	1.71
25		1.77	2.25
32		2.26	2.88
38		2.68	3.42
44		3.11	3.96
50		3.53	4.50
65		4.59	5.85
75		5.30	6.75
90		6.36	8.10
100		7.065	9.00
125		8.83	11.3
150		10.60	13.5
180		12.72	16.2
200		14.13	18.0
250		17.66	22.5
300		21.20	27.0
50	10	3.93	5.0
65		5.10	6.5
75		5.88	7.5
125		9.80	12.50
130		10.20	13.0
150		11.77	15.0

FLAT BARS



Standard Sectional Dimension		Unit Weight	Sectional Area
(mm) a	Thickness t (mm)		A
(mm) a	Thickness t (mm)	Kg/m	cm²
25	12	2.36	3.70
32		3.01	3.84
38		3.58	4.56
40		3.77	4.80
44		4.14	5.28
50		4.71	6.00
65		6.12	7.80
75		7.065	9.00
90		8.48	10.8
100		9.42	12.0
125		11.78	15.0
150		14.13	18.0
180		16.96	21.6
200		18.84	24.0
250		23.55	30.0
300		28.26	36.0
25	16	3.14	4.00
32		4.02	5.12
38		4.77	6.08
50		6.28	8.00
65		8.16	10.4
75		9.42	12.0
90		11.30	14.4
100		12.56	16.0
125		15.70	20.0
150		18.84	24.0
200		25.12	32.0
38	19	5.67	7.2
50		7.46	9.5
65		9.69	12.4
75		11.19	14.3
90		13.42	17.1
100		14.92	19.0
125		18.64	23.8
150		22.37	28.5
200	25	29.83	38.0
250		37.29	47.5
300		44.75	57.0

Standard Sectional Dimension		Unit Weight	Sectional Area
(mm) a	Thickness t (mm)		A
(mm) a	Thickness t (mm)	Kg/m	cm ²
50	25	9.81	12.5
65		12.76	16.3
75		14.72	18.8
90		17.66	22.5
100		19.63	25.0
125		24.53	31.3
130		25.51	32.5
150		29.44	37.5
300		58.87	75

Grades:
 EN 10025 S275JR
 ASTM A36
 JIS G 3101 SS400

GALVANISED SHEETS

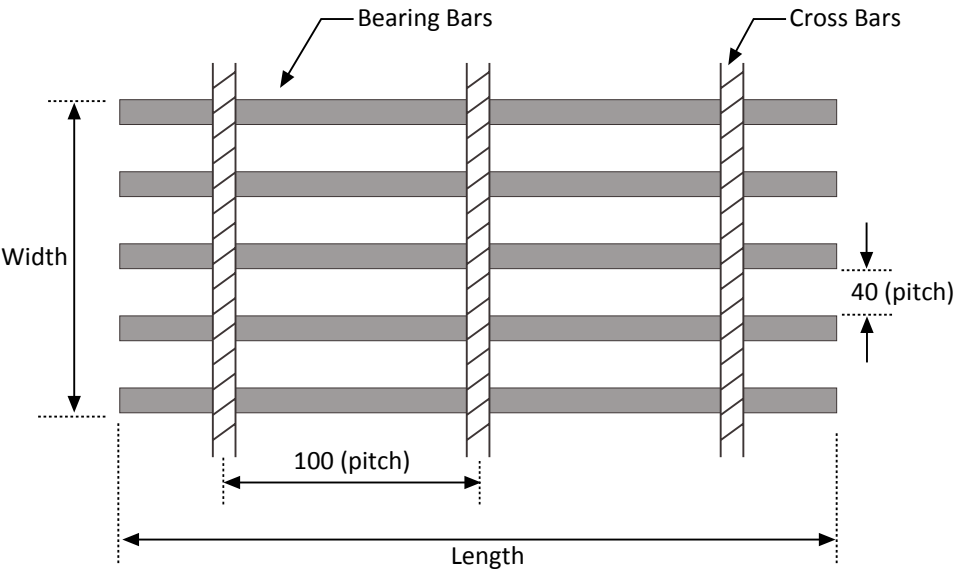
Thickness	Width x Length
	4' x 8'
	1219mm x 2438mm
mm	Kg / Pc
0.8	19.60
0.9	21.90
1.0	24.25
1.1	26.70
1.2	29.14
1.4	32.81
1.5	36.14
1.6	38.50
1.8	43.14
1.9	45.48
2	47.81
2.3	54.81
2.5	59.25
3	71.10
4	94.50

Grades:
JIS G 3302
ASTM A653M

GRATINGS

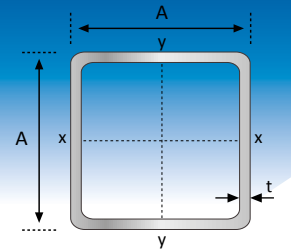
Panel Size	Serial Size	Mass	Pitch	Type
ft	inch	kg/m ²	mm	
3' x 20'	1" x 3/16"	28.4	40 x 100	twisted / straight cross / round bar
	1 1/4" x 3/16"	35.4		
	1 1/2" x 3/16"	43.2		
	2" x 3/16"	53		

Grades:
JIS G 3101 SS400



COLD FORMED HOLLOW SECTIONS

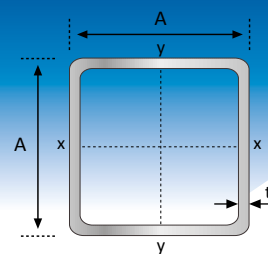
- SQUARE



Standard Sectional Dimension		Unit Weight	Sectional Area	Moment of Inertia		Section Modulus		Radius Of Gyration		Plastic Modulus	
			A	I _x	I _y	Z _x	Z _y	i _x	i _y	S _x	S _y
A x A	Thickness t (mm)	Kg/m	cm ²	cm ⁴	cm ⁴	cm ³	cm ³	cm	cm	cm ³	cm ³
16 x 16	1.0	0.464	0.591	0.221	0.221	0.276	0.276	0.611	0.611	0.331	0.331
	1.6	0.706	0.900	0.31	0.31	0.387	0.387	0.587	0.587	0.483	0.483
19 x 19	1.0	0.559	0.711	0.383	0.383	0.403	0.403	0.733	0.733	0.479	0.479
	1.2	0.661	0.842	0.443	0.443	0.466	0.466	0.725	0.725	0.56	0.56
25 x 25	1.2	0.887	1.13	1.06	1.06	0.85	0.85	0.97	0.97	1.01	1.01
	1.6	1.16	1.48	1.34	1.34	1.07	1.07	0.95	0.95	1.29	1.29
	2.3	1.60	2.04	1.75	1.75	1.40	1.40	0.93	0.93	1.73	1.73
	3.0	2.01	2.56	2.06	2.06	1.65	1.65	0.90	0.90	2.10	2.10
32 x 32	1.2	1.15	1.466	2.31	2.31	1.44	1.44	1.26	1.26	1.69	1.69
	1.6	1.51	1.92	2.95	2.95	1.84	1.84	1.24	1.24	2.19	2.19
	2.0	1.86	2.37	3.53	3.53	2.21	2.21	1.22	1.22	2.65	2.65
	2.3	2.11	2.69	3.93	3.93	2.46	2.46	1.21	1.21	2.98	2.98
	3.0	2.67	3.40	4.75	4.75	2.97	2.97	1.18	1.18	3.68	3.68
38 x 38	1.6	1.81	2.31	5.08	5.08	2.67	2.67	1.48	1.48	3.14	3.14
	2.0	2.23	2.85	6.12	6.12	3.22	3.22	1.47	1.47	3.83	3.83
	2.3	2.54	3.24	6.85	6.85	3.61	3.61	1.45	1.45	4.32	4.32
	3.0	3.24	4.12	8.38	8.38	4.41	4.41	1.43	1.43	5.38	5.38
50 x 50	1.6	2.41	3.08	12.0	12.0	4.79	4.79	1.97	1.97	5.57	5.57
	2.3	3.41	4.34	16.4	16.4	6.56	6.56	1.94	1.94	7.74	7.74
	3.0	4.25	5.41	19.5	19.5	7.79	7.79	1.90	1.90	9.39	9.39
	4.0	5.45	6.95	23.7	23.7	9.49	9.49	1.85	1.85	11.7	11.7
	4.5	6.02	7.67	25.5	25.5	10.2	10.2	1.82	1.82	12.8	12.8
	6.0	7.56	9.63	29.5	29.5	11.8	11.8	1.75	1.75	15.3	15.3
65 x 65	2.3	4.42	5.63	36.4	36.4	11.2	11.2	2.54	2.54	13.1	13.1
	3.0	5.66	7.21	45.4	45.4	14.0	14.0	2.51	2.51	16.6	16.6
	4.0	7.34	9.35	56.6	56.6	17.4	17.4	2.46	2.46	21.0	21.0
	4.5	8.14	10.37	61.6	61.6	18.9	18.9	2.44	2.44	23.1	23.1
	5.0	8.92	11.36	66.1	66.1	20.3	20.3	2.41	2.41	25.0	25.0
	6.0	10.40	13.23	73.9	73.9	22.7	22.7	2.36	2.36	28.5	28.5
75 x 75	2.3	5.14	6.55	57.1	57.1	15.2	15.2	2.95	2.95	17.7	17.7
	3.0	6.60	8.41	71.6	71.6	19.1	19.1	2.92	2.92	22.5	22.5
	4.0	8.60	10.95	90.2	90.2	24.0	24.0	2.87	2.87	28.8	28.8
	4.5	9.55	12.17	98.6	98.6	26.3	26.3	2.85	2.85	31.7	31.7
	6.0	12.30	15.63	120.0	120.0	32.0	32.0	2.77	2.77	39.6	39.6
100 x 100	2.3	6.95	8.85	140	140	27.9	27.9	3.97	3.97	32.3	32.3
	3.0	8.96	11.41	177	177	35.4	35.4	3.94	3.94	41.2	41.2
	4.0	11.70	14.95	226	226	45.3	45.3	3.89	3.89	53.3	53.3
	4.5	13.10	16.67	249	249	49.9	49.9	3.87	3.87	59.0	59.0
	6.0	17.00	21.63	311	311	62.3	62.3	3.79	3.79	75.1	75.1
	9.0	24.10	30.00	391	391	78.1	78.1	3.61	3.61	98.6	98.6

