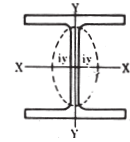


STEEL, VALVE & PIPE FITTING

Beams and Columns

Section Size in (mm)	Moments of inertia				Radius of gyration				Modulus of section			
	I _x		I _y		i _x		i _y		Z _x		Z _y	
	in ⁴	cm ⁴	in ⁴	cm ⁴	in	cm	in	cm	in ³	cm ³	in ³	cm ³
W4 4 x 4 (102 x 102)	11.3	470	3.86	161	1.72	4.37	1.00	2.54	5.46	89.5	1.90	31.1
W5 5 x 3 (127 x 76)	11.5	477	1.30	56	2.10	5.33	0.72	1.83	4.60	75	0.90	15.0
W5 5 x 5 (127 x 127)	21.4	891	7.51	313	2.13	5.41	1.26	3.20	8.55	140	3.00	49.2
	26.3	1090	9.13	380	2.17	5.51	1.28	3.25	10.2	167	3.63	59.5
W6 6 x 3½ (152 x 89)	20.1	838	2.20	90	2.52	6.40	0.83	2.10	6.70	110	1.20	20.0
W6 6 x 4 (152 x 102)	16.4	683	2.20	91.6	2.47	6.27	0.905	2.30	5.56	91.1	1.11	18.2
	22.1	920	2.99	124	2.49	6.32	0.918	2.33	7.31	120	1.50	24.6
	32.1	1340	4.43	184	2.60	6.60	0.966	2.45	10.2	167	2.20	36.1
W6 6 x 6 (152 x 152)	29.1	1210	9.32	388	2.56	6.50	1.45	3.68	9.72	159	3.11	51.0
	30.3	1263	9.7	403	2.56	6.51	1.45	3.68	10.1	165.7	3.20	52.95
	41.4	1720	13.3	554	2.66	6.76	1.50	3.81	13.4	220	4.41	72.3
	53.4	2220	17.1	712	2.70	6.86	1.52	3.86	16.7	274	5.61	91.9
W7 7 x 4 (178 x 102)	32.6	1357	3.30	138	2.95	7.49	0.940	2.39	9.30	153	1.60	27.0
W8 8 x 4 (203 x 102)	30.8	1280	2.09	87	3.22	8.18	0.841	2.14	7.81	128	1.06	17.4
	39.6	1650	2.73	114	3.21	8.15	0.843	2.14	9.91	162	1.37	22.4
	48.0	2000	3.41	142	3.29	8.36	0.876	2.22	11.8	193	1.70	27.9
	50.2	2091	3.90	163	3.34	8.49	0.93	2.37	12.6	206	2.00	32.0
W8 8 x 5¼ (203 x 133)	56.4	2348	6.72	280	3.36	8.53	1.16	2.95	14.1	231	2.60	42.6
	61.9	2580	7.97	332	3.43	8.71	1.23	3.12	15.2	249	3.04	49.8
	69.2	2981	8.50	354	3.43	8.71	1.20	3.05	17.0	279	3.20	52.4
	75.3	3130	9.77	407	3.49	8.86	1.26	3.20	18.2	298	3.71	60.8
W8 8 x 6½ (203 x 165)	82.8	3450	18.3	762	3.42	8.69	1.61	4.09	20.9	342	5.63	92.3
	98.0	4080	21.7	903	3.45	8.76	1.62	4.11	24.3	398	6.63	109
W8 8 x 8 (203 x 203)	110	4580	37.1	1540	3.47	8.81	2.02	5.13	27.5	451	9.27	152
	127	5290	42.6	1770	3.51	8.92	2.03	5.16	31.2	511	10.6	174
	146	6080	49.1	2040	3.53	8.97	2.04	5.18	35.5	582	12.2	200
	184	7660	60.9	2530	3.61	9.17	2.08	5.28	43.3	710	15.0	246
	228	9490	75.1	3130	3.65	9.27	2.10	5.33	52.0	852	18.3	300
	272	11300	88.6	3690	3.72	9.45	2.12	5.38	60.4	990	21.4	351
W10 10 x 4 (245 x 102)	53.8	2240	2.18	90.7	3.90	9.91	0.785	1.99	10.9	179	1.10	18.0
	68.9	2870	2.89	120	3.95	10.0	0.81	2.06	13.8	226	1.45	23.8
	81.9	3410	3.56	148	4.05	10.3	0.845	2.15	16.2	265	1.78	29.2
	96.3	4010	4.29	179	4.14	10.5	0.874	2.22	18.8	308	2.14	35.1
W10 10 x 5¼ (254 x 146)	106	4425	9.7	404	4.14	10.5	1.25	3.18	21.5	352	3.40	55.7
	118	4910	11.4	474	4.27	10.8	1.33	3.38	23.2	380	3.97	65.1
	133	5545	12.7	529	4.26	10.8	1.31	3.33	26.4	433	4.40	72.1
	144	5990	14.4	587	4.35	11.0	1.36	3.45	27.9	457	4.89	80.1
	157	6548	15.2	633	4.29	10.9	1.34	3.40	30.8	505	5.20	85.2
	170	7080	16.8	699	4.38	11.1	1.38	3.51	32.5	533	5.76	94.4
W10 10 x 8 (254 x 203)	170	7080	36.6	1520	4.19	10.6	1.94	4.93	35.0	574	9.20	151
	209	8700	45.0	1870	4.27	10.8	1.98	5.03	42.1	590	11.3	185
	248	10300	53.4	2220	4.32	11.0	2.01	5.11	49.1	805	13.3	218
W10 10 x 10 (254 x 254)	272	11300	93.4	3890	4.35	11.0	2.54	6.45	54.6	895	18.7	306
