Ir. Rudy Gunawan
Dengan petunjuk Ir. Morisco

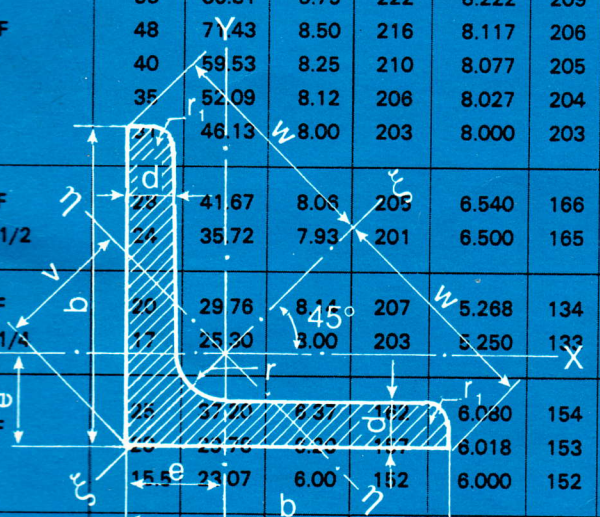
Tabel Profil KONSTRUKSI BAJA

$h \geq 300$ mm

Wide Flange Shapes

(Inch Series)-Continued

Designation	Weight per Foot	Depth of Section (A)		Flange Width		Web Thickness (t_1)		Flange Thickness (t_2)		Corner Radius		Area	
	lb	in	mm	in	mm	in	mm	in	mm	in	mm	in²	cm²
	136.7		265	0.		18	24	31.70	0	12.	3	2	212.4
	118.8	32	263	0.		17.40	118	3.40	0	12.	2	3	189.9
	101.88	27	261	0		15.62	998	0.50	12.	2	9		169.0
10" WF	77	114.6	10.62	270	10.195	259	0.535	13.59	0.868	22.05	0.50	12.7	22.67	146.3
10×10		107.1	0.50				0	20	0	0				
	66	22	38	0.1	257	0.45	11.6	0	19	0	7	9.4		
	60	9	0	375	256	0.41	10.5	0	17		12.7	66	1	
	54	8	10.	10.	255	0.36	0	15		12.7	13			
	49	2	0.00	10.000	254	0.34	0	14	0	2.7	14.40			
10" WF	45	66.97	10.12	257	8.022	204	0.350	8.89	0.618	15.70	0.50	12.7	13.24	85.4
		58.04	9.	252	990	203	0.318	8.08	0.528	13.41	0.50	12.7	11.48	74.1
		49.11	9.	248	964	202	0.292	7.42	0.433	11.00	0.50	12.7	9.71	62.6
WF		3.16	10.	26		147	0.289	7.34	0.500	12.70	0.32	8.12	8.53	55.0
		20	10.	2		146	0.252	6.40	0.430	10.92	0.32	8.12	7.35	47.4
	21	5			5.75	146	0.240	6.10	0.340	8.64	0.32	8.12	6.19	39.9
	67	99.71	9.00	229	8.287	210	0.575	14.61	0.933	23.70	0.40	10.2	19.70	127.1
	58	86.31	8.75	222	8.222	209	0.510	12.95	0.808	20.52	0.40	10.2	17.06	110.1
8" WF	48	71.43	8.50	216	8.117	206	0.405	10.29	0.683	17.35	0.40	10.2	14.11	91.0
8×8	40	59.53	8.25	210	8.077	205	0.365	9.27	0.558	14.17	0.40	10.2	11.73	75.9
	35	52.09	8.12	206	8.027	204	0.315	8.00	0.493	12.52	0.40	10.2	10.30	66.5
	31	46.13	8.00	203	8.000	203	0.288	7.32	0.433	11.00	0.40	10.2	9.12	58.8
8" WF	28	41.67	8.06	205	6.540	166	0.285	7.24	0.463	11.76	0.40	10.2	8.23	53.1
8×6-1/2	24	35.72	7.93	201	6.500	165	0.245	6.22	0.398	10.11	0.40	10.2	7.06	45.5
8" WF	20	29.76	8.14	207	5.268	134	0.248	6.30	0.378	9.60	0.32	8.12	5.88	37.9
8×5-1/4	17	25.20	8.00	203	5.250	133	0.230	5.84	0.308	7.82	0.32	8.12	5.00	32.3
8" WF	25	37.13	8.37	212	6.080	154	0.320	8.13	0.456	11.58	0.25	6.35	7.35	47.4
6×6	20	29.78	8.11	206	6.018	153	0.258	6.55	0.367	9.32	0.25	6.35	5.88	37.9
	15.5	23.07	6.00	152	6.000	152	0.240	6.10	0.269	6.83	0.25	6.35	4.59	29.6
5" WF	18.5	27.03	5.12	130	5.025	128	0.265	6.73	0.420	10.67	0.30	7.62	5.45	35.2
5×5	16	23.81	5.00	127	5.000	127	0.240	6.10	0.360	9.14	0.30	7.62	4.70	30.3
4" WF 4×4	13	19.35	4.16	106	4.060	122	0.280	7.11	0.345	8.30	0.313	7.95	3.82	25.1