COLD FORMED HOLLOW SECTIONS

- SQUARE

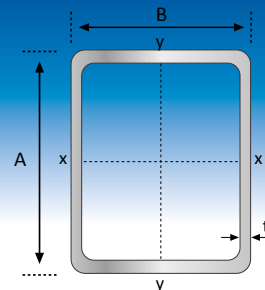


Standard Sectional Dimension		Unit Weight	Sectional Area	Moment of Inertia		Section Modulus		Radius Of Gyration		Plastic Modulus	
			A	I _x	I _y	Z _x	Z _y	i _x	i _y	S _x	S _y
A x A	Thickness t (mm)	Kg/m	cm ²	cm ⁴	cm ⁴	cm ³	cm ³	cm	cm	cm ³	cm ³
125 x 125	3.0	11.30	14.41	354	354	56.7	56.7	4.96	4.96	65.6	65.6
	4.5	16.60	21.17	506	506	80.9	80.9	4.89	4.89	94.8	94.8
	6.0	21.70	27.63	641	641	103	103	4.82	4.82	122	122
	9.0	31.10	39.00	838	838	134	134	4.64	4.64	165	165
150 x 150	3.0	13.70	17.41	623	623	83	83	5.98	5.98	95.5	95.5
	4.0	18.00	22.95	808	808	108	108	5.93	5.93	125	125
	4.5	20.20	25.67	896	896	120	120	5.91	5.91	139	139
	6.0	26.40	33.63	1146	1146	153	153	5.84	5.84	180	180
	9.0	38.20	48.00	1540	1540	205	205	5.66	5.66	248	248
200 x 200	6.0	35.82	45.63	2832.9	2832.9	283.3	283.3	7.88	7.88	329.7	329.7
	9.0	52.34	66.68	3988.8	3988.8	398.9	398.9	7.73	7.73	472.4	472.4
	12.0	67.93	86.54	4983.9	4983.9	498.4	498.4	7.59	7.59	600.9	600.9
250 x 250	6.0	45.24	57.63	5672.2	5672.2	453.8	453.8	9.92	9.92	524.5	524.5
	9.0	66.47	84.68	8093.6	8093.6	647.5	647.5	9.78	9.78	758.8	758.8
	12.0	86.77	110.54	10254.8	10254.8	820.4	820.4	9.63	9.63	975.0	975.0
	16.0	112.39	143.18	12752.3	12752.3	1020.2	1020.2	9.44	9.44	1235.9	1235.9
300 x 300	9.0	80.60	102.68	14314.3	14314.3	956.1	956.1	11.82	11.82	1112.7	1112.7
	12.00	105.61	134.54	18335.4	18335.4	1222.4	1222.4	11.67	11.67	1439.1	1439.1
	16.0	137.51	175.18	23089.4	23089.4	1539.3	1539.3	11.48	11.48	1841.0	1841.0

Grades:
 ASTM A500 Grade A / B
 EN 10219 S275J0H, S275J2H
 EN10025 S275JR

COLD FORMED HOLLOW SECTIONS

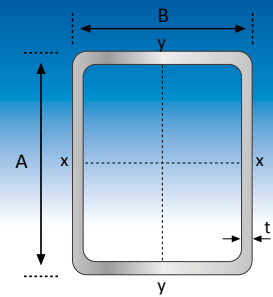
- RECTANGULAR



Standard Sectional Dimension		Unit Weight	Sectional Area	Moment of Inertia		Section Modulus		Radius Of Gyration		Plastic Modulus	
			A	I _x	I _y	Z _x	Z _y	i _x	i _y	S _x	S _y
A x B	Thickness t (mm)	Kg/m	cm ²	cm ⁴	cm ⁴	cm ³	cm ³	cm	cm	cm ³	cm ³
38 x 19	1.6	1.33	1.700	3.060	1.010	1.610	1.060	1.340	0.771	2.080	1.260
	3	2.22	--	--	--	--	--	--	--	--	--
50 x 25	1.6	1.79	2.28	7.29	2.44	2.91	1.95	1.79	1.03	3.69	2.25
	2.3	2.51	3.19	9.86	3.23	3.94	2.59	1.76	1.01	5.11	3.09
	3.0	3.19	4.06	12.10	3.89	4.84	3.11	1.73	0.98	6.43	3.84
65 x 38	1.6	2.49	3.17	18.30	7.94	5.63	4.18	2.40	1.58	6.91	4.75
	2.3	3.52	4.48	25.20	10.80	7.74	5.69	2.37	1.55	9.68	6.62
	3.0	4.39	5.29	29.80	12.80	9.18	6.75	2.31	1.51	12.30	8.36
75 x 38	1.6	2.71	3.45	25.30	8.85	6.76	4.66	2.71	1.60	8.59	5.34
	2.3	3.81	4.85	34.60	12.00	9.23	6.30	2.67	1.57	12.10	7.44
	3.0	4.86	6.19	42.80	14.70	11.40	7.72	2.63	1.54	15.30	9.41
75 x 50	1.9	3.54	4.51	35.50	19.10	9.48	7.62	2.81	2.05	11.80	8.88
	2.3	4.24	5.40	41.90	22.40	11.20	8.96	2.79	2.04	14.10	10.60
	3.0	5.42	6.91	52.20	27.80	13.90	11.10	2.75	2.00	17.90	13.50
	4.5	7.79	9.92	70.60	37.20	18.80	14.90	2.67	1.94	25.70	19.10
	6.0	9.92	12.63	84.40	44.10	22.50	17.60	2.58	1.87	32.60	24.10
100 x 50	2.3	5.14	6.55	84.8	29.0	17.0	11.6	3.60	2.10	21.7	13.3
	3.0	6.60	8.41	106.0	36.1	21.3	14.4	3.56	2.07	27.8	17.0
	4.5	9.55	12.17	147.0	48.9	29.3	19.5	3.47	2.00	40.1	24.3
	6.0	12.30	15.63	179.0	58.7	35.7	23.5	3.38	1.94	51.4	30.7
100 x 75	3.0	7.78	9.91	142.0	91.1	28.4	24.3	3.78	3.03	35.1	28.7
	4.5	11.30	14.42	198.0	127.0	39.6	33.7	3.71	2.96	50.9	41.5
	6.0	14.60	18.63	245.0	156.0	49.0	41.6	3.63	2.89	65.5	53.3
125 x 50	3.0	7.78	9.91	187.0	44.4	29.9	17.7	4.34	2.12	39.5	20.5
	4.5	11.30	14.42	261.0	60.6	41.7	24.2	4.25	2.05	57.4	29.4
	6.0	14.60	18.63	322.0	73.3	51.5	29.3	4.16	1.98	74.0	37.3
125 x 75	2.3	6.95	8.85	191.5	87.5	30.6	23.3	4.65	3.14	37.0	26.1
	3.0	8.96	11.41	243.0	111.0	38.9	29.5	4.61	3.12	48.7	34.1
	4.5	13.10	16.67	342.0	155.0	54.8	41.2	4.53	3.04	70.9	49.5
	6.0	17.00	21.63	428.0	192.0	68.5	51.1	4.45	2.98	91.9	63.7
150 x 50	3.0	8.96	11.41	299.0	52.6	39.8	21.1	5.12	2.15	53.2	24.1
	4.5	13.10	16.67	420.0	72.2	56.0	28.9	5.02	2.08	77.5	34.5
	6.0	17.00	21.63	523.0	87.9	69.8	35.2	4.92	2.02	100.0	43.9
150 x 75	3.0	10.10	12.91	380.0	130.0	50.6	34.7	5.42	3.17	64.2	39.5
	4.5	14.90	18.92	539.0	183.0	71.9	48.7	5.34	3.11	93.8	57.4
	6.0	19.30	24.63	679.0	228.0	90.5	60.7	5.25	3.04	122.0	74.0
	9.0	27.60	35.17	905.0	297.0	121.0	79.2	5.07	2.91	172.0	105.0
150 x 100	3.0	11.31	14.41	460.7	247.6	61.4	49.5	5.65	4.15	73.5	55.8
	4.5	16.60	21.17	658.0	352.0	87.7	70.4	5.58	4.08	110.0	83.1
	5.0	18.30	23.36	719.0	384.0	95.9	76.8	5.55	4.05	122.0	91.5
	6.0	21.70	27.63	835.0	444.0	111.1	88.8	5.50	4.01	144.0	108.0
	9.0	31.10	39.67	1129.0	595.0	120.0	119.0	5.33	3.87	190.0	143.0