	303	12600	103	4290	4.37	11.1	2.56	6.50	60.0	983	20.6	338
	341	14200	116	4830	4.39	11.2	2.57	6.53	66.7	1090	23.0	377
	394	16400	134	5580	4.44	11.3	2.58	6.55	75.7	1240	26.4	433
	421	17510	142	5903	4.46	11.3	2.59	6.58	80.1	1312	27.9	457
	455	18900	154	6410	4.49	11.4	2.60	6.60	85.9	1410	30.1	493
	534	22200	179	7450	4.54	11.5	2.63	6.68	98.5	1610	34.8	570
	542	22580	181	7518	4.55	11.6	2.63	6.68	99.7	1634	35.2	577
	624	26000	207	8620	4.61	11.7	2.65	6.73	112.0	1840	40.0	655
	716	29800	236	9820	4.66	11.8	2.68	6.81	126.0	2060	45.3	742
W12 12 x 4 (305 x 102)	88.6	3690	2.36	98.2	4.62	11.7	0.753	1.91	14.9	244	1.19	19.5
	103	4290	2.82	117	4.67	11.9	0.773	1.96	17.1	280	1.41	23.1
	105.4	4387	2.9	120	4.65	11.8	0.770	1.96	17.6	288	1.40	23.6
	130	5410	3.76	156	4.82	12.2	0.822	2.09	21.3	349	1.88	30.8
	156	6490	4.66	194	4.91	12.5	0.848	2.15	25.4	416	2.31	37.9
W12 12 x 5 (305 x 127)	172	7162	8.1	337	4.83	12.3	1.05	2.67	28.8	472	3.30	54.6
	195.2	8143	9.3	388	4.87	12.4	1.06	2.70	32.4	531	3.80	62.5
	228.3	9504	11.1	460	4.92	12.5	1.08	2.75	37.4	512	4.50	73.5
W12 12 x 6½ (305 x 165)	204	8490	17.3	720	5.17	13.1	1.51	3.84	33.4	547	5.34	87.5
	204.1	8496	16.6	691	5.06	12.8	1.44	3.66	34.1	559	5.10	83.6
	238	9910	20.3	845	5.21	13.2	1.52	3.86	38.6	633	6.24	102
	238.4	9924	19.8	824	5.11	12.9	1.47	3.73	39.4	646	6.10	100
	280.8	11690	23.7	986.6	5.15	13.1	1.50	3.81	45.9	752	7.20	118
	285	11900	24.5	1020	5.25	13.3	1.54	3.91	45.6	747	7.47	122
W12 12 x 8 (305 x 203)	310	12900	44.1	1840	5.13	13.0	1.94	4.93	51.9	850	11.0	180
	350	14600	50.0	2080	5.15	13.1	1.94	4.93	58.1	952	12.4	203
	394	16400	56.3	2340	5.18	13.2	1.96	4.98	64.7	1060	13.9	228
W12 12 x 10 (305 x 254)	425	17700	95.8	3990	5.23	13.3	2.48	6.30	70.6	1160	19.2	531
	475	19800	107	4450	5.28	13.4	2.51	6.38	78.0	1280	21.4	351
W12 12 x 12 (305 x 305)	533	22200	174	7240	5.28	13.4	3.02	7.67	87.9	1440	29.1	477
	597	24800	195	8120	5.31	13.5	3.04	7.72	97.4	1600	32.4	531
	662	27600	216	8990	5.34	13.6	3.05	7.75	107	1750	35.8	587
	740	30800	241	10000	5.38	13.7	3.07	7.80	118	1930	39.7	651
	789	32840	256	10670	5.40	13.7	3.08	7.82	125	2084	42.2	691
	833	34700	270	11200	5.44	13.8	3.09	7.85	131	2150	44.4	728
	933	38800	301	12500	5.47	13.9	3.11	7.90	145	2380	49.3	808
	1070	44500	345	144000	5.51	14.0	3.13	7.95	163	2670	56.0	918
	1221	50840	390	16230	5.59	14.2	3.16	8.03	183	2991	63.1	1,034
	1240	51600	398	16600	5.58	14.2	3.16	8.03	186	3050	64.2	1,050
	1430	59500	454	18900	5.66	14.4	3.19	8.10	209	3420	72.8	1,190
	1542	64180	486	20240	5.70	14.5	3.20	8.13	222	3641	77.1	1,273
	1650	68700	517	21500	5.74	14.6	3.22	8.18	235	3850	82.3	1,350
	1890	78700	589	24500	5.82	14.8	3.25	8.25	263	4310	93.0	1,520
	2140	89100	664	27600	5.89	15.0	3.28	8.33	292	4780	104	1,700
	2420	101000	742	30900	5.97	15.2	3.31	8.41	321	5260	115	1,880
	2720	113000	828	34500	6.06	15.4	3.34	8.48	353	5780	127	2,080
	3110	129000	937	39000	6.16	15.6	3.38	8.59	393	6440	143	2,340
	3550	148000	1050	43700	6.29	16.0	3.42	8.69	435	7130	159	2,610
	4060	169000	1190	49500	6.41	16.3	3.47	8.81	483	7910	177	2,900
W14 14 x 5 (356 x 127)	199	8280	7.00	291	5.54	14.1	1.04	2.64	29.0	475	2.80	45.9
	245	10200	8.91	371	5.65	14.4	1.08	2.74	35.3	578	3.55	58.2



