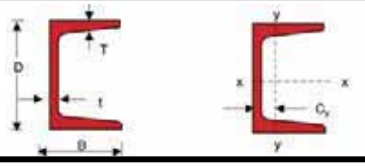
Tapered Flange



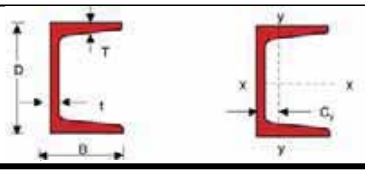
Imperial

Designation Size		Mass Per Metre	Depth Of Section	Width Of Section	Thickness Web	Thickness Flange	Area Of Section	Centre Of Gravity	Second moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus	
			D	B	t	T	A	C_y	I_x	I_y	r_x	r_y	Z_x	Z_y	S_x	S_y
in x in	lb/ft	kg/m	mm	mm	mm	mm	cm^2	cm	cm^4	cm^4	cm	cm	cm^3	cm^3	cm^3	cm^3
3x1 1/2	4.5	6.7	76.2	38.1	5.1	6.8	8.62	1.12	75.1	10.1	2.95	1.08	19.71	3.78	23.7	7.5
4x2	7	10.42	101.6	50.8	6.1	7.6	13.16	1.41	206	27.7	3.95	1.48	40.51	7.64	48.7	14.9
5x2 1/2	10	14.90	127.0	63.5	6.4	9.2	18.79	1.82	477	64.7	5.04	1.88	75.1	14.5	89.1	27.7
6x3	12	17.88	152.4	76.2	6.4	9.0	22.48	2.04	838	109	6.11	2.24	110	20	129	38.3
6x3 1/2	16	23.84	152.4	88.9	7.1	11.6	30.02	2.67	1154	210	6.20	2.66	151.4	34.5	177	63.7
7x3	14	20.84	177.8	76.2	6.6	10.3	26.39	2.05	1329	129	7.10	2.25	149.5	23.6	176	45.3

(British Channels)