COLD FORMED HOLLOW SECTIONS

- RECTANGULAR



Standard Sectional Dimension		Unit Weight	Sectional Area	Moment of Inertia		Section Modulus		Radius Of Gyration		Plastic Modulus	
			A	I _x	I _y	Z _x	Z _y	i _x	i _y	S _x	S _y
A x B	Thickness t (mm)	Kg/m	cm ²	cm ⁴	cm ⁴	cm ³	cm ³	cm	cm	cm ³	cm ³
200 x 100	4.5	20.20	25.67	1331.0	455.0	133.0	90.9	7.20	4.21	170.0	105.0
	6.0	26.40	33.63	1703.0	577.0	170.0	115.0	7.12	4.14	222.0	136.0
	9.0	38.20	48.00	2280.0	764.0	228.0	153.0	6.89	3.99	293.0	180.0
200 x 150	4.5	23.70	30.17	1761.6	1134.6	176.2	151.3	7.64	6.13	208.9	171.8
	6.0	31.10	39.63	2268.1	1457.2	226.8	194.3	7.56	6.06	271.5	223.1
	9.0	45.30	57.68	3167.3	2024.9	316.7	270.0	7.41	5.93	386.4	316.9
	12.0	58.50	74.54	3167.3	2024.9	316.7	270.0	7.41	5.93	386.4	316.9
250 x 150	6.0	35.80	45.63	1768.4	3885.7	310.9	235.8	9.23	6.23	378.1	266.3
	9.0	52.30	66.68	2472.8	5478.7	438.3	329.7	9.06	6.09	541.9	380.4
	12.0	67.90	86.54	3068.3	6853.3	548.3	409.1	8.90	5.95	689.4	482.3
300 x 200	6.0	45.24	57.63	7370.5	3962.3	491.4	396.2	11.31	8.29	587.8	446.1
	9.0	66.47	84.68	10529.5	5631.6	702.0	563.2	11.15	8.16	850.8	644.3
	10.0	73.34	93.43	11507.9	6144.5	767.2	614.5	11.10	8.11	933.9	706.8
	12.0	86.77	110.54	13355.8	7107.4	890.4	710.7	10.99	8.02	1093.5	826.5
	16.0	112.39	143.18	16630.1	8792.2	1108.7	879.2	10.78	7.84	1386.6	1045.1

Grades:

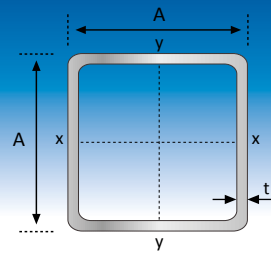
ASTM A500 Grade A / B

EN 10219 S275J0H, S275J2H

EN10025 S275JR

HOT FINISHED HOLLOW SECTIONS

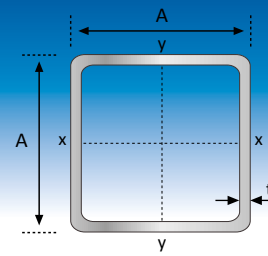
- SQUARE



Standard Sectional Dimension		Unit Weight	Sectional Area	Moment of Inertia	Radius Of Gyration	Elastic Modulus	Plastic Modulus	Torsional Constants		Surface Area Per Metre
			A	I	r	Z	S	J	C	
A x A	Thickness t (mm)	Kg/m	cm ²	cm ⁴	cm	cm ³	cm ³	cm ⁴	cm ³	m ² /m
50 x 50	3.2	4.66	5.88	21.2	1.9	8.49	10.2	33.8	12.4	0.192
	4	5.72	7.19	25	1.86	9.99	12.3	40.4	14.5	0.19
	5	6.97	8.73	28.9	1.82	11.6	14.5	47.6	16.7	0.187
	6	8.15	10.2	32	1.77	12.8	16.5	53.6	18.4	0.185
	6.3	8.49	10.6	32.8	1.76	13.1	17	55.2	18.8	0.184
60 x 60	3	5.39	6.74	36.2	2.32	12.1	14.3	56.9	17.7	0.232
	3.2	5.67	7.16	38.2	2.31	12.7	15.2	60.2	18.6	0.232
	4	6.97	8.79	45.4	2.27	15.1	18.3	72.5	22	0.23
	5	8.54	10.7	53.3	2.23	17.8	21.9	86.4	25.7	0.227
	6	10	12.6	59.9	2.18	20	25.1	98.6	28.8	0.225
	6.3	10.5	13.1	61.6	2.17	20.5	26	102	29.6	0.224
75 x 75	3.2	7.25	9.08	77.5	2.92	20.7	24.3	121	30.3	0.292
	4	8.93	11.2	93.2	2.89	24.8	29.6	147	36.3	0.29
	5	11	13.7	111	2.84	29.6	35.8	177	43	0.287
	6	12.9	16.2	126	2.8	33.7	41.4	204	48.9	0.285
	6.3	13.5	16.9	131	2.78	34.9	43	212	50.5	0.284
	8	16.6	20.8	152	2.71	40.5	51.3	252	58.4	0.279
	10	19.6	24.9	170	2.61	45.4	59.4	289	65.1	0.274
80 x 80	3	7.18	9.14	89.8	3.13	22.5	26.3	140	33	0.312
	3.2	7.15	9.56	92.7	3.11	23.2	27.3	148	34.9	0.309
	5	11.7	14.7	137	3.05	34.2	41.1	217	49.8	0.307
	6	13.8	17.4	156	3	39.1	47.8	252	56.8	0.305
	6.3	14.4	18.1	162	2.99	40.5	49.7	262	58.7	0.304
	8	17.8	22.4	189	2.91	47.3	59.5	312	68.3	0.299
	10	21.1	26.9	214	2.82	53.5	69.3	360	76.8	0.294
90 x 90	3.6	9.72	12.3	152	3.52	33.8	39.7	237	49.7	0.351
	5	13.3	16.7	200	3.45	44.4	53	316	64.8	0.347
	6	15.7	19.8	230	3.41	51.1	61.8	367	74.3	0.345
	6.3	16.4	20.7	238	3.4	53	64.3	382	77	0.344
	8	20.4	25.6	281	3.32	62.6	77.6	459	90.5	0.339
	10	24.3	30.9	322	3.23	71.6	91.3	536	103	0.334
100 x 100	4	12	15.2	232	3.91	46.4	54.4	361	68.2	0.39
	5	14.8	18.7	279	3.86	55.9	66.4	439	81.8	0.387
	6	17.6	22.2	323	3.82	64.6	77.6	513	94.3	0.385
	6.3	18.4	23.2	336	3.8	67.1	80.9	534	97.8	0.384
	8	22.9	28.8	400	3.73	79.9	98.2	646	116	0.379
	10	27.9	34.9	462	3.64	92.4	116	761	133	0.374
	12	31.9	40.7	512	3.55	102	132	858	147	0.369
120 x 120	5	18	22.7	498	4.68	83	97.6	777	122	0.467
	6	21.3	27	579	4.63	96.6	115	911	141	0.465
	6.3	22.3	28.2	603	4.62	100	120	950	147	0.464
	8	27.9	35.2	726	4.55	121	146	1160	176	0.459
	10	34.2	42.9	852	4.46	142	175	1382	206	0.454
	12.5	41.6	52.1	982	4.34	164	207	1623	236	0.448