Ir. Rudy Gunawan
Dengan petunjuk Ir. Morisco

Tabel Profil KONSTRUKSI BAJA

PENERBIT KANISIUS

Tabel Profil Konstruksi Baja
028050

PENERBIT KANISIUS (Anggota IKAPI)
Jl. Cempaka 9, Deresan, Yogyakarta 55281
Telepon (0274) 88783, Teleks 25243, Fax (0274) 63349
Kotak Pos 1125/Yk, Yogyakarta 55011

Cetakan pertama 1988
Cetakan kedua 1989
Cetakan ketiga 1990
Cetakan keempat 1990
Cetakan kelima 1991
Cetakan keenam 1992
Cetakan ketujuh 1993

ISBN 979-413-158-X

Dicetak oleh Percetakan Kanisius Yogyakarta

KATA PENGANTAR

Dengan kemajuan teknologi pada dekade 1970 - 1980, ada beberapa profil baja yang ternyata tidak efisien lagi, dan tidak digunakan lagi. Profil lama itu mencakup profil I normal dan Profil I DIE/DIL/DIN, dan sebagai gantinya telah diproduksi profil baja yang ekonomis yaitu bentuk I - WF (Wide Flange) dan "Structural Tees". Karena itu kami berusaha menyusun "Tabel Profil Konstruksi Baja" yang mencantumkan profil baru tersebut. Selain itu juga kami lengkapi dengan "Engineering Conversion Factors" dan beberapa tabel lain. Kami harap buku ini dapat berguna bagi para teknisi bangunan dan mahasiswa teknik, baik sipil maupun arsitektur.

Buku ini kami susun berdasarkan buku *Steel Design Manual,* American Institute of Steel Counstruction (AISC), New York, 1983 dan *Japan Steel Design Handbook,* Tokyo, 1981, serta tabel-tabel dan diktat-diktat kuliah pada Fakultas Teknik Sipil, Universitas Gadjah Mada, antara 1973 - 1980.

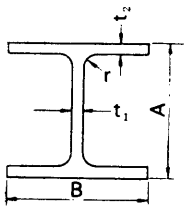
Akhirnya kami ucapkan terima kasih kepada semua pihak yang telah membantu penerbitan buku, khususnya Bapak Ir. Morisco (Universitas Gadjah Mada) dan Ir. Th. A. Adisoebagjo (Universitas Trisakti), yang telah memberikan banyak petunjuk dan saran. Semula buku ini kami terbitkan sendiri di bawah nama Penerbitan Yayasan Sarana Cipta.

Yogyakarta, Desember 1987

Penyusun

DAFTAR ISI

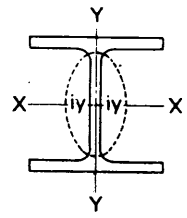
Sizes and Section Properties



Wide Flange Shapes

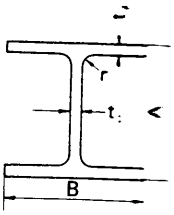
(Inch Series)