Note : The flange thickness is measured at the centre of the flange

Tapered Flange

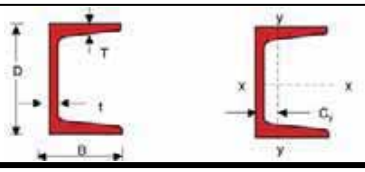


Imperial

Designation Size		Mass Per Metre	Depth Of Section	Width Of Section	Thickness Web	Thickness Flange	Area Of Section	Centre Of Gravity	Second moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus	
			D	B	t	T	A	C_y	I_x	I_y	r_x	r_y	Z_x	Z_y	S_x	S_y
in x in	lb/ft	kg/m	mm	mm	mm	mm	cm^2	cm	cm^4	cm^4	cm	cm	cm^3	cm^3	cm^3	cm^3
3x1 3/8	4.1	6.1	76.2	35.0	4.3	6.9	7.81	1.06	69.11	8.0	2.98	1.01	18.14	3.27	21.7	6.4
3x1 1/2	5	7.4	76.2	37.0	6.6	6.9	9.48	1.06	76.58	9.6	2.85	1.01	20.1	3.65	24.9	7.36
3x1 5/8	6	8.90	76.2	40.0	9	6.9	11.30	1.13	86.37	12.1	2.76	1.03	22.67	4.2	28.7	8.8
4x1 5/8	5.4	8.00	101.6	40.0	4.7	7.5	10.30	1.15	160.3	13.8	3.97	1.16	31.56	4.89	37.8	9.4
4x1 3/4	7.2	10.80	101.6	43.0	8.2	7.5	13.70	1.13	190.8	17.4	3.72	1.12	37.56	5.48	47	11.3
5x1 3/4	6.7	10.40	127.0	47.0	4.8	8.1	12.70	1.29	332.4	24.3	5.01	1.36	52.34	7.19	61.8	14.1
5x1 7/8	9	13.00	127.0	48.0	8.3	8.1	17.00	1.21	371.3	27.4	4.66	1.27	58.47	7.65	73.1	15.3
6x1 7/8	8.2	12.20	152.4	48.0	5.1	8.7	15.50	1.26	548.4	29.2	5.94	1.37	72	8.3	85.6	16.1
6x2	10.5	15.60	152.4	51.0	8	8.7	19.90	1.24	630	36	5.63	1.35	82.68	9.36	103	18.7
6X2 1/8	13	19.30	152.4	54.0	11.1	8.7	24.70	1.28	720.8	42.4	5.41	1.31	94.59	10.3	121	22.1
7x2 1/8	9.8	14.60	177.8	53.0	5.3	9.3	18.50	1.36	895.5	42.7	6.94	1.52	100.7	10.9	120	21.1
7x2 1/4	12.25	18.20	177.8	55.0	8	9.3	23.20	1.31	1007	49.2	6.59	1.46	113.3	11.8	140	23.4
7x2 1/4	14.75	22.00	177.8	58.0	10.6	9.3	27.90	1.33	1143	56.8	6.39	1.42	128.6	12.7	163	27
8x2 1/4	11.5	17.10	203.0	57.0	5.6	9.9	21.80	1.44	1340	53.8	7.86	1.57	132	12.6	156	27.6
8x2 3/8	13.7	20.50	203.0	59.0	7.7	9.9	26.10	1.39	1490	62	7.57	1.54	147	13.7	177	30
8x2 1/2	18.5	27.90	203.0	64.0	12.4	9.9	35.50	1.43	1820	81.7	7.15	1.51	179	16.4	226	35.9
9x2 3/8	13.4	19.90	228.6	61.0	5.9	10.5	25.40	1.50	1991	76.1	8.86	1.73	174.2	16.7	208	31.9
9x2 1/2	15	22.00	228.6	63.0	7.2	10.5	28.10	1.49	2132	85.3	8.66	1.73	186.5	17.8	226	34.3
9x2 5/8	20	30.00	228.6	67.0	11.4	10.5	37.90	1.47	2544	103	8.19	1.65	222.5	19.8	282	41
10x2 5/8	15.3	22.80	254.0	65.0	6.1	11.1	29.00	1.58	2770	91.2	9.81	1.78	218	18.5	257	40.3
10x2 3/4	20	30.00	254.0	69.0	9.6	11.1	37.90	1.53	3260	114	9.29	1.74	257	21.2	315	46.5
10x2 7/8	25	37.00	254.0	73.0	13.4	11.1	47.40	1.56	3790	138	8.93	1.70	298	24	377	52.6
10x3	30	45.00	254.0	76.0	17.1	11.1	56.90	1.63	4270	158	8.68	1.67	336	26.5	434	57.4
12x3	20.7	30.80	305.0	74.0	7.2	12.7	39.30	1.74	5340	157	11.70	2.00	350	27.7	415	60.2
12x3	25	37.00	305.0	77.0	9.8	12.7	47.40	1.70	5970	183	11.20	1.97	391	30.5	477	66
12x3 1/8	30	45.00	305.0	80.0	13	12.7	56.90	1.70	6720	209	10.90	1.92	441	33.2	551	72.1
15x3 3/8	33.9	50.40	381.0	86.0	10.2	16.5	64.30	1.99	13100	334	14.30	2.28	688	50.5	825	107
15x3 1/2	40	60.00	381.0	89.0	13.2	16.5	76.10	1.97	14400	379	13.80	2.24	756	54.7	934	115
15x3 3/4	50	74.00	381.0	94.0	18.2	16.5	94.80	2.02	16700	454	13.30	2.19	877	61.5	1120	130

(American Standard Channels)