HOT FINISHED HOLLOW SECTIONS

- SQUARE

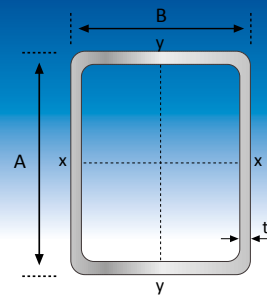


Standard Sectional Dimension		Unit Weight	Sectional Area	Moment of Inertia	Radius Of Gyration	Elastic Modulus	Plastic Modulus	Torsional Constants		Surface Area Per Metre
			A	I	r	Z	S	J	C	
A x A	Thickness t (mm)	Kg/m	cm ²	cm ⁴	cm	cm ³	cm ³	cm ⁴	cm ³	m ² /m
150 x 150	5	22.7	28.7	1002	5.9	134	156	1550	197	0.587
	6	27.00	34.2	1174	5.86	156	184	1828	230	0.585
	6.3	28.3	35.8	1223	5.85	163	192	1909	240	0.584
	8	35.4	44.8	1491	5.77	199	237	2351	291	0.579
	10	43.6	54.9	1773	5.68	236	286	2832	344	0.574
	12.5	52.4	67.1	2080	5.57	277	342	3375	402	0.568
	16	66.4	83	2430	5.41	324	411	4026	467	0.559
200 x 200	5	30.5	38.7	2445	7.95	245	283	3756	362	0.787
	6	36.4	46.2	2883	7.9	288	335	4449	426	0.785
	6.3	38.2	48.4	3011	7.89	301	350	4653	444	0.784
	8	48	60.8	3709	7.81	371	436	5778	545	0.779
	10	59.3	74.9	4471	7.72	447	531	7031	655	0.774
	12.5	73	92.1	5336	7.61	534	643	8491	778	0.768
	16	91.5	115	6394	7.46	639	785	10340	927	0.759
250 x 250	6	45.8	58.2	5752	9.94	460	531	8825	681	0.985
	6.3	48.1	61	6014	9.93	481	556	9238	712	0.984
	8	60.5	76.8	7455	9.86	596	694	11530	880	0.979
	10	75	94.9	9055	9.77	724	851	14110	1065	0.974
	12.5	92.6	117	10920	9.66	873	1037	17160	1279	0.968
	16	117	147	13270	9.5	1061	1280	21140	1546	0.959
300 x 300	6	55.1	70	10080	12	672	772	15407	997	1.18
	6.3	57.95	73.6	10550	12	703	809	16140	1043	1.18
	8	73.1	92.8	13130	11.9	875	1013	20190	1294	1.18
	9	81.93	104	14600	11.9	973	1130	22520	1437	1.18
	10	90.7	115	16030	11.8	1068	1246	24810	1575	1.17
	12	107.97	137	18780	11.7	1252	1470	29250	1840	1.17
	12.5	112	142	19440	11.7	1296	1525	30330	1904	1.17
	16	142	179	23850	11.5	1590	1895	37620	2325	1.16
350 x 350	6	64.5	82.2	16170	14	924	1058	24650	1373	1.38
	8	85.7	109	21130	13.9	1207	1392	32380	1789	1.38
	10	106	135	25880	13.9	1479	1715	39890	2185	1.37
	12	127	161	30440	13.8	1739	2030	47150	2563	1.37
	12.5	132	167	31540	13.7	1802	2107	48930	2654	1.37
	16	167	211	38940	13.6	2225	2630	60990	3264	1.36

Grades:
EN 10210 S355J2H

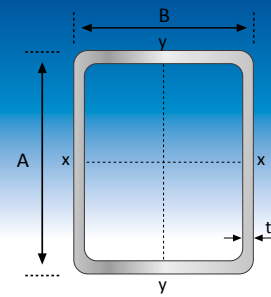
HOT FINISHED HOLLOW SECTIONS

- RECTANGULAR



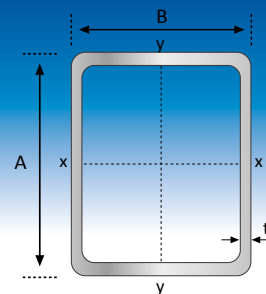
Standard Sectional Dimension		Unit Weight	Sectional Area	Moment of Inertia		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Torsional Constants		Surface Area Per Metre
				Axis	Axis	Axis	Axis	Axis	Axis	Axis	Axis			
			A	x-x	y-y	x-x	y-y	x-x	y-y	x-x	y-y	J	C	
A x B	Thickness t (mm)	Kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³	m ² /m
60 x 40	3	4.39	5.54	26.5	13.9	2.18	1.58	8.82	6.95	10.9	8.19	29.2	11.2	0.192
	3.2	4.66	5.88	27.8	14.6	2.18	1.57	9.27	7.29	11.5	8.64	30.8	11.7	0.192
	4	5.72	7.19	32.8	17	2.14	1.54	10.9	8.52	13.8	10.3	36.7	13.7	0.190
	5	6.97	8.73	38.1	19.5	2.09	1.50	12.7	9.77	16.4	12.2	43	15.7	0.187
	6	8.15	10.2	42.3	21.4	2.04	1.45	14.1	10.7	18.6	13.7	48.2	17.3	0.185
	6.3	8.49	10.6	43.4	21.9	2.02	1.44	14.5	11	19.2	14.2	49.5	17.6	0.184
	8	10.00	12.8	47.9	23.7	1.94	1.36	16	11.9	22.1	16.1	55.4	19.2	0.179
80 x 40	3	5.34	6.74	54.2	18	2.84	1.63	13.6	9	17.1	10.4	43.8	15.3	0.232
	3.2	5.67	7.16	57.2	18.9	2.83	1.63	14.3	9.46	18	11	46.2	16.1	0.232
	4	6.97	8.79	68.2	22.2	2.79	1.59	17.1	11.1	21.8	13.2	55.2	18.9	0.230
	5	8.54	10.7	80.3	25.7	2.74	1.55	20.1	12.9	26.1	15.7	65.1	21.9	0.227
	6	10.00	12.6	90.5	28.5	2.68	1.50	22.6	14.2	30	17.8	73.4	24.2	0.225
	6.3	10.50	13.1	93.3	29.2	2.67	1.49	23.3	14.6	31.1	18.4	75.6	24.8	0.224
	8	12.80	16	106	32.1	2.58	1.42	26.5	16.1	36.5	21.2	85.8	27.4	0.219
100 x 50	3	6.75	8.54	110	36.8	3.58	2.08	21.9	14.7	27.3	16.8	88.4	25.0	0.292
	3.2	7.18	9.08	116	38.8	3.57	2.07	23.2	15.5	28.9	17.7	93.4	26.4	0.292
	4	8.86	11.2	140	46.2	3.53	2.03	27.9	18.5	35.2	21.5	113	31.4	0.290
	5	10.90	13.7	167	54.3	3.48	1.99	33.3	21.7	42.6	25.8	135	36.9	0.287
	6	12.90	16.2	190	61.2	3.43	1.95	38.1	24.5	49.4	29.7	154	41.6	0.285
	6.3	13.40	16.9	197	63.0	3.42	1.93	39.4	25.2	51.3	30.8	160	42.9	0.284
	8	16.60	20.8	230	71.7	3.33	1.86	46	28.7	61.4	36.3	186	48.9	0.279
	10	19.60	24.9	259	78.4	3.22	1.77	51.8	31.4	71.2	41.4	209	53.6	0.274
100 x 60	3	7.22	9.14	124	55.7	3.68	2.47	24.7	18.6	30.2	21.2	121	30.7	0.312
	3.6	8.59	10.9	145	64.8	3.65	2.44	28.9	21.6	35.6	24.9	142	35.6	0.311
	5	11.7	14.7	189	83.6	3.58	2.38	37.8	27.9	47.4	32.9	188	45.9	0.307
	6	13.8	17.4	217	95	3.53	2.34	43.4	31.7	55.1	38.1	216	52.1	0.305
	6.3	14.4	18.1	225	98.1	3.52	2.33	45	32.7	57.3	39.5	224	53.8	0.304
	8	17.8	22.4	264	113	3.44	2.25	52.8	37.8	68.7	47.1	265	62.2	0.299
120 x 60	3.6	9.72	12.3	227	76.3	4.3	2.49	37.9	25.4	47.2	28.9	183	43.3	0.351
	4	10.7	13.6	249	83.1	4.28	2.47	41.5	27.7	51.9	31.7	201	47.1	0.350
	5	13.3	16.7	299	98.8	4.23	2.43	49.9	32.9	63.1	38.4	242	56	0.347
	6	15.7	19.8	345	113	4.18	2.39	57.5	37.5	73.6	44.5	279	63.8	0.345
	6.3	16.4	20.7	358	116	4.16	2.37	59.7	38.8	76.7	46.3	290	65.9	0.344
	8	20.4	25.6	425	135	4.08	2.3	70.8	45	92.7	55.4	344	76.6	0.339
	10	24.3	30.9	488	152	3.97	2.21	81.4	50.5	109.2	64.4	396	86.1	0.334
120 x 80	5	14.8	18.7	365	193	4.42	3.21	60.9	48.2	74.6	56.1	401	77.9	0.387
	6	17.6	22.2	423	222	4.37	3.17	70.6	55.6	87.3	65.5	468	89.6	0.385
	6.3	18.4	23.2	440	230	4.36	3.15	73.3	57.6	91	68.2	487	92.9	0.384
	8	22.9	28.8	525	273	4.27	3.08	87.5	68.1	111	82.6	587	110	0.379
	10	27.9	34.9	609	313	4.18	2.99	102	78.1	131	97.3	688	126	0.374