Section Index	Weight		Depth of Section (A)		Flange Width (B)		Web Thickness (t_1)		Flange Thickness (t_2)		Corner Radius		Sectional Area	
	lbs/ft	kg/m	in	mm	in	mm	in	mm	in	mm	in	mm	in²	cm²
36" WF 36×16-1/2	300	446.4	36.72	933	16.655	423	0.945	24.00	1.680	42.67	1.02	25.9	88.17	568.8
	280	416.7	36.50	927	16.595	422	0.885	22.48	1.570	39.88	1.02	25.9	82.32	531.1
	260	386.9	36.24	920	16.555	421	0.845	21.46	1.440	36.58	1.02	25.9	76.56	493.9
	245	364.6	36.06	916	16.512	419	0.802	20.37	1.350	34.29	1.02	25.9	72.03	467.7
	230	342.3	35.88	911	16.475	418	0.765	19.43	1.260	32.00	1.02	25.9	67.73	437.0
36" WF 36×12	194	288.7	36.48	927	12.117	308	0.770	19.56	1.260	32.00	0.80	20.3	57.11	368.5
	182	270.8	36.32	923	12.072	307	0.725	18.42	1.180	29.97	0.80	20.3	53.54	345.4
	170	253.0	36.16	918	12.027	305	0.680	17.27	1.100	27.94	0.80	20.3	49.98	322.5
	160	238.1	36.00	914	12.000	305	0.653	16.59	1.020	25.91	0.80	20.3	47.09	303.8
	150	223.2	35.84	910	11.972	304	0.625	15.88	0.940	23.88	0.80	20.3	44.16	284.9
	135	200.9	35.55	903	11.945	303	0.598	15.19	0.794	20.17	0.80	20.3	39.70	256.1
33" WF 33×15-3/4	240	357.2	33.50	851	15.865	403	0.830	21.08	1.400	35.56	0.96	24.4	70.52	455.0
	220	327.4	33.25	845	15.810	402	0.775	19.69	1.275	32.39	0.96	24.4	64.73	417.6
	200	297.6	33.00	838	15.750	400	0.715	18.16	1.150	29.21	0.96	24.4	58.79	379.3
33" WF 33×11-1/2	152	226.2	33.50	851	11.565	294	0.635	16.13	1.055	26.80	0.75	19.0	44.71	288.5
	141	209.8	33.31	846	11.535	293	0.605	15.37	0.960	24.38	0.75	19.0	41.51	267.8
	130	193.5	33.10	841	11.510	292	0.580	14.73	0.855	21.72	0.75	19.0	38.26	246.8
	118	175.6	32.86	835	11.484	292	0.554	14.07	0.738	18.74	0.75	19.0	34.71	223.9
30" WF 30×15	210	312.5	30.38	772	15.105	384	0.775	19.69	1.315	33.40	0.91	23.1	61.78	398.6
	190	282.8	30.12	765	15.040	382	0.710	18.03	1.185	30.10	0.91	23.1	55.90	360.6
	172	256.0	29.88	759	14.985	381	0.655	16.64	1.065	27.05	0.91	23.1	50.65	326.8
30" WF 30×10-1/2	132	196.4	30.30	770	10.551	268	0.615	15.62	1.000	25.40	0.70	17.8	38.83	250.5
	124	184.5	30.16	766	10.521	267	0.585	14.86	0.930	23.62	0.70	17.8	36.45	235.2
	116	172.6	30.00	762	10.500	267	0.564	14.33	0.850	21.59	0.70	17.8	34.13	220.2
	108	160.7	29.82	757	10.484	266	0.548	13.92	0.760	19.30	0.70	17.8	31.77	205.0
	99	147.3	29.64	753	10.458	266	0.522	13.26	0.670	17.02	0.70	17.8	29.11	187.8
27" WF 27×14	177	263.4	27.31	694	14.090	358	0.725	18.42	1.190	30.23	0.86	21.8	52.10	336.1
	160	238.1	27.08	688	14.023	356	0.658	16.71	1.075	27.31	0.86	21.8	47.04	303.5
	145	215.8	26.88	683	13.965	355	0.600	15.24	0.975	24.77	0.86	21.8	42.68	275.4
27" WF 27×10	114	169.7	27.28	693	10.070	256	0.570	14.48	0.932	23.67	0.64	16.2	33.53	216.3
	102	151.8	27.07	688	10.018	254	0.518	13.16	0.827	21.01	0.64	16.2	30.01	193.6
	94	139.9	26.91	684	9.990	254	0.490	12.45	0.747	18.97	0.64	16.2	27.65	178.4
	84	125.0	26.69	678	9.963	253	0.463	11.76	0.636	16.15	0.64	16.2	24.71	159.4