Tapered Flange

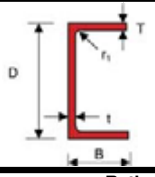


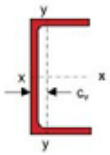
Imperial

Designation Size		Mass Per Metre	Depth Of Section	Width Of Section	Thickness Web	Thickness Flange	Area Of Section	Centre Of Gravity	Second moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus	
			D	B	t	T	A	C_y	I_x	I_y	r_x	r_y	Z_x	Z_y	S_x	S_y
in x in	lb/ft	kg/m	mm	mm	mm	mm	cm^2	cm	cm^4	cm^4	cm	cm	cm^3	cm^3	cm^3	cm^3
6x2 1/2	12	17.90	152.0	63.0	7.9	9.5	22.80	1.63	773	69.8	5.83	1.75	101.7	15.1	123	29.6
6x3	15.1	22.50	152.0	74.0	8	12.1	28.60	2.18	1033	134	6.01	2.16	135.9	25.8	162	49.7
6x3 1/2	15.3	22.80	152.0	88.0	8.6	9.8	29.00	2.31	1050	178	6.01	2.48	138.2	27.9	164	55.2
6x3	16.3	24.30	152.0	76.0	9.5	12.1	30.90	2.17	1081	147	5.91	2.17	142.2	27.2	171	53.3
6x3 1/2	18	26.80	152.0	88.0	9.6	12.1	34.10	2.53	1223	219	5.99	2.54	160.9	35.4	192	68.7
7x3 1/2	19.1	28.40	178.0	87.0	8.9	127.0	36.20	2.46	1797	230	7.05	2.52	201.9	37.4	239	72.2
7x3 5/8	22.7	33.80	178.0	91.0	12.8	12.7	43.00	2.42	1973	271	6.77	2.51	221.7	40.8	271	80.9
8x1 7/8	8.5	12.60	203.0	47.0	4.5	7.9	16.10	1.07	971.2	27.1	7.77	1.30	95.69	7.53	115	14.5
8x3	18.7	27.80	203.0	75.0	9	12.7	35.50	1.99	2171	160	7.83	2.13	213.9	29.3	258	56.8
8x3	20	29.80	203.0	76.0	10.2	12.7	37.90	1.97	2261	167	7.72	2.10	222.7	29.8	271	58.7
8x3 1/2	21.4	31.80	203.0	87.0	9.5	13.3	40.50	2.36	2555	251	7.94	2.49	251.7	40	300	78
8x3 1/2	22.8	33.90	203.0	88.0	10.8	13.3	43.2	2.33	2645	262	7.83	2.46	260.6	40.7	314	80.3
9x3 1/2	23.9	35.60	229.0	87.0	10.2	14.0	45.30	2.29	3547	275	8.84	2.46	309.8	43.2	373	83.8
9x31/2	25.4	37.80	229.0	88.0	11.4	14.0	48.20	2.26	3670	286	8.73	2.44	320.5	43.9	389	86.3
10x11/2	8.4	12.50	254.0	38.0	4.3	7.1	15.90	0.71	1354	14.1	9.20	0.94	106.6	4.59	132	9.14
10x33/8	22	33.00	254.0	84.0	7.4	14.6	41.60	2.30	4310	255	10.13	2.46	339.4	42.2	397	81.3
10x33/8	25	37.00	254.0	86.0	9.7	14.0	47.40	2.25	4543	285	9.81	2.46	357.7	45.3	430	86.5
10x4	28.5	42.40	254.0	100.0	10.8	.614.6	54.00	2.58	5257	433	9.87	2.83	414	59	496	114
10x41/8	33.6	50.00	254.0	104.0	145	14.6	63.70	2.55	5750	498	9.52	2.80	452.8	63.8	558	126
10x43/8	41.1	61.20	254.0	110.0	20.2	14.6	78.10	2.59	6550	582	9.17	2.73	515.8	69.2	654	146
12x11/2	10.6	15.80	305.0	38.0	4.8	7.8	20.00	0.69	2338	15.9	10.78	0.89	153.3	5.08	196	10.8
12X35/8	31	46.00	305.0	93.0	9.4	17.8	58.90	2.61	8292	436	12.00	2.74	543.7	65	661	129
12x33/4	35	52.00	305.0	96.0	11.8	17.8	66.20	2.55	8998	487	11.67	2.71	590.1	68.7	726	138
12x37/8	40	60.00	305.0	98.0	15	17.8	76.10	2.48	9732	526	11.33	2.63	638.2	71.5	798	146
12x4	45	67.00	305.0	102.0	18	17.8	85.02	2.53	10510	597	11.10	2.65	689	77.5	873	161
12x41/8	50	74.00	305.0	105.0	21.2	17.8	94.80	2.59	11140	664	10.87	2.65	730.7	83.5	939	175
13x4	31.8	47.30	330.0	102.0	9.5	15.5	60.30	2.58	9986	500	12.87	2.88	605.2	65.1	739	136
13x41/8	35	52.00	330.0	103.0	11.4	15.5	66.40	2.50	10500	526	12.58	2.82	636.1	67	786	140
13x41/8	40	60.00	330.0	106.0	14.2	15.5	76.01	2.45	11470	576	12.27	2.75	694.9	70.2	870	150
13x43/8	50	74.00	330.0	112.0	20	15.5	94.80	2.52	12990	708	11.74	2.74	787.4	81	1016	175
18x4	42.7	63.50	457.0	100.0	11.4	15.9	81.30	2.11	23040	535	16.88	2.57	1008	67.4	1263	141
18x4	45.8	68.20	457.0	102.0	12.7	15.9	87.10	2.12	24010	576	16.64	2.58	1051	70.9	1330	149
18x41/8	51.9	77.20	457.0	104.0	15.2	15.9	98.70	2.10	26090	611	16.29	2.49	1142	73.2	1463	159
18x41/8	58	86.00	457.0	107.0	17.8	15.9	110.00	2.14	27850	682	16.00	2.50	1219	79.3	1587	173

(American Standard Channels)