HOT FINISHED HOLLOW SECTIONS - RECTANGULAR



Standard Sectional Dimension		Unit Weight	Sectional Area	Moment of Inertia		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Torsional Constants		Surface Area Per Metre
				Axis	Axis	Axis	Axis	Axis	Axis	Axis	Axis			
			A	x-x	y-y	x-x	y-y	x-x	y-y	x-x	y-y	J	C	
A x B	Thickness t (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
150 x 100	5	18.7	23.7	739	392	5.58	4.07	98.5	78.5	119	90.1	807	127	0.487
	6	22.3	28.2	862	456	5.53	4.02	115	91.2	141	106	946	147	0.485
	6.3	23.3	29.5	898	474	5.52	4.01	120	94.8	147	110	986	153	0.484
	8	29.1	36.8	1087	569	5.44	3.94	145	114	180	135	1203	183	0.479
	10	35.7	44.9	1282	665	5.34	3.85	171	133	216	161	1432	214	0.474
	12	41.4	52.7	1450	745	5.25	3.76	193	149	249	185	1633	240	0.469
	12.5	42.8	54.6	1488	763	5.22	3.74	198	153	256	190	1679	246	0.468
200 x 100	5	22.6	28.7	1495	505	7.21	4.19	149	101	185	114	1204	172	0.587
	6	27	34.2	1754	589	7.16	4.15	175	118	218	134	1414	200	0.585
	6.3	28.3	35.8	1829	613	7.15	4.14	183	123	228	140	1475	208	0.584
	8	35.4	44.8	2234	739	7.06	4.06	223	148	282	172	1804	251	0.579
	10	43.6	54.9	2664	869	6.96	3.98	266	174	341	206	2156	295	0.574
	12	50.8	64.7	3047	979	6.86	3.89	305	196	395	237	2469	333	0.569
	12.5	53.4	67.1	3136	1004	6.84	3.87	314	201	408	245	2541	341	0.568
	16	66.4	83.0	3678	1147	6.66	3.72	368	229	491	290	2982	391	0.559
200 x 150	6	31.7	40.2	2318	1485	7.6	6.08	232	198	277	227	2820	313	0.685
	6.3	33.22	42.1	2420	1549	7.58	6.07	242	207	289	237	2947	326	0.684
	8	41.7	52.8	2971	1894	7.5	5.99	297	253	359	294	3643	398	0.679
	9	46.6	58.9	3276	2084	7.46	5.95	328	278	398	325	4033	437	0.677
	10	51.4	64.9	3568	2264	7.41	5.91	357	302	436	356	4409	475	0.674
	12	60.9	76.7	4109	2596	7.32	5.82	411	346	508	414	5119	543	0.669
	12.5	63.2	79.6	4236	2673	7.3	5.8	424	356	525	428	5287	559	0.668
250 x 150	6	36.4	46.2	3965	1796	9.27	6.24	317	239	385	270	3877	396	0.785
	6.3	38.00	48.4	4143	1874	9.25	6.22	331	250	402	283	4054	413	0.784
	8	48	60.8	5111	2298	9.17	6.15	409	306	501	350	5021	506	0.779
	10	59.3	74.9	6174	2755	9.08	6.06	494	367	611	426	6090	605	0.774
	12.5	73	92.1	7387	3265	8.96	5.96	591	435	740	514	7326	717	0.768
	16	91.5	115	8879	3873	8.79	5.8	710	516	906	625	8868	849	0.759
300 x 100	5	30.52	38.7	4146	731	10.3	4.34	276	146	354	161	2040	262	0.787
	6	36.2	46.2	4893	854	10.3	4.3	326	171	419	190	2399	306	0.785
	6.3	38	48.4	5111	890	10.3	4.29	341	178	439	199	2504	319	0.784
	8	48.00	61.1	6386	1087	10.2	4.22	426	217	551	247	3066	387	0.780
	10	58.80	74.9	7613	1275	10.1	4.13	508	255	666	296	3676	458	0.774
	12	70.30	88.7	8818	1447	9.97	4.04	588	289	779	343	4223	520	0.769
	16	91.50	117	11240	1747	9.82	3.87	749	349	1008	431	5142	620	0.769
300 x 200	6	45.80	58.2	7486	4013	11.3	8.31	499	401	596	451	8100	651	0.985
	6.3	48.10	61	7829	4193	11.3	8.29	522	419	624	472	8476	681	0.984
	8	60.50	76.8	9717	5184	11.3	8.22	648	518	779	589	10560	840	0.979
	10	75.00	94.9	11820	6278	11.2	8.13	788	628	956	721	12910	1015	0.974
	12	89.15	113	13800	7294	11.1	8.05	920	729	1124	847	15140	1178	0.969
	12.5	92.60	117	14270	7537	11	8.02	952	754	1165	877	15680	1217	0.968
	16	117.00	147	17390	9109	10.9	7.87	1159	911	1441	1080	19250	1468	0.959

HOT FINISHED HOLLOW SECTIONS - RECTANGULAR

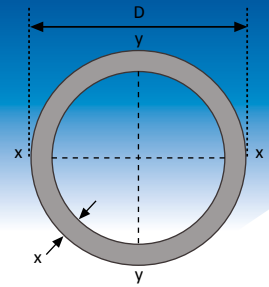


Standard Sectional Dimension		Unit Weight	Sectional Area	Moment of Inertia		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Torsional Constants		Surface Area Per Metre
				Axis	Axis	Axis	Axis	Axis	Axis	Axis	Axis			
			A	x-x	y-y	x-x	y-y	x-x	y-y	x-x	y-y	J	C	
A x B	Thickness t (mm)	Kg/m	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	cm ⁴	cm ³	m ² /m
300 x 250	6.3	53.00	67.5	9239	6984	11.7	10.2	616	559	720	636	12140	862	1.082
	8	66.80	85.1	11500	8682	11.6	10.1	767	695	902	796	15170	1067	1.077
	10	82.80	106	14050	10580	11.5	10	937	847	1109	978	18600	1295	1.071
	12.5	102.00	130	17050	12810	11.4	9.91	1137	1025	1358	1196	22680	1561	1.065
	16	129.00	165	20930	15670	11.3	9.76	1395	1254	1689	1485	28020	1898	1.055
350 x 150	6.3	48.10	61	9551	2537	12.5	6.44	546	338	680	375	6383	587	0.974
	8	60.50	77	11880	3125	12.4	6.36	679	417	851	467	7917	721	0.974
	10	75.00	94.9	14320	3737	12.3	6.27	818	498	1035	566	9633	867	0.974
	12.5	92.60	117	17300	4450	12.2	6.17	988	593	1263	686	11620	1032	0.968
	16	117.00	149	21500	5386	12	6.02	1229	718	1586	850	14110	1235	0.968
350 x 250	8	73.10	93	16560	9854	13.3	10.3	946	788	1124	892	19010	1255	1.180
	10	90.70	116	20270	12020	13.2	10.2	1158	963	1385	1098	23330	1526	1.180
	12.5	112.00	143	24680	14580	13.1	10.1	1410	1166	1700	1345	28490	1843	1.180
	16	142.00	181	30440	17860	13	9.95	1739	1429	2121	1672	35280	2248	1.180

Grades:
EN 10210 S355J2H

HOT FINISHED HOLLOW SECTIONS

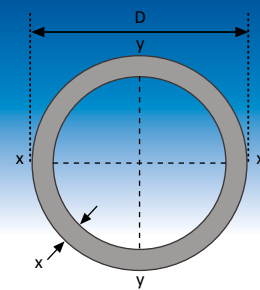
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Standard Sectional Dimension		Unit Weight	Sectional Area	Moment of Inertia	Radius Of Gyration	Elastic Modulus	Plastic Modulus	Torsional Constants		Surface Area Per Metre
			A	I	r	Z	S	J	C	
Outside Diameter (mm)	Thickness t (mm)	Kg/m	cm ²	cm ⁴	cm	cm ³	cm ³	cm ⁴	cm ³	m ² /m
88.9	2.5	5.33	6.79	63.4	3.06	14.3	18.7	127	28.5	0.279
	3.0	6.36	8.1	74.8	3.04	16.8	22.1	150	33.6	0.279
	3.2	6.76	8.62	79.2	3.03	17.8	23.5	158	35.6	0.279
	3.6	7.57	9.65	87.9	3.02	19.8	26.2	176	39.5	0.279
	4.0	8.38	10.7	96.3	3.00	21.7	28.9	193	43.3	0.279
	5.0	10.35	13.2	116	2.97	26.2	35.2	233	52.4	0.279
	6.0	12.27	15.6	135	2.94	30.4	41.3	270	60.7	0.279
	6.3	12.83	16.3	140	2.93	31.5	43.1	280	63.1	0.279
	8.0	15.96	20.3	168	2.87	37.8	52.5	336	75.6	0.279
	10.0	19.46	24.8	196	2.81	44.1	62.6	392	88.2	0.279
	12.0	22.76	29.0	220	2.75	49.4	71.5	439	98.8	0.279
	14.0	25.86	32.9	239	2.69	53.8	79.5	478	108	0.279
101.6	3.6	8.70	11.1	133	3.47	26.2	34.6	266	52.5	0.319
	5.0	11.91	15.2	177	3.42	34.9	46.7	355	69.9	0.319
	6.3	14.81	18.9	215	3.38	42.3	57.3	430	84.7	0.319
	8.0	18.47	23.5	260	3.32	51.1	70.3	519	102	0.319
	10.0	22.59	28.8	305	3.26	60.1	84.2	611	120	0.319
	12.0	26.52	33.8	345	3.20	67.9	96.9	690	136	0.319
	14.0	30.24	38.5	379	3.14	74.6	108	758	149	0.319
114.3	3.0	8.23	10.5	163	3.94	28.4	37.2	325	56.9	0.359
	3.2	8.77	11.2	172	3.93	30.2	39.5	345	60.4	0.359
	3.6	9.83	12.5	192	3.92	33.6	44.1	384	67.2	0.359
	4.0	10.88	13.9	211	3.90	36.9	48.7	422	73.9	0.359
	5.0	13.48	17.2	257	3.87	45.0	59.8	514	89.9	0.359
	6.0	16.03	20.4	300	3.83	52.5	70.4	600	105	0.359
	6.3	16.78	21.4	313	3.82	54.7	73.6	625	109	0.359
	8.0	20.97	26.7	379	3.77	66.4	90.6	759	133	0.359
	10.0	25.72	32.8	450	3.70	78.7	109	899	157	0.359
	12.0	30.27	38.6	511	3.64	89.5	126	1023	179	0.359
	14.0	34.63	44.1	566	3.58	99	142	1131	198	0.359
	16.0	38.79	49.4	613	3.52	107	156	1225	214	0.359
139.7	4.0	13.39	17.1	393	4.80	56.2	73.7	786	112	0.439
	5.0	16.61	21.2	481	4.77	68.8	90.8	961	138	0.439
	6.0	19.78	25.2	564	4.73	80.8	107	1129	162	0.439
	6.3	20.73	26.4	589	4.72	84.3	112	1177	169	0.439
	8.0	25.98	33.1	720	4.66	103	139	1441	206	0.439
	10.0	31.99	40.7	862	4.60	123	169	1724	247	0.439
	12.0	37.79	48.1	990	4.53	142	196	1980	283	0.439
	14.0	43.40	55.3	1105	4.47	158	222	2211	317	0.439