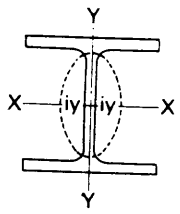
Moment of Inertia				Radius of Gyration				Modulus of Section				Section Index
Jx		Jy		ix		iy		Zx		Zy		
in⁴	cm⁴	in⁴	cm⁴	in	cm	in	cm	in³	cm³	in³	cm³	
20,290.2	844,600	1,225.2	46,730	15.17	38.53	3.73	9.47	1,105.1	18,112.6	147.1	2,410.9	
18,819.3	783,400	1,127.5	46,320	15.12	38.40	3.70	9.40	1,031.2	16,901.4	135.9	2,227.4	
17,233.8	717,400	1,020.6	45,880	15.00	38.10	3.65	9.27	951.1	15,588.5	123.3	2,020.9	36" WF
16,092.2	669,900	944.7	45,560	14.95	37.97	3.62	9.19	892.5	14,628.1	114.4	1,875.0	36×16-1/2
14,988.4	623,900	870.9	45,250	14.88	37.80	3.59	9.12	835.5	13,693.8	105.7	1,732.4	
12,103.4	503,800	355.4	14,790	14.56	36.98	2.49	6.32	663.6	10,876.4	58.7	962.1	
11,281.5	469,600	327.7	13,640	14.52	36.88	2.47	6.27	621.2	10,181.5	54.3	890.0	
10,470.0	435,800	300.6	12,510	14.47	36.75	2.45	6.22	579.1	9,491.4	50.0	819.5	36" WF
9,738.8	405,400	275.4	11,460	14.38	36.52	2.42	6.15	541.0	8,867.0	45.9	752.3	36×12
9,012.1	375,200	250.4	10,420	14.29	36.30	2.38	6.04	502.9	8,242.5	41.8	685.1	
7,796.1	324,500	207.1	8,621	14.01	35.58	2.28	5.79	438.6	7,188.6	34.7	568.7	
13,585.1	565,500	874.3	36,400	13.88	35.26	3.52	8.94	811.1	13,293.9	110.2	1,806.2	
12,312.1	512,500	782.4	32,570	13.79	35.03	3.48	8.84	740.6	12,138.4	99.0	1,622.6	33" WF
11,048.2	459,900	691.7	28,790	13.71	34.82	3.43	8.71	669.6	10,974.7	87.8	1,439.0	33×15-3/4
8,147.6	339,200	256.1	10,660	13.50	34.29	2.39	6.07	486.4	7,972.1	44.3	726.1	
7,442.2	309,800	229.7	9,562	13.39	34.01	2.35	5.97	446.8	7,323.0	39.8	652.3	33" WF
6,699.0	278,900	201.4	8,384	13.23	33.60	2.29	5.82	404.8	6,634.7	35.0	573.7	33×11-1/2
5,886.9	245,100	170.3	7,089	13.02	33.07	2.22	5.64	358.3	5,872.5	29.7	486.8	
9,872.4	410,100	707.9	29,470	12.64	32.10	3.38	8.58	649.9	10,651.9	93.7	1,535.7	
8,825.9	367,400	624.6	26,000	12.57	31.93	3.34	8.48	586.1	9,606.2	83.1	1,362.0	30" WF
7,891.5	328,500	550.1	22,900	12.48	31.70	3.30	8.38	528.2	8,657.2	73.4	1,203.0	30×15
5,753.1	239,500	185.0	7,701	12.17	30.91	2.18	5.54	379.7	6,223.3	35.1	575.3	
5,347.1	222,600	169.7	7,064	12.11	30.76	2.16	5.49	354.6	5,811.9	32.3	529.4	
4,919.1	204,800	153.2	6,377	12.00	30.48	2.12	5.38	327.9	5,374.3	29.2	478.6	30" WF
4,461.0	185,700	135.1	5,624	11.85	30.10	2.06	5.23	299.2	4,903.9	25.8	422.9	30×10-1/2
3,988.6	166,000	116.9	4,866	11.70	29.72	2.00	5.08	269.1	4,410.5	22.4	367.1	
6,728.6	280,100	518.9	21,600	11.36	28.85	3.16	8.03	492.8	8,077.0	73.7	1,207.9	
6,018.6	250,500	458.0	19,060	11.31	28.73	3.12	7.92	444.5	7,285.4	65.3	1,070.3	27" WF
5,414.3	225,400	406.9	16,940	11.26	28.60	3.09	7.85	402.9	6,603.5	58.3	955.5	27×14
4,080.5	169,900	149.6	6,228	11.03	28.02	2.11	5.36	299.2	4,903.9	29.7	486.8	
3,504.1	150,000	129.5	5,391	10.96	27.83	2.08	5.28	266.3	4,364.7	25.9	424.5	27" WF
3,266.7	136,000	115.1	4,791	10.87	27.61	2.04	5.18	242.8	3,979.5	23.0	377.0	27×10
2,824.8	117,600	95.7	3,984	10.69	27.15	1.97	5.00	211.7	3,469.8	19.2	314.7	