Parallel Flange





Designation Size DxB	Mass Per Metre	Thickness Web t	Thickness Flange T	Root Radius r_1	Depth Between Fillets d	Area Of Section A	Centre Of Gravity C_y	Ratios For Local Buckling Flange B/T	Ratios For Local Buckling Web d/t	Second Moment Of Area Axis x-x	Second Moment Of Area Axis y-y
	kg/m	mm	mm	mm	mm	cm^2	cm			cm^4	cm^4
100x50	10.2	5.0	8.5	9	65.0	13.0	1.73	5.88	13.0	208	32.3
125x65	14.8	5.5	9.5	12	82.0	18.8	2.25	6.84	14.9	483	80.0
150x75	17.9	5.5	10.0	12	106	22.8	2.58	7.50	19.3	861	131
150x90	23.9	6.5	12.0	12	102	30.4	3.30	7.50	15.7	1162	253
180x75	20.3	6.0	10.5	12	135	25.9	2.41	7.14	22.5	1370	146
180x90	26.1	6.5	12.5	12	131	33.2	3.17	7.20	20.2	1817	277
200x75	23.4	6.0	12.5	12	151	29.9	2.48	6.00	25.2	1963	170
200x90	29.7	7.0	14.0	12	148	37.9	3.12	6.43	21.1	2523	314
230x75	25.7	6.5	12.5	12	181	32.7	2.30	6.00	27.8	2748	181
230x90	32.2	7.5	14.0	12	178	41.0	2.92	6.43	23.7	3518	334
250x90	35.5	8.0	15.0	12	220	45.2	2.86	6.00	27.5	4510	364
260x75	27.6	7.0	12.0	12	212	35.1	2.10	6.25	30.3	3619	185
260x90	34.8	8.0	14.0	12	208	44.4	2.74	6.43	26.0	4728	353
300x90	41.4	9.0	15.5	12	245	52.7	2.60	5.81	27.2	7218	404
300x100	45.5	9.0	16.5	15	237	58.0	3.05	6.06	26.3	8229	568
380x100	54.0	9.5	17.5	15	315	68.7	2.79	5.71	33.2	15030	643
430x100	64.4	11.0	19.0	15	362	82.1	2.62	5.26	32.9	21940	722

Designation Size DxB	Mass Per Metre	Radius Of Gyration Axis x-x	Radius Of Gyration Axis y-y	Elastic Modulus Axis x-x	Elastic Modulus Axis y-y	Plastic Modulus Axis x-x	Plastic Modulus Axis y-y	Buckling Parameter u	Torsional Index x	Warping Constant H	Torsional Constant J
	kg/m	cm	cm	cm^3	cm^3	cm^3	cm^3			dm^6	cm^4
100x50	10.2	4.00	1.58	41.5	9.89	48.9	17.5	0.942	10.0	0.000491	2.53
125x65	14.8	5.07	2.06	77.3	18.8	89.9	33.2	0.942	11.1	0.00194	4.72
150x75	17.9	6.15	2.40	115	26.6	132	47.2	0.946	13.1	0.00467	6.10
150x90	23.9	6.18	2.89	155	44.4	179	76.9	0.936	10.8	0.00890	11.8
180x75	20.3	7.27	2.38	152	28.8	176	51.8	0.946	15.3	0.00754	7.34
180x90	26.1	7.40	2.89	202	47.4	232	83.5	0.949	12.8	0.0141	13.3
200x75	23.4	8.11	2.39	196	33.8	227	60.6	0.956	14.8	0.0107	11.1
200x90	29.7	8.16	2.89	252	53.4	291	94.5	0.954	12.9	0.0197	18.3
230x75	25.7	9.17	2.35	239	34.8	278	63.2	0.947	17.3	0.0153	11.8
230x90	32.2	9.27	2.86	306	55.0	355	98.9	0.950	15.1	0.0279	19.3
250x90	35.5	9.99	2.84	361	59.3	421	107	0.948	15.5	0.0359	23.8
260x75	27.6	10.1	2.30	278	34.4	328	62.0	0.932	20.5	0.0203	11.7
260x90	34.8	10.3	2.82	364	56.3	425	102	0.942	17.2	0.0379	20.6
300x90	41.4	11.7	2.77	481	63.1	568	114	0.934	18.4	0.0581	28.8
300x100	45.5	11.9	3.13	549	81.7	641	148	0.944	17.0	0.0813	36.8
380x100	54.0	14.8	3.06	791	89.2	933	161	0.932	21.2	0.150	45.7
430x100	64.4	16.3	2.97	1020	97.9	1222	176	0.917	22.5	0.219	63.0