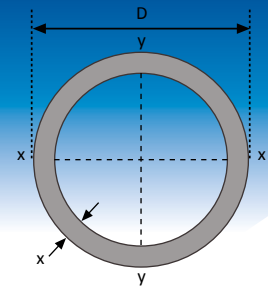
HOT FINISHED HOLLOW SECTIONS

- CIRCULAR



Standard Sectional Dimension		Unit Weight	Sectional Area	Moment of Inertia	Radius Of Gyration	Elastic Modulus	Plastic Modulus	Torsional Constants		Surface Area Per Metre
			A	I	r	Z	S	J	C	
Outside Diameter (mm)	Thickness t (mm)	Kg/m	cm ²	cm ⁴	cm	cm ³	cm ³	cm ⁴	cm ³	m ² /m
168.3	3.2	13.03	16.6	566	5.84	67.2	87.2	1131	134	0.529
	3.6	14.62	18.6	632	5.82	75.1	97.7	1264	150	0.529
	4.0	16.21	20.6	697	5.81	82.8	108	1394	166	0.529
	4.5	18.18	23.2	777	5.79	92.4	121	1554	185	0.529
	5.0	20.14	25.7	856	5.78	102	133	1712	203	0.529
	6.0	24.02	30.6	1009	5.74	120	158	2017	240	0.529
	6.3	25.17	32.1	1053	5.73	125	165	2107	250	0.529
	8.0	31.63	40.3	1297	5.67	154	206	2595	308	0.529
	10.0	39.04	49.7	1564	5.61	186	251	3128	372	0.529
	12.0	46.26	58.9	1810	5.54	215	294	3620	430	0.529
	12.5	48.03	61.2	1868	5.53	222	304	3737	444	0.529
	14.0	53.27	67.9	2036	5.48	242	334	4073	484	0.529
193.7	5.0	23.27	29.6	1320	6.67	136	178	2640	273	0.609
	6.0	27.77	35.4	1560	6.64	161	211	3119	322	0.609
	6.3	29.12	37.1	1630	6.63	168	221	3260	337	0.609
	8.0	36.64	46.7	2016	6.57	208	276	4031	416	0.609
	10.0	45.30	57.7	2442	6.5	252	338	4883	504	0.609
	12.0	53.77	68.5	2839	6.44	293	397	5678	586	0.609
	12.5	55.86	71.2	2934	6.42	303	411	5869	606	0.609
	14.0	62.04	79	3210	6.37	331	453	6419	663	0.609
	16.0	70.12	89.3	3554	6.31	367	507	7109	734	0.609
219.1	5.0	26.40	33.6	1928	7.57	176	229	386	352	0.688
	6.0	31.53	40.2	2282	7.54	208	273	4564	417	0.688
	6.3	33.06	42.1	2386	7.53	218	285	4772	436	0.688
	8.0	41.65	53.1	2960	7.47	270	357	5919	540	0.688
	10.0	51.57	65.7	3598	7.4	328	438	7197	657	0.688
	12.0	61.29	78.1	4200	7.33	383	515	8400	767	0.688
	12.5	63.69	81.1	4345	7.32	397	534	8689	793	0.688
	16.0	80.14	102	5297	7.2	483	661	10590	967	0.688
	20.0	98.20	125	6261	7.07	572	795	12520	1143	0.688
273	5.0	33.05	42.1	3781	9.48	277	359	7562	554	0.858
	6.0	39.51	50.3	4487	9.44	329	428	8974	657	0.858
	6.3	41.44	52.8	4696	9.43	344	448	9392	688	0.858
	8.0	52.28	66.6	5852	9.37	429	562	11700	857	0.858
	10.0	64.86	82.6	7154	9.31	524	692	14310	1048	0.858
	12.0	77.24	98.4	8396	9.24	615	818	16790	1230	0.858
	12.5	80.30	102	8697	9.22	637	849	17400	1274	0.858
	14.0	89.42	114	9580	9.17	702	940	19160	1404	0.858
	14.2	90.63	115	9695	9.16	710	952	19390	1421	0.858
	16.0	101.41	129	10710	9.1	784	1058	21410	1569	0.858
	20.0	124.79	159	12800	8.97	938	1283	25600	1875	0.858
	25.0	152.90	195	15130	8.81	1108	1543	30250	2216	0.858

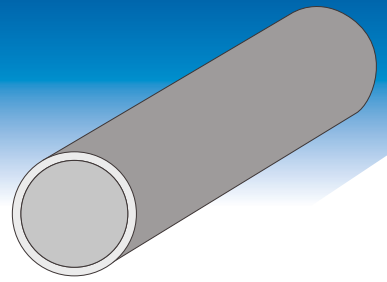
HOT FINISHED HOLLOW SECTIONS – CIRCULAR



Standard Sectional Dimension		Unit Weight	Sectional Area	Moment of Inertia	Radius Of Gyration	Elastic Modulus	Plastic Modulus	Torsional Constants		Surface Area Per Metre
			A	I	r	Z	S	J	C	
Outside Diameter (mm)	Thickness t (mm)	Kg/m	cm ²	cm ⁴	cm	cm ³	cm ³	cm ⁴	cm ³	m ² /m
323.9	5.0	39.32	50.1	6369	11.3	393	509	12740	787	1.02
	6.0	47.04	59.9	7572	11.2	468	606	15150	935	1.02
	6.3	49.34	62.9	7929	11.2	490	636	15860	979	1.02
	8.0	62.32	79.4	9910	11.2	612	799	19820	1224	1.02
	10.0	77.41	98.6	12160	11.1	751	986	24320	1501	1.02
	12.0	92.30	118	14320	11	884	1168	28640	1768	1.02
	12.5	95.99	122	14850	11	917	1213	29690	1833	1.02
	14.0	107.00	136	16400	11	1012	1345	32790	2025	1.02
	14.2	108.45	138	16600	11	1025	1363	33200	2050	1.02
	16.0	121.49	155	18390	10.9	1136	1518	36780	2271	1.02
355.6	6.0	51.73	65.9	10070	12.4	566	733	20140	1133	1.12
	6.3	54.27	69.1	10550	12.4	593	769	21090	1186	1.12
	8.0	68.58	87.4	13200	12.3	742	967	26400	1485	1.12
	10.0	85.23	109	16220	12.2	912	1195	32450	1825	1.12
	12.0	101.68	130	19140	12.2	1076	1417	38280	2153	1.12
	12.5	105.77	135	19850	12.1	1117	1472	39700	2233	1.12
	14.0	117.94	150	21950	12.1	1235	1635	43900	2469	1.12
	16.0	134.00	171	24460	12	1387	1847	49330	2774	1.12

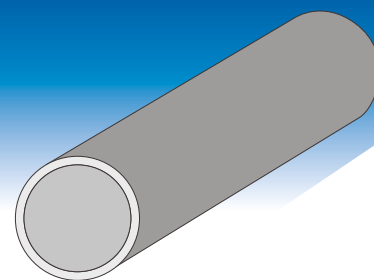
Grades:
EN 10210 S355J2H

WELDED STEEL PIPES



Class	Nominal Size		Outside Diameter		Wall Thickness	Unit Weight
			Maximum	Minimum		Plain End
	mm	Inch	mm	mm	mm	Kg/m
Class A	15	1/2	21.4	21.0	2.0	0.947
	20	3/4	26.9	26.4	2.3	1.38
	25	1	33.8	33.2	2.6	1.98
	32	1 1/4	42.5	41.9	2.6	2.54
	40	1 1/2	48.4	47.8	2.9	3.23
	50	2	60.2	59.6	2.9	4.08
	65	2 1/2	76.0	75.2	3.2	5.71
	80	3	88.7	87.9	3.2	6.72
	100	4	113.9	113.0	3.6	9.75
Class B	15	1/2	21.7	21.1	2.6	1.21
	20	3/4	27.2	26.6	2.6	1.56
	25	1	34.2	33.4	3.2	2.41
	32	1 1/4	42.9	42.1	3.2	3.1
	40	1 1/2	48.8	48.0	3.2	3.57
	50	2	60.8	59.8	3.6	5.03
	65	2 1/2	76.6	75.4	3.6	6.43
	80	3	89.5	88.1	4.0	8.37
	100	4	114.9	113.3	4.5	12.2
	125	5	140.6	138.7	5.0	16.6
	150	6	166.1	164.1	5.0	19.7
	200	8	216.3	218.0	5.8	30.1
	250	10	267.4	269.5	6.6	42.4
	300	12	318.5	321.0	6.9	53
	350	14	355.6	358.4	7.9	67.7
	400	16	406.4	409.7	7.9	77.6
Class C	15	1/2	21.7	21.1	3.2	1.44
	20	3/4	27.2	26.6	3.2	1.87
	25	1	34.2	33.4	4.0	2.94
	32	1 1/4	42.9	42.1	4.0	3.80
	40	1 1/2	48.8	48.0	4.0	4.38
	50	2	60.8	59.8	4.5	6.19
	65	2 1/2	76.6	75.4	4.5	7.93
	80	3	89.5	88.1	5.0	10.3
	100	4	114.9	113.3	5.4	14.5
	125	5	140.6	138.7	5.4	17.9
	150	6	166.1	164.1	5.4	21.3