Wide Flange Shapes



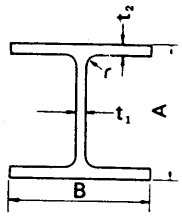
(Inch Series)-Continued

Section Index	Weight		Depth of Section (A)		Flange Width (B)		Web Thickness (t_1)		Flange Thickness (t_2)		Corner Radius		Sectional Area	
	lbs/ft	kg/m	in	mm	in	mm	in	mm	in	mm	in	mm	in²	cm²
24" WF 24×14	160	238.1	24.72	628	14.091	358	0.656	16.66	1.135	28.83	0.70	17.8	47.04	303.3
	145	215.8	24.49	622	14.043	357	0.608	15.44	1.020	25.91	0.70	17.8	42.62	275.1
	130	193.5	24.25	616	14.000	356	0.565	14.35	0.900	22.86	0.70	17.8	38.21	246.5
24" WF 24×12	120	178.6	24.31	617	12.088	307	0.556	14.12	0.930	23.62	0.70	17.8	35.29	227.7
	110	163.7	24.16	614	12.042	306	0.510	12.95	0.855	21.72	0.70	17.8	32.36	208.8
	100	148.8	24.00	610	12.000	305	0.468	11.89	0.775	19.69	0.70	17.8	29.43	189.9
24" WF 24×9	94	139.9	24.29	617	9.061	230	0.516	13.11	0.872	22.15	0.54	13.8	27.63	178.3
	84	125.0	24.09	612	9.015	229	0.470	11.94	0.772	19.61	0.54	13.8	24.71	159.4
	76	113.1	23.91	607	8.985	228	0.440	11.18	0.682	17.32	0.54	13.8	22.37	144.3
	68	101.2	23.71	602	8.961	228	0.416	10.57	0.582	14.78	0.54	13.8	20.00	129.0
21" WF 21×13	142	211.3	21.46	545	13.132	334	0.659	16.74	1.095	27.81	0.65	16.5	41.76	269.4
	127	189.0	21.24	539	13.061	332	0.588	14.94	0.985	25.02	0.65	16.5	37.34	240.9
	112	166.7	21.00	533	13.000	330	0.527	13.39	0.865	21.97	0.65	16.5	32.93	212.5
21" WF 21×9	96	142.9	21.14	537	9.038	230	0.575	14.61	0.935	23.75	0.65	16.5	28.21	182.0
	82	122.0	20.86	530	8.962	228	0.499	12.67	0.795	20.19	0.65	16.5	24.10	155.5
21" WF 21×8-1/4	73	108.6	21.24	539	8.295	211	0.455	11.56	0.740	18.80	0.54	13.7	21.46	138.5
	68	101.2	21.13	537	8.270	210	0.430	10.92	0.685	17.40	0.54	13.7	20.02	129.2
	62	92.27	20.99	533	8.240	209	0.400	10.16	0.615	15.62	0.54	13.7	18.23	117.6
	55	81.85	20.80	528	8.215	209	0.375	9.52	0.522	13.26	0.54	13.7	16.18	104.4
18" WF 18×11-3/4	114	169.7	18.48	469	11.833	301	0.595	15.11	0.991	25.17	0.60	15.2	33.51	216.2
	105	156.3	18.32	465	11.792	300	0.554	14.07	0.911	23.14	0.60	15.2	30.86	199.1
	96	142.9	18.16	461	11.750	298	0.512	13.00	0.831	21.11	0.60	15.2	28.22	182.1
18" WF 18×8-3/4	85	126.5	18.32	465	8.838	224	0.526	13.36	0.911	23.14	0.60	15.2	24.97	161.1
	77	114.6	18.16	461	8.787	223	0.475	12.07	0.831	21.00	0.60	15.2	22.63	146.0
	70	104.2	18.00	457	8.750	222	0.438	11.13	0.751	19.08	0.60	15.2	20.56	132.6
	64	95.24	17.87	454	8.715	221	0.403	10.24	0.686	17.42	0.60	15.2	18.80	121.3
18" WF 18×7-1/2	60	89.29	18.25	464	7.558	192	0.416	10.57	0.695	17.65	0.43	10.9	17.64	113.8
	55	81.85	18.12	460	7.532	191	0.390	9.91	0.630	16.00	0.43	10.9	16.19	104.5
	50	74.41	18.00	457	7.500	191	0.358	9.09	0.570	14.48	0.43	10.9	14.71	94.9
	45	66.97	17.86	454	7.477	190	0.335	8.51	0.499	12.67	0.43	10.9	13.24	85.4