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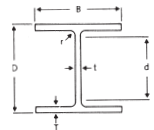
Branch Office: 21 Tuas Basin Link Singapore 638782 Tel: 6265 1888 (10 lines) Fax: 6265 5623

Web-site: <http://www.allinton.com.sg> E-mail: allinton@singnet.com.sg

STEEL, VALVE & PIPE FITTING

I Beam

Section Size	Unit Weight		Section Area		Section Depth		Flange Width		Flange Thickness		Web Thickness		Corner Radius	
	M	kg/m	in ²	cm ²	in	mm	in	mm	in	mm	in	mm	in	mm
W10 10 x 10 (254 x 254)	49	73.00	14.4	92.9	9.98	253.5	10.0	254.0	0.56	14.20	0.34	8.64	0.50	12.7
	54	80.36	15.8	101.9	10.09	256.3	10.03	254.8	0.615	15.60	0.37	9.40	0.50	12.7
	60	89.29	17.6	113.5	10.22	259.6	10.08	256.0	0.68	17.27	0.42	10.67	0.50	12.7
	68	101.2	20.0	129.0	10.40	264.2	10.13	257.3	0.77	19.56	0.47	11.94	0.50	12.7
	72	107.0	21.2	136.6	10.50	266.7	10.17	258.3	0.808	20.50	0.51	13.00	0.50	12.7
	77	115.0	22.6	145.8	10.60	269.2	10.19	258.8	0.87	22.10	0.53	13.46	0.50	12.7
	88	131.0	25.9	167.1	10.84	275.3	10.265	260.7	0.99	25.15	0.605	15.37	0.50	12.7
	89	132.0	26.2	168.9	10.88	276.4	10.275	261.0	0.998	25.30	0.615	15.60	0.50	12.7
	100	149.0	29.4	189.7	11.11	282.2	10.34	262.6	1.12	28.45	0.68	17.27	0.50	12.7
	112	167.0	32.9	212.3	11.36	288.5	10.415	264.5	1.25	31.75	0.755	19.18	0.50	12.7
W12 12 x 4 (305 x 102)	14	20.83	4.16	26.84	11.91	302.5	3.97	100.8	0.225	5.71	0.20	5.08	0.30	7.62
	16	23.81	4.71	30.39	11.99	304.5	3.99	101.3	0.265	6.73	0.22	5.59	0.30	7.62
	16.5	25.00	4.87	31.40	12.00	304.8	4.00	101.6	0.269	6.80	0.23	5.80	0.30	7.62
	19	28.28	5.57	35.94	12.16	308.9	4.005	101.7	0.35	8.89	0.235	5.97	0.30	7.62
	22	33.00	6.48	41.81	12.31	312.7	4.03	102.4	0.425	10.80	0.26	6.60	0.30	7.62
W12 12 x 5 (305 x 127)	25	37.00	7.36	47.50	11.96	303.8	4.864	123.5	0.421	10.70	0.284	7.20	0.30	7.62
	28	42.00	8.25	53.20	12.07	306.6	4.893	124.3	0.476	12.10	0.313	8.00	0.30	7.62
	32	48.00	9.42	60.80	12.22	310.4	4.93	125.2	0.551	14.00	0.350	8.90	0.30	7.62
W12 12 x 6½ (305 x 135)	26	38.70	7.65	49.35	12.22	310.4	6.49	164.8	0.38	9.65	0.23	5.84	0.30	7.62
	27	40.00	7.98	51.50	11.96	303.8	6.50	165.1	0.40	10.20	0.24	6.10	0.30	7.62
	30	44.64	8.79	56.71	12.34	313.4	6.52	165.6	0.44	11.10	0.26	6.60	0.30	7.62
	31	46.00	9.13	58.90	12.09	307.1	6.525	165.7	0.465	11.80	0.265	6.70	0.30	7.62
	35	52.09	10.3	66.45	12.50	317.5	6.56	166.6	0.52	13.20	0.30	7.62	0.30	7.62