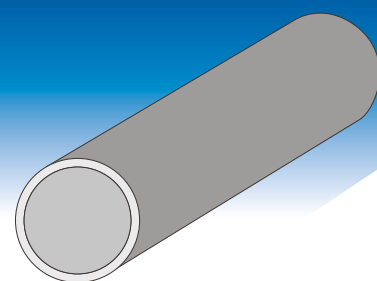
WELDED STEEL PIPES



Class	Nominal Size		Outside Diameter		Wall Thickness	Unit Weight
			Maximum	Minimum		Plain End
	mm	Inch	mm	mm	mm	Kg/m
Class AA	15	1/2	21.4	21.0	1.6	0.773
	20	3/4	26.9	26.4	1.6	0.99
	25	1	33.8	33.2	1.9	1.48
	32	1 1/4	42.5	41.9	1.9	1.89
	40	1 1/2	48.4	47.8	1.9	2.16
	50	2	60.2	59.6	1.9	2.72
	65	2 1/2	76.0	75.2	1.9	3.45
	80	3	88.7	87.9	2.1	4.46
	90	3 1/2	102.0	101.1	2.1	5.15
	100	4	113.9	113.0	2.3	6.31
	125	5	140.6	138.7	4.0	13.4
	150	6	166.1	164.1	4.0	15.9

Grades:
EN 10255

API SEAMLESS PIPES / API ERW PIPES



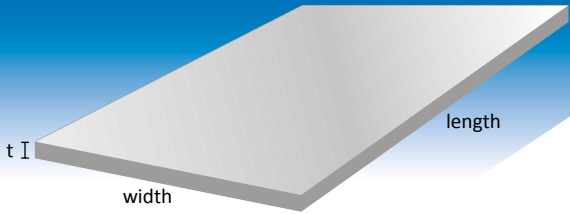
Size			Schedule No.	Wall Thickness	Weight
Inch	Nominal	mm		mm	Kg/m
1/8	6	10.3	40(std)	1.73	0.36
			80(XS)	2.41	0.46
1/4	8	13.7	40(std)	2.24	0.63
			80(XS)	3.02	0.80
3/8	10	17.1	40(std)	2.31	0.85
			80(XS)	3.20	1.10
1/2	15	21.3	40(std)	2.77	1.27
			80(XS)	3.73	1.62
			160	4.78	1.95
3/4	20	26.7	40(std)	2.87	1.69
			80(XS)	3.91	2.2
			160	5.56	2.9
1	25	33.4	40(std)	3.38	2.5
			80(XS)	4.55	3.24
			160	6.35	4.24
1 1/4	32	42.2	40(std)	3.56	3.39
			80(XS)	4.85	4.47
			160	6.35	5.61
1 1/2	40	48.3	40(std)	3.68	4.05
			80(XS)	5.08	5.41
			160	7.14	7.25
2	50	60.3	40(std)	3.91	5.44
			80(XS)	5.54	7.48
			160	8.74	11.11
2 1/2	65	73.0	40(std)	5.16	8.63
			80(XS)	7.01	11.41
			160	9.52	14.92
3	80	88.9	40(std)	5.49	11.29
			80(XS)	7.62	15.27
			160	11.13	21.35
3 1/2	90	101.6	40(std)	5.74	13.57
			80(XS)	8.08	18.63
			160	12.2	26.52
4	100	114.3	40(std)	6.02	16.07
			80(XS)	8.56	22.32
			120	11.13	28.32
			160	13.49	33.54
5	125	141.3	40(std)	6.55	21.77
			80(XS)	9.52	30.94
			120	12.7	40.28
			160	15.88	49.11
6	150	168.3	40(std)	7.11	28.26
			80(XS)	10.97	42.56
			120	14.27	54.2
			160	18.26	67.56

API SEAMLESS PIPES / API ERW PIPES

Size			Schedule No.	Wall Thickness	Weight
Inch	Nominal	mm		mm	Kg/m
8	200	219.1	40(std)	8.18	42.55
			80(XS)	12.7	64.64
			120	18.26	90.44
			160	23.01	111.27
10	250	273.0	40(std)	9.27	60.29
			80(XS)	15.09	95.97
			120	21.44	133
			160	28.57	172.21
12	300	323.8	40(std)	10.31	79.7
			80(XS)	17.48	132.04
			120	25.40	186.91
			160	33.32	238.68
14	350	355.6	40(std)	11.13	94.55
			80(XS)	19.05	158.1
			120	27.79	224.65
			160	35.71	281.7
16	400	406.4	40(std)	12.7	123.3
			80(XS)	21.44	203.53
			120	30.96	286.64
			160	40.49	365.35
18	450	457	40(std)	14.27	155.87
			80(XS)	23.83	254.67
			120	34.92	363.64
			160	45.24	459.59
20	500	508	40(std)	15.09	183.42
			80(XS)	26.19	311.17
			120	38.1	441.49
			160	50.01	564.81
24	600	610	40(std)	17.48	255.24
			80(XS)	30.96	441.78
			100	38.89	547.33
			120	46.02	639.58
			160	59.54	807.63

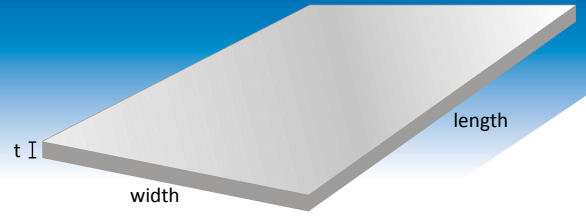
Grades:
ASTM A53 / A 106 / API 5L

SHIPBUILDING PLATES



Thickness	Width x Length	
	8' x 20'	8' x 30'
	2438mm x 6096mm	2438mm x 9144mm
mm (t)	Kg / Pc	Kg / Pc
6.0	700.16	1050.31
6.3	735.04	1102.82
6.35	741.00	1111.58
7.0	816.80	1225.36
8.0	933.44	1400.42
9.0	1050.24	1575.47
9.5	1108.66	1662.90
10	1167.00	1750.52
11	1283.70	1925.57
12	1400.41	2100.62
13	1517.11	2275.68
14	1633.80	2450.73
15	1750.50	2625.78
16	1867.20	2800.80
18	2100.60	3150.93
19	2217.30	3326.00
20	2334.00	3501.04
22	2567.40	3851.14
23	2684.10	4026.19
24	2800.80	4201.25
25	2917.50	4376.30
26	3034.23	4551.35
28	3267.60	4901.46
29	3384.30	5076.51

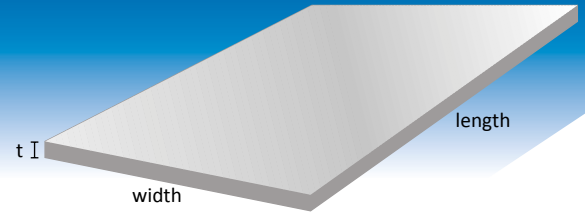
SHIPBUILDING PLATES



Thickness	Width x Length	
	8' x 20'	8' x 30'
	2438mm x 6096mm	2438mm x 9144mm
mm (t)	Kg / Pc	Kg / Pc
30	3501.00	5251.56
32	3734.40	5601.66
34	3967.84	5951.77
36	4201.25	6301.87
38	4434.60	6650.04
40	4668.06	7002.08
45	5251.56	7877.34
50	5835.07	8750.40
55	6418.50	9627.87
60	7002.08	10503.13
64	7468.80	11203.33
65	7585.60	11378.39
70	8169.10	12253.65
80	9336.11	14004.17
90	10503.13	15754.69
100	11670.14	17505.22
110	12837.16	19255.74
120	14004.17	21006.25
130	15171.19	22756.78
140	16338.20	24507.30
150	17505.22	26257.82

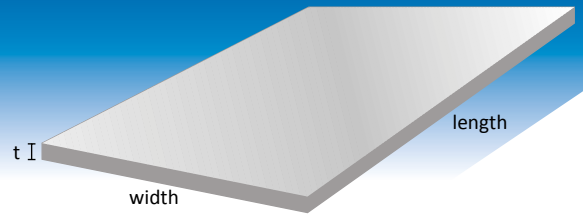
Grades:
 ABS Grade A
 ABS EH 36 / API 2W