Moment of Inertia				Radius of Gyration				Modulus of Section				Section Index
Jx		Jy		ix		iy		Zx		Zy		
in⁴	cm⁴	in⁴	cm⁴	in	cm	in	cm	in³	cm³	in³	cm³	
5,110.3	212,700	492.6	20,510	10.42	26.47	3.23	8.20	413.5	6,777.3	69.9	1,145.7	
4,561.0	189,900	434.3	18,080	10.34	26.26	3.19	8.10	372.5	6,105.3	61.8	1,012.9	24" WF
4,009.5	166,900	375.2	15,620	10.24	26.01	3.13	7.95	330.7	5,420.2	53.6	878.5	24×14
3,635.3	151,300	254.0	10,570	10.15	25.78	2.68	6.81	299.1	4,902.2	42.0	688.4	
3,315.0	138,000	229.1	9,537	10.12	25.70	2.66	6.76	274.4	4,497.4	38.0	622.8	24" WF
2,987.3	124,400	203.5	8,471	10.08	25.60	2.63	6.68	248.9	4,079.5	33.9	555.6	24×12
2,683.0	111,700	102.2	4,254	9.85	25.02	1.92	4.88	220.9	3,620.6	22.6	370.4	
2,364.3	98,420	88.3	3,676	9.78	24.84	1.89	4.80	196.3	3,217.4	19.6	321.2	24" WF
2,096.4	87,270	76.5	3,184	9.68	24.59	1.85	4.70	175.4	2,874.8	17.0	278.6	24×9
1,814.5	75,530	63.8	2,656	9.53	24.21	1.79	4.55	153.1	2,590.3	14.2	232.7	
3,403.1	141,700	385.9	16,060	9.03	22.94	3.04	7.72	317.2	5,198.9	58.8	963.7	
3,017.2	125,600	338.6	14,100	8.99	22.83	3.01	7.64	284.1	4,656.4	51.8	849.0	21" WF
2,620.6	109,100	289.7	12,060	8.92	22.66	2.96	7.52	249.6	4,090.9	44.6	731.0	21×13
2,088.9	86,960	109.3	4,550	8.60	21.84	1.97	5.00	197.6	3,238.7	24.2	396.6	21" WF
1,752.4	72,950	89.6	3,730	8.53	21.67	1.93	4.90	168.0	2,753.5	20.0	327.8	21×9
1,600.3	66,620	66.2	2,756	8.64	21.94	1.76	4.47	150.7	2,470.0	16.0	262.2	
1,478.3	61,540	60.4	2,514	8.59	21.82	1.74	4.42	139.9	2,293.0	14.6	239.3	21" WF
1,326.8	55,230	53.1	2,210	8.53	21.67	1.71	4.34	126.4	2,071.7	12.9	211.4	21×8-1/4
1,140.7	47,490	44.0	1,832	8.40	21.34	1.65	4.19	109.7	1,798.0	10.7	175.4	
2,033.8	84,660	255.6	10,640	7.79	19.79	2.76	7.01	220.1	3,607.4	43.2	708.0	
1,852.5	77,120	231.0	9,616	7.75	19.68	2.73	6.93	202.2	3,314.0	39.2	642.5	18" WF
1,674.7	69,710	206.8	8,609	7.70	19.56	2.71	6.88	184.4	3,022.3	35.2	576.9	18×11-3/4
1,429.9	59,520	99.4	4,138	7.57	19.23	2.00	5.08	156.1	2,558.5	22.5	368.8	
1,286.8	53,570	88.6	3,688	7.54	19.15	1.98	5.03	141.7	2,322.5	20.2	331.1	18" WF
1,153.9	48,030	78.5	3,268	7.49	19.02	1.95	4.95	128.2	2,101.2	17.9	293.4	18×8-3/4
1,045.8	43,530	70.3	2,926	7.46	18.95	1.93	4.90	117.0	1,917.6	16.1	263.9	
984.0	40,960	47.1	1,961	7.47	18.97	1.63	4.14	107.8	1,766.8	12.5	204.9	
889.9	37,040	42.0	1,748	7.41	18.82	1.61	4.09	98.2	1,609.5	11.1	181.9	18" WF
800.6	33,330	37.2	1,548	7.38	18.74	1.59	4.04	89.0	1,458.7	9.9	162.3	18×7-1/2
704.5	29,330	31.9	1,328	7.30	18.54	1.55	3.94	78.9	1,293.2	8.5	139.3	