	36	54.00	10.6	68.40	12.24	310.9	6.565	166.8	0.54	13.7	0.305	7.70	0.30	7.62
W12 12 x 8 (305 x 203)	40	59.53	11.8	76.13	11.94	303.3	8.005	203.3	0.515	13.00	0.295	7.49	0.60	15.2
	45	66.97	13.2	85.16	12.06	306.3	8.045	204.3	0.575	14.60	0.335	8.51	0.60	15.2
	50	74.41	14.7	94.84	12.19	309.6	8.08	205.2	0.664	16.20	0.37	9.40	0.60	15.2
W12 12 x 10 (305 x 254)	53	78.87	15.6	100.6	12.06	306.3	9.995	253.9	0.575	14.60	0.345	8.76	0.60	15.2
	58	86.31	17.0	109.7	12.19	309.6	10.01	254.3	0.64	16.20	0.36	9.14	0.60	15.2
W12 12 x 12 (305 x 305)	65	97.0	19.1	123.2	12.12	307.8	12.00	304.8	0.605	15.30	0.39	9.91	0.60	15.2
	72	107.1	21.1	136.1	12.25	311.1	12.04	306.8	0.67	17.02	0.43	10.92	0.60	15.2
	79	118.0	23.2	149.7	12.38	314.5	12.08	305.8	0.735	18.67	0.47	11.94	0.60	15.2
	87	129.5	25.6	165.2	12.53	318.3	12.125	308.0	0.81	20.57	0.515	13.08	0.60	15.2
	92	137.0	27.1	174.6	12.62	320.4	12.155	308.7	0.856	21.70	0.545	13.80	0.60	15.2
	96	143.0	28.2	182.0	12.71	322.8	12.16	308.9	0.90	22.86	0.55	13.97	0.60	15.2
	106	158.0	31.2	201.3	12.89	327.4	12.22	310.4	0.99	25.15	0.61	15.49	0.60	15.2
	120	179.0	35.3	227.7	13.12	333.2	12.32	312.9	1.10	28.07	0.71	18.03	0.60	15.2
	133	198.0	39.1	252.3	13.38	339.9	12.365	314.1	1.236	31.40	0.755	19.20	0.60	15.2
	136	202.4	39.9	257.4	13.41	340.6	12.40	315.0	1.25	31.75	0.79	20.07	0.60	15.2
	152	226.2	44.7	288.4	13.71	348.2	12.48	317.0	1.40	35.56	0.87	22.10	0.60	15.2
	161	240.0	47.4	305.6	13.88	352.6	12.515	317.9	1.486	37.70	0.905	23.00	0.60	15.2
	170	253.0	50.0	322.6	14.03	356.4	12.57	319.3	1.56	39.62	0.96	24.38	0.60	15.2
	190	283.0	55.8	360.0	14.38	365.3	12.67	321.8	1.735	44.07	1.06	26.92	0.60	15.2
	210	312.5	61.8	398.7	14.71	373.6	12.79	324.9	1.90	48.26	1.18	29.97	0.60	15.2
	230	342.3	67.7	436.8	15.05	382.3	12.895	327.5	2.07	52.58	1.285	32.64	0.60	15.2
	252	375.0	74.0	477.4	15.41	391.4	13.005	330.3	2.25	57.15	1.395	35.43	0.60	15.2
	278	413.7	81.9	528.4	15.85	402.6	13.14	333.8	2.47	62.74	1.53	38.86	0.60	15.2
	305	453.9	89.6	578.1	16.32	414.5	13.235	336.2	2.705	68.71	1.625	41.27	0.60	15.2
	336	500.0	98.8	637.4	16.82	427.2	13.385	340.0	2.955	75.06	1.776	45.08	0.60	15.2
W14 14 x 5 (356 x 127)	22	33.0	6.49	41.87	13.74	349.0	5.00	127.0	0.335	8.51	0.23	5.84	0.40	10.2
	26	39.0	7.69	49.61	13.91	353.3	5.025	127.6	0.42	10.60	0.255	6.48	0.40	10.2