MILD STEEL PLATES



Thickness	Width x Length				
	4' x 8'	5' x 10'	5' x 20'	6' x 20'	8' x 20'
	1219mm x 2438mm	1524mm x 3048mm	1524mm x 6096mm	1829mm x 2438mm	2438mm x 6096mm
mm (t)	Kg / Pc	Kg / Pc	Kg / Pc	Kg / Pc	Kg / Pc
1.2	28	43.8	87.5	105	--
1.5	35	54.7	109.4	131.3	--
1.6	37.3	58.3	117	140	--
1.9	44.4	69.3	139	166.3	--
2.0	46.7	72.9	145.8	175	--
2.3	53.7	83.9	168	201.2	--
2.5	60.7	94.8	190	227.5	--
2.8	65.3	102	204	245	--
3.0	70	109	219	263	--
3.2	74.7	117	233	280	--
4.0	93.3	146.1	292	350.04	--
4.3	100.3	156.8	313.6	376.3	--
4.5	105	164	328	393.8	--
4.8	112	175	350	420	--
5.0	117	182	365	437.5	--
5.5	128.35	200.55	401.1	481.32	--
5.8	135.36	211.5	423	507.6	--
6.0	140	218.8	437.6	525.12	700.16
7.0	163.36	255.25	510.5	612.6	816.80
8.0	186.69	291.7	583.4	700.08	933.44
9.0	210.05	328.2	656.4	787.68	1050.24
9.5	221.7	346.4	692.8	831.36	1108.66
10	233.38	364.65	729.3	875.16	1167.00
11	256.7	401.1	802.2	962.64	1283.70
12	280.06	437.6	875.2	1050.24	1400.41
13	303.39	474.05	948.1	1137.72	1517.11
14	326.72	510.5	1021	1225.2	1633.80
15	350.08	547	1094	1312.8	1750.50
16	373.44	583.5	1167	1400.4	1867.20
18	420.16	656.5	1313	1575.6	2100.60
19	443.52	693	1386	1663.2	2217.32
20	466.88	729.5	1459	1750.8	2334.00
22	513.28	802	1604	1924.8	2567.40
24	560	875	1750	2100	2800.80
25	583.36	911.5	1823	2187.6	2917.50
26	606.72	948	1896	2275.2	3034.23
28	653.44	1021	2042	2450.4	3267.60
29	676.8	1057.5	2115	2538	3384.30
30	700.16	1094	2188	2625.6	3501.00
32	746.88	1167	2334	2800.8	3734.40
34	793.6	1240	2480	2976	3967.84
36	840	1312.5	2625	3150	4201.25
38	886.72	1385.5	2771	3325.2	4434.6

MILD STEEL PLATES



Thickness	Width x Length				
	4' x 8'	5' x 10'	5' x 20'	6' x 20'	8' x 20'
	1219mm x 2438mm	1524mm x 3048mm	1524mm x 6096mm	1829mm x 2438mm	2438mm x 6096mm
mm (t)	Kg / Pc	Kg / Pc	Kg / Pc	Kg / Pc	Kg / Pc
40	933.44	1458.5	2917	3500.4	4668.06
45	1050.24	1641	3282	3938.4	5251.56
50	1166.72	1823	3646	4375.2	5835.07
55	1283.52	2005.5	4011	4813.2	6418.50
60	1400.32	2188	4376	5251.2	7002.08
64	1493.76	2334	4668	5601.6	7468.80
65	1516.8	2370	4740	5688	7585.60
70	1633.6	2552.5	5105	6126	8168.10
80	1866.88	2917	5834	7000.8	9336.11
90	2100.48	3282	6564	7876.8	10503.13
100	2333.76	3646.5	7293	8751.6	11670.14
110	2567.04	4011	8022	9626.4	12837.16
120	2800.64	4376	8752	10502.4	14004.17
130	3033.92	4740.5	9481	11377.2	15171.19
140	3267.2	5105	10210	12252	16338.20
150	3500.8	5470	10940	13128	17505.22

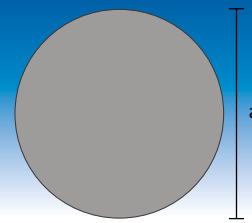
Grades:
 EN 10025 S275JR, S355JR
 JIS G 3101 SS400
 ASTM A36
 API SPEC 2H (2006)
 API SPEC 2HC (2006)

DEFORMED BARS



Standard Sectional Dimension		Unit Weight	Sectional Area
			A
BS 4449 (B500B)	mm	Kg/m	cm2
	10	0.617	0.785
	12	0.888	1.13
	13	1.042	1.33
	16	1.58	2.01
	18	2.00	2.54
	19	2.23	2.84
	20	2.47	3.14
	22	2.98	3.80
	25	3.85	4.91
	28	4.83	6.16
	30	5.55	7.07
	32	6.31	8.04
	38	8.90	11.3
	40	9.87	12.6
	50	15.4	19.6

ROUND BARS

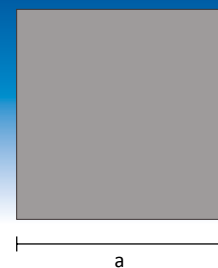


Standard Sectional Dimension	Unit Weight	Sectional Area
		A
mm (a)	Kg/m	cm ²
6	0.222	0.283
8	0.395	0.503
9	0.499	0.636
10	0.617	0.785
12	0.888	1.13
13	1.04	1.33
15	1.39	1.767
16	1.58	2.01
18	2.00	2.54
19	2.23	2.84
20	2.47	3.14
22	2.98	3.80
25	3.85	4.91
28	4.83	6.16
30	5.55	7.07
32	6.31	8.04
35	7.55	9.62
36	7.99	10.18

Standard Sectional Dimension	Unit Weight	Sectional Area
		A
mm (a)	Kg/m	cm ²
38	8.90	11.34
40	9.87	12.57
44	11.9	15.2
45	12.5	15.9
50	15.4	19.6
55	18.7	23.8
60	22.2	28.3
65	26.0	33.2
70	30.2	38.5
75	34.7	44.2
80	39.5	50.3
90	49.9	63.6
100	61.7	78.5
120	88.8	113.1
125	96.3	122.7
140	121	153.9
150	139	176.7

Grades:
EN 10025 S275JR
ASTM A36
JIS G 3101 SS400

SQUARE BARS



Standard Sectional Dimension	Unit Weight	Sectional Area	Second Moment Of Inertia	Radius Of Gyration	Elastic Modulus	Plastic Modulus
		A				
mm (a)	Kg/m	mm ²	mm ⁴	mm	mm ³	mm ³
9	0.64	81.0	547	2.60	121	182
10	0.79	100	833	2.89	167	250
12	1.13	144	1728	2.46	288	432
16	2.01	256	5461	4.62	683	1024
18	2.54	324	8748	5.20	972	1458
19	2.83	361	10860	5.48	1143	1715
20	3.14	400	--	--	--	--
22	3.80	484	19520	6.35	1775	2662
25	4.91	625	32550	7.22	2604	3906
28	6.15	784	51220	8.08	3659	5488
30	7.07	900	67500	8.66	4500	6750
32	8.04	1024	87380	9.24	5461	8192
36	10.17	1296	140000	10.4	7776	11660
38	11.335	1444	173800	11.0	9145	13720
40	12.56	1600	213300	11.5	10670	16000
44	15.20	1936	312300	12.7	14200	21300
45	15.90	2025	341700	13.0	15190	22780
50	19.63	2500	520800	14.4	20830	31250
60	28.26	3600	1080000	17.3	36000	54000
65	33.166	4225	1488000	18.8	45770	68660
75	44.156	5625	2637000	21.7	70310	105500
90	63.585	8100	5468000	26.0	121500	182300
100	78.50	10000	8333000	28.9	166700	250000

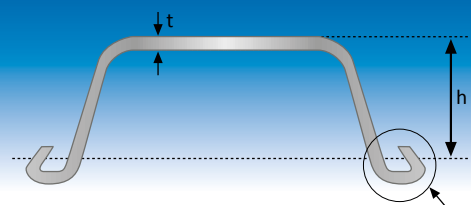
Grades:

EN 10025 S275JR

ASTM A36

JIS G 3101 SS400

STEEL SHEET PILES



U - Type Sheet Piles

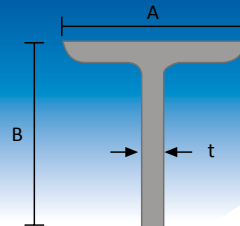
Type	Dimensions			Sectional Area	Weight		Moment Of Inertia		Section Modulus	
	Width (w)	Height (h)	Thickness (t)	Per Pile	Per Pile	Per Linear Meter Of Wall	Per Pile	Per Linear Meter Of Wall	Per Pile	Per Linear Meter Of Wall
	mm	mm	mm	cm ²	kg/m	kg/m ²	cm ⁴	cm ⁴ /m	cm ³	cm ³ /m
III	400	130	13.0	76.4	60.0	150	2,320	17,400	232	1,340
III A	400	150	13.1	74.4	58.4	146	2,840	22,800	253	1,520
IV	400	160	16.0	96.9	76.1	190	4,110	34,400	334	2,150
V _L	500	200	24.3	133.8	105	210	7,960	63,000	539	2,700

U-Type sheet piles are manufactured according to:

JIS A 5528 SY295

JIS A 5523 SYW 295

T BARS



Standard Sectional Dimension	Thickness	Weight
mm (A x B)	(t)	Kg/m
25 x 25	3	1.13
30 x 30	4	1.77
40 x 40	4	2.368
40 x 40	5	2.96
50 x 50	5	3.79
50 x 50	6	4.44

Grades:
JIS G 3101 SS400