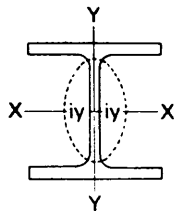
Wide Flange Shapes



(Inch Series)-Continued

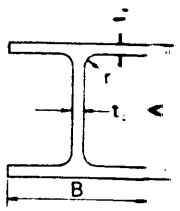
Section Index	Weight		Depth of Section (A)		Flange Width (B)		Web Thickness (t_1)		Flange Thickness (t_2)		Corner Radius		Sectional Area	
	lbs/ft	kg/m	in	mm	in	mm	in	mm	in	mm	in	mm	in²	cm²
16" WF 16×11-1/2	96	142.9	16.32	415	11.533	293	0.535	13.59	0.875	22.23	0.60	15.2	28.22	182.1
	88	131.0	16.16	410	11.502	292	0.504	12.80	0.795	20.19	0.60	15.2	25.87	167.0
16" WF 16×8-1/2	78	116.1	16.32	415	8.586	218	0.529	13.44	0.875	22.23	0.60	15.2	22.92	147.9
	71	105.7	16.16	410	8.543	217	0.486	12.34	0.795	20.19	0.60	15.2	20.86	134.6
	64	95.24	16.00	406	8.500	216	0.443	11.25	0.715	18.16	0.60	15.2	18.80	121.3
	58	86.31	15.86	403	8.464	215	0.407	10.34	0.645	16.38	0.60	15.2	17.04	109.9
16" WF 16×7	50	74.41	16.25	413	7.073	180	0.380	9.65	0.628	15.95	0.43	10.9	14.70	94.8
	45	66.97	16.12	409	7.039	179	0.346	8.79	0.563	14.30	0.43	10.9	13.24	85.4
	40	59.53	16.00	406	7.000	178	0.307	7.80	0.503	12.78	0.43	10.9	11.77	75.9
	36	53.57	15.85	403	6.992	178	0.299	7.59	0.428	10.87	0.43	10.9	10.59	68.3
14" WF 14×16	426	634.0	18.69	475	16.695	424	1.875	47.63	3.033	77.04	0.60	15.2	125.25	808.1
	398	592.3	18.31	465	16.590	421	1.770	44.96	2.843	72.21	0.60	15.2	116.98	754.7
	370	550.6	17.94	456	16.475	418	1.655	42.04	2.658	67.51	0.60	15.2	108.78	701.8
	342	509.0	17.56	446	16.365	416	1.545	39.24	2.468	62.69	0.60	15.2	100.59	649.0
	*320	476.2	16.81	427	16.710	424	1.890	48.01	2.093	53.16	0.60	15.2	94.12	607.2
	314	467.3	17.19	437	16.235	412	1.415	35.94	2.283	57.99	0.60	15.2	92.30	595.5
	287	427.1	16.81	427	16.130	410	1.310	33.27	2.093	53.16	0.60	15.2	84.37	544.3
	264	392.9	16.50	419	16.025	407	1.205	30.61	1.938	49.23	0.60	15.2	77.63	500.8
	246	366.1	16.25	413	15.945	405	1.125	28.58	1.813	46.05	0.60	15.2	72.33	466.6
	237	352.7	16.12	409	15.910	404	1.090	27.69	1.748	44.40	0.60	15.2	69.69	449.6
	228	339.3	16.00	406	15.865	403	1.045	26.54	1.688	42.88	0.60	15.2	67.06	432.6
	219	325.9	15.87	403	15.825	402	1.005	25.53	1.623	41.22	0.60	15.2	64.36	415.2
	211	314.0	15.75	400	15.800	401	0.980	24.89	1.563	39.70	0.60	15.2	62.07	400.5
	202	300.6	15.63	397	15.750	400	0.930	23.62	1.503	38.18	0.60	15.2	59.39	383.2
	193	287.2	15.50	394	15.710	399	0.890	22.61	1.438	36.53	0.60	15.2	56.73	366.0
	184	273.8	15.38	391	15.660	398	0.840	21.34	1.378	35.00	0.60	15.2	54.07	348.8
	176	261.9	15.25	387	15.640	397	0.820	20.83	1.313	33.35	0.60	15.2	51.73	333.7
	167	248.5	15.12	384	15.600	396	0.780	19.81	1.248	31.70	0.60	15.2	49.09	316.7
	158	235.1	15.00	381	15.550	395	0.730	18.54	1.188	30.18	0.60	15.2	46.47	299.8
	150	223.2	14.88	378	15.515	394	0.695	17.65	1.128	28.65	0.60	15.2	44.08	284.4
	142	211.3	14.75	375	15.500	394	0.680	17.27	1.063	27.00	0.60	15.2	41.85	270.0
14" WF 14×14-1/2	136	202.4	14.75	375	14.740	374	0.660	16.76	1.063	27.00	0.60	15.2	39.98	257.9
	127	189.0	14.62	371	14.690	373	0.610	15.49	0.998	25.35	0.60	15.2	37.33	240.8
	119	177.1	14.50	368	14.650	372	0.570	14.48	0.938	23.83	0.60	15.2	34.99	225.7
	111	165.2	14.37	365	14.620	371	0.540	13.72	0.873	22.17	0.60	15.2	32.65	210.6
	103	153.3	14.25	362	14.575	370	0.495	12.57	0.813	20.65	0.60	15.2	30.26	195.2
	95	141.4	14.12	359	14.545	369	0.465	11.81	0.748	19.00	0.60	15.2	27.94	180.3
	87	129.5	14.00	356	14.500	368	0.420	10.67	0.688	17.48	0.60	15.2	25.56	164.9