Pipes ERW & Seamless Pipes

Nominal Size	Size		Wall Thickness				Weight		
	in	mm	Sch	No	in	mm	lb/ft	kg/m	kg/ft
1/8	0.405	10.3	40	(std)	0.068	1.73	0.24	0.36	-
			80	(XS)	0.095	2.41	0.31	0.46	-
1/4	0.54	13.7	40	(std)	0.088	2.24	0.42	0.63	-
			80	(XS)	0.119	3.02	0.54	0.80	-
3/8	0.675	17.1	40	(std)	0.091	2.31	0.57	0.85	-
			80	(XS)	0.126	3.20	0.74	1.10	-
1/2	0.84	21.3	40	(std)	0.109	2.77	0.85	1.27	-
			80	(XS)	0.147	3.73	1.09	1.62	-
				(XXS)	0.294	7.47	1.71	2.55	-
3/4	1.05	26.7	40	(std)	0.113	2.87	1.13	1.68	-
			80	(XS)	0.154	3.91	1.47	2.19	-
				(XXS)	0.308	7.82	2.44	3.63	-
1	1.315	33.4	40	(std)	0.133	3.38	1.68	2.50	0.76
			80	(XS)	0.179	4.55	2.17	3.23	0.99
			160		0.250	6.35	2.84	4.23	1.29
				(XXS)	0.358	9.09	3.66	5.45	1.66
1 1/4	1.66	42.2	40	(std)	0.140	3.56	2.27	3.38	1.03
			80	(XS)	0.191	4.85	3.00	4.47	1.36
			160		0.250	6.35	3.76	5.60	1.71
				(XXS)	0.382	9.70	5.21	7.76	2.37
1 1/2	1.90	48.3	40	(std)	0.145	3.68	2.72	4.05	1.23
			80	(XS)	0.200	5.08	3.63	5.41	1.65
			160		0.281	7.14	4.86	7.24	2.21
				(XXS)	0.400	10.16	6.41	9.55	2.91
2	2 3/8	60.3	40	(std)	0.154	3.91	3.65	5.44	1.66
			80	(XS)	0.172	4.37	4.05	6.03	1.84
			160		0.218	5.54	5.02	7.48	2.28
				(XXS)	0.344	8.74	7.46	11.11	3.39

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STEEL, VALVE & PIPE FITTING

Pipes ERW & Seamless Pipes

Size											
Outside Diameter			Wall Thickness			Weight					
Nominal Size	in	mm	Sch No	in	mm	lb/ft	kg/m	kg/ft			
2-1/2	2-7/8	73.0		0.188	4.78	5.40	8.04	2.45			
			40 (std)	0.203	5.16	5.79	8.62	2.63			
			80 (XS)	0.276	7.01	7.66	11.41	3.48			
			160 (XXS)	0.375	9.52	10.01	14.91	4.54			
				0.552	14.02	13.69	20.39	6.22			
3	3-1/2	88.9		0.188	4.78	6.65	9.91	3.02			
			40 (std)	0.216	5.49	7.58	11.29	3.44			
			80 (XS)	0.300	7.62	10.25	15.27	4.65			
			160 (XXS)	0.438	11.13	14.32	21.33	6.50			
				0.600	15.24	18.58	27.67	8.44			
3-1/2	4	101.6		0.172	4.37	7.03	10.47	3.19			
			40 (std)	0.226	5.74	9.11	13.57	4.14			
			80 (XS)	0.318	8.08	12.50	18.62	5.68			
4	4-1/2	114.3		0.219	5.56	10.01	14.91	4.54			
			40 (std)	0.237	6.02	10.79	16.07	4.90			
			60	0.281	7.14	12.66	18.86	5.75			
			80 (XS)	0.337	8.56	14.98	22.31	6.80			
			120	0.438	11.13	19.00	28.30	8.63			
			160	0.531	13.49	22.51	33.53	10.22			
							0.674	17.12	27.54	41.02	12.50
5	5-9/16	141.3		0.258	6.55	14.62	21.76	6.63			
			40 (std)	0.281	7.14	15.85	23.61	7.20			
			80 (XS)	0.375	9.52	20.78	30.94	9.43			
			120	0.50	12.70	27.03	40.26	12.27			
			160 (XXS)	0.625	15.88	32.96	49.08	14.96			
				0.75	19.05	38.55	57.41	17.50			
6	6-5/8	168.3		0.250	6.35	17.02	25.35	7.73			
			40 (std)	0.280	7.11	18.97	28.26	8.61			
			80 (XS)	0.432	10.97	28.57	42.56	12.97			
			120	0.562	14.27	36.39	54.20	16.52			
			160	0.719	18.26	45.35	67.55	20.59			
							0.864	21.95	53.16	79.18	24.13
8	8-3/8	219.1		0.250	6.35	22.36	33.31	10.15			
			30	0.277	7.04	24.70	36.79	11.21			
			40 (std)	0.322	8.18	28.55	42.53	12.96			
				0.375	9.52	33.04	49.21	15.00			
			60	0.406	10.31	35.64	53.09	16.18			
			80 (XS)	0.500	12.70	43.39	64.63	19.70			
			100	0.594	15.09	50.95	75.89	23.13			
			120	0.719	18.26	60.71	90.43	27.56			
			140	0.812	20.62	67.76	100.93	30.76			
							0.875	22.22	72.42	107.87	32.88
							0.906	23.01	74.69	111.25	33.91
				0.219	5.56	24.63	36.69	11.18			
10	10-3/4	273.0		0.250	6.35	28.04	41.77	12.73			
			30	0.307	7.80	34.24	51.00	15.54			
			40 (std)	0.365	9.27	40.48	60.29	18.38			
			60 (XS)	0.500	12.70	54.74	81.54	24.54			
			80	0.594	15.09	64.43	95.97	29.25			
			100	0.719	18.26	77.03	114.74	34.97			
			120	0.844	21.44	89.29	133.00	40.54			
			140	1.000	25.40	104.13	155.10	47.28			
12	12-3/4	323.8		0.250	6.35	33.8	49.72	15.15			
			30	0.330	8.38	43.77	65.20	19.87			
			(std)	0.375	9.52	49.56	73.82	22.50			
			40	0.406	10.31	53.52	79.72	24.30			
				0.500	12.70	65.42	97.44	29.70			
			60 (XS)	0.562	14.27	73.15	108.96	33.21			
			80	0.688	17.48	88.63	132.01	40.24			
			100	0.844	21.44	107.32	159.85	48.72			
				1.000	25.40	125.49	186.92	56.97			
14	14	355.6		0.210	5.33	30.93	46.07	14.04			
			20	0.312	7.92	45.61	67.94	20.71			
			30 (std)	0.375	9.52	54.57	81.28	24.77			
			40	0.438	11.13	63.44	94.49	28.80			
				0.500	12.70	72.09	107.38	32.73			
			60 (XS)	0.594	15.09	85.05	126.68	38.61			
			80	0.750	19.05	106.13	158.08	48.18			
				0.938	23.83	130.85	194.90	59.41			
16	16	406.4		0.250	6.35	42.05	62.63	19.07			
			20	0.312	7.92	52.27	77.86	23.71			
			30 (std)	0.375	9.52	62.58	93.21	28.39			
			40 (XS)	0.500	12.70	82.77	123.29	37.54			
			60	0.656	16.66	107.50	160.12	48.80			
			80	0.844	21.44	136.61	203.48	62.02			
18	18	457.2		0.250	6.35	47.39	70.59	21.50			
			20	0.312	7.92	58.94	87.79	26.74			
			30	0.438	11.13	82.15	122.36	37.26			
			40	0.562	14.27	104.67	155.91	47.48			
			60	0.750	19.05	138.17	205.80	62.67			
			80	0.938	23.83	170.92	254.59	77.53			
							1.062	26.97	192.11	286.15	87.14
20	20	508.0		0.250	6.35	52.73	78.54	23.92			
			20	0.344	8.74	72.21	107.56	32.75			
				0.375	9.52	78.60	117.07	35.65			
				0.406	10.31	84.96	126.55	38.54			
				0.438	11.13	91.51	136.30	41.51			
				0.500	12.70	104.13	151.10	47.23			
				0.812	20.62	166.40	247.85	75.48			
				0.250	6.35	58.07	86.50	26.34			
				0.375	9.52	86.61	129.01	39.29			
				0.500	12.70	114.81	171.01	52.08			

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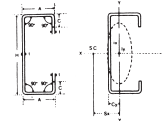
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STEEL, VALVE & PIPE FITTING

Pipes ERW & Seamless Pipes

Size		Wall Thickness				Weight		
Outside Diameter Nominal size	in	mm	Sch No	in		lb/ft	kg/m	kg/ft
				in	mm			
22	22	558.8	60	0.750	19.05	170.21	253.53	77.21
				0.875	22.22	197.41	294.04	89.55
				1.125	28.58	250.81	373.58	113.77
				1.375	34.92	302.88	451.14	137.39
24	24	609.6	10	0.250	6.35	63.41	94.45	28.76
				0.375	9.52	94.62	140.94	42.92
				0.438	11.13	110.22	164.17	50.00
				0.500	12.70	125.49	186.92	56.92
				0.562	14.27	140.68	209.54	63.81
				0.688	17.48	171.29	255.14	77.70
				0.750	19.05	186.23	277.39	84.47
				0.750	19.05	186.23	277.39	84.47
				0.750	19.05	186.23	277.39	84.47
				0.750	19.05	186.23	277.39	84.47



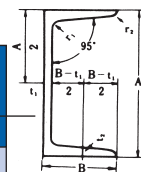
Lipped Channels (C-Channel) JIS G 3350-1987

Section Size A x B x C	Unit Weight M	Thickness t	Area A	Position of Centroid Cx Cy		Moment of Inertia Ix Iy		Radius of Gyration Rx Ry		Modulus of Section Zx Zy		Reduced Modulus Zx1	Moment Capacity Mx	Shear Centre M	Column Factor Q
mm	kg/m	mm	cm ²	cm	cm	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm	kg/m	cm	
60 x 30 x 10	1.62	1.6	2.07	1.06	3.00	116.0	2.54	2.36	1.10	3.87	1.31	3.87	65.40	1.54	0.97
	2.25	2.3	2.87	1.05	3.00	15.50	3.28	2.32	1.07	5.18	1.69	5.13	87.50	1.53	1.00
75 x 45 x 15	2.31	1.6	2.95	1.72	3.75	27.10	8.69	3.03	1.71	7.23	3.13	7.23	122.00	2.43	0.94
	3.24	2.3	4.13	1.71	3.75	37.00	11.67	2.99	1.67	9.88	4.19	9.88	166.80	2.42	0.99
100 x 50 x 20	4.12	3.0	5.25	1.71	3.75	45.90	14.16	2.95	1.64	12.24	5.07	12.24	206.50	2.42	1.00
	2.88	1.6	3.67	1.86	5.00	58.30	13.97	3.98	1.95	11.67	4.46	11.66	196.80	2.73	0.85
	4.06	2.3	5.17	1.86	5.00	80.60	18.96	3.94	1.91	16.12	6.04	16.12	272.10	2.72	0.95
125 x 50 x 20	5.18	3.0	6.60	1.85	5.00	100.90	23.30	3.90	1.87	20.18	7.42	20.18	340.60	2.71	0.99
	4.51	2.3	5.74	1.68	6.25	136.40	20.54	4.87	1.89	21.82	6.20	21.82	368.20	2.55	0.89
	5.77	3.0	7.35	1.63	6.25	171.50	25.27	4.82	1.85	27.44	7.62	27.44	463.10	2.54	0.95
150 x 65 x 20	8.31	4.5	10.59	1.67	6.25	237.10	33.21	4.73	1.77	37.94	10.00	37.94	640.20	2.51	1.00
	5.50	2.3	7.01	2.11	7.50	247.70	40.99	5.94	2.41	33.03	9.35	3.03	557.40	3.16	0.84
	7.07	3.0	9.00	2.11	7.50	313.70	50.99	5.90	2.37	41.83	11.62	41.83	705.80	3.15	0.91
175 x 75 x 20	10.25	4.5	13.06	2.10	7.50	440.70	68.79	5.80	2.29	58.77	15.64	58.77	991.70	3.12	0.99
	6.31	2.3	8.04	2.34	8.75	389.30	60.97	6.95	2.75	44.49	11.83	44.31	747.70	3.52	0.80
	8.13	3.0	10.35	2.34	8.75	494.90	76.25	6.91	2.71	56.56	14.78	56.56	954.50	3.50	0.87
200 x 75 x 20	11.84	4.5	15.09	2.33	8.75	701.60	104.12	6.81	2.62	80.18	20.14	80.18	1353.10	3.47	0.96
	6.76	2.3	8.62	2.19	10.00	531.00	63.65	7.84	2.71	53.10	12.00	52.89	892.50	3.38	0.75
	8.71	3.0	11.10	2.19	10.00	676.10	79.62	7.80	2.67	67.61	15.00	67.61	1140.90	3.36	0.82
225 x 75 x 20	12.73	4.5	16.12	2.18	10.00	962.00	108.77	7.70	2.58	96.20	20.46	96.20	1623.30	3.33	0.96
	7.21	2.3	9.19	2.06	11.25	699.60	65.99	8.72	2.67	62.18	12.14	61.95	1045.40	3.26	0.71
	9.30	3.0	11.85	2.06	11.25	892.00	82.55	8.67	2.63	79.29	15.19	79.29	1338.00	3.24	0.78
250 x 75 x 25	13.61	4.5	17.34	2.05	11.25	1273.10	112.81	8.56	2.55	113.16	20.73	113.16	1909.60	3.20	0.89
	7.85	2.3	10.00	2.07	12.50	921.11	74.68	9.59	2.73	73.68	13.77	73.43	1239.14	3.34	0.68
	10.13	3.0	12.90	2.07	12.50	1176.57	93.68	9.54	2.69	94.12	17.27	94.12	1588.31	3.32	0.74
14.85	4.5	18.91	2.07	12.50	1685.70	128.83	9.43	2.60	134.85	23.74	134.85	2275.61	3.27	0.86	

U-Channels

Metric units (Inside slope 5°)

Section size A x B x t1	Unit weight M		Section depth A		Flange width B		Web thickness t1		Flange thickness t2		Corner radius			
	kg/m	lb/ft	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
75 x 40 x 5	6.92	4.65	75	2.953	40	1.575	5.0	0.197	7.0	0.276	8	0.315	4.0	0.157
100 x 50 x 5	9.36	6.29	100	3.937	50	1.969	5.0	0.197	7.5	0.295	8	0.315	4.0	0.157
125 x 65 x 6	13.4	9.004	125	4.921	65	2.559	6.0	0.236	8.0	0.315	8	0.315	4.0	0.157
150 x 75 x 6.5	18.6	12.50	150	5.906	75	2.953	6.5	0.256	10.0	0.394	10	0.394	5.0	0.197
150 x 75 x 9	24.0	16.13	150	5.906	75	2.953	9.0	0.354	12.5	0.492	15	0.591	7.5	0.295
180 x 75 x 7	21.4	14.35	180	7.087	75	2.953	7.0	0.276	10.5	0.413	11	0.433	5.5	0.217
180 x 90 x 7.5	27.1	18.21	180	7.087	90	3.543	7.5	0.295	12.5	0.492	13	0.512	6.5	0.256
200 x 80 x 7.5	24.6	16.53	200	7.874	80	3.15	7.5	0.295	11.0	0.433	12	0.472	6.0	0.236
200 x 90 x 8	30.3	20.40	200	7.874	90	3.543	8.0	0.315	13.5	0.531	14	0.551	7.0	0.276
230 x 80 x 8	28.4	19.08	230	9.055	80	3.15	8.0	0.315	12.0	0.472	13	0.512	6.5	0.256
230 x 90 x 8.5	33.1	22.24	230	9.055	90	3.543	8.5	0.335	13.5	0.531	15	0.591	7.5	0.295
250 x 80 x 8	30.2	20.29	250	9.843	80	3.15	8.0	0.315	12.5	0.492	14	0.551	7.0	0.276
250 x 90 x 9	34.6	23.15	250	9.843	90	3.543	9.0	0.354	13.0	0.512	14	0.551	7.0	0.276
250 x 90 x 11	40.2	26.90	250	9.843	90	3.543	11.0	0.433	14.5	0.571	17	0.669	8.5	0.335
280 x 100 x 9	38.8	26.07	280	11.024	100	3.937	9.0	0.354	13.0	0.512	14	0.551	7.0	0.276
280 x 100 x 11.5	48.2	32.39	280	11.024	100	3.937	11.5	0.453	16.0	0.630	18	0.709	9.0	0.354
300 x 90 x 9	38.1	25.57	300	11.811	90	3.543	9.0	0.354	12.0	0.512	14	0.551	7.0	0.276
300 x 90 x 10	43.8	29.32	300	11.811	90	3.543	10.0	0.394	15.5	0.611	19	0.748	9.5	0.374
380 x 100 x 10.5	54.5	36.60	380	14.961	100	3.937	10.5	0.413	16.0	0.630	18	0.709	9.0	0.354
380 x 100 x 13	62.0	41.66	380	14.961	100	3.937	13.0	0.512	16.5	0.650	18	0.709	9.0	0.354



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