*Note: * Column Core Section*



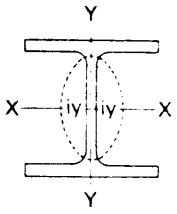
Moment of Inertia				Radius of Gyration				Modulus of Section				Section Index
Jx		Jy		ix		iy		Zx		Zy		
in⁴	cm⁴	in⁴	cm⁴	in	cm	in	cm	in³	cm³	in³	cm³	
1,355.1	56,410	207.0	8,625	6.93	17.60	2.71	6.88	166.1	2,722.4	35.9	588.4	16" WF
1,222.6	50,890	185.2	7,710	6.87	17.45	2.67	6.78	151.3	2,479.8	32.2	527.8	16×11-1/2
1,042.6	43,400	87.5	3,642	6.74	17.12	1.95	4.95	127.8	2,094.6	20.4	334.4	
936.9	39,000	77.9	3,243	6.70	17.01	1.93	4.90	115.9	1,899.6	18.2	298.3	16" WF
833.8	34,710	68.4	2,847	6.66	16.92	1.91	4.85	104.2	1,707.8	16.1	263.9	16×8-1/2
746.4	31,700	60.5	2,518	6.62	16.81	1.88	4.78	94.1	1,542.3	14.3	234.4	
655.4	**27,280**	**34.8**	**1,449**	**6.68**	**16.97**	**1.54**	**3.91**	**80.7**	**1,322.7**	**9.8**	**160.6**	
583.3	**24,280**	**30.5**	**1,270**	**6.64**	**16.86**	**1.52**	**3.86**	**72.4**	**1,186.6**	**8.7**	**142.6**	**16" WF**
515.5	**21,460**	**26.5**	**1,103**	**6.62**	**16.81**	**1.50**	**3.81**	**64.4**	**1,055.5**	**7.6**	**124.6**	**16×7**
446.3	**18,580**	**22.1**	**920**	**6.49**	**16.48**	**1.45**	**3.68**	**56.3**	**922.8**	**6.3**	**103.2**	
6,610.3	275,200	2,359.5	98,220	7.26	18.44	4.34	11.02	707.4	11,594.3	282.7	4,633.4	
6,013.7	250,300	2,169.7	90,320	7.17	18.21	4.31	10.95	656.9	10,766.6	261.6	4,287.6	
5,454.2	227,000	1,986.0	82,670	7.08	17.98	4.27	10.84	608.1	9,966.8	241.1	3,951.6	
4,911.5	204,400	1,806.9	75,220	6.99	17.75	4.24	10.77	559.4	9,168.6	220.8	3,618.9	
4,141.7	172,400	1,635.1	68,070	6.63	16.84	4.17	10.59	492.8	8,077.0	195.7	3,207.5	
4,399.4	183,100	1,631.4	67,910	6.90	17.53	4.20	10.67	511.9	8,390.0	201.0	3,294.4	
3,912.1	162,800	1,466.5	61,050	6.81	17.30	4.17	10.59	465.5	7,629.5	181.8	2,979.7	
3,526.0	146,800	1,331.2	55,420	6.74	17.12	4.14	10.52	427.4	7,005.1	166.1	2,772.4	
3,228.9	134,400	1,226.6	51,060	6.68	16.97	4.12	10.46	397.4	6,513.4	153.9	2,522.4	
3,080.9	128,200	1,174.8	48,900	6.65	16.89	4.11	10.44	382.2	6,264.2	147.7	2,420.8	
2,942.4	122,500	1,124.8	46,820	6.62	16.81	4.10	10.41	367.8	6,028.2	141.8	2,324.1	14" WF
2,798.2	116,500	1,073.2	44,680	6.59	16.74	4.08	10.36	352.6	5,779.1	135.6	2,222.5	14×16
2,671.4	111,200	1,028.6	42,820	6.56	16.66	4.07	10.34	339.2	5,559.5	130.2	2,134.0	
2,538.8	105,700	979.7	40,780	6.54	16.61	4.06	10.31	324.9	5,325.1	124.4	2,038.9	
2,402.4	100,000	930.1	38,720	6.51	16.54	4.05	10.29	310.0	5,080.9	118.4	1,940.6	
2,274.8	94,700	882.7	36,740	6.49	16.48	4.04	10.26	295.8	4,848.2	112.7	1,847.2	
2,149.6	89,480	837.9	34,880	6.45	16.38	4.02	10.21	281.9	4,620.3	107.1	1,755.4	
2,020.8	84,120	790.2	32,890	6.42	16.31	4.01	16.18	267.3	4,381.0	101.3	1,660.3	
1,900.6	79,120	745.0	31,010	6.40	16.26	4.00	10.16	253.4	4,153.2	95.8	1,570.2	
1,786.9	74,380	702.5	29,240	6.37	16.18	3.99	10.13	240.2	3,936.9	90.6	1,484.9	
1,672.2	69,610	660.1	27,480	6.32	16.05	3.97	10.08	226.7	3,715.6	85.2	1,396.4	
1,593.0	**66,310**	**567.7**	**23,630**	**6.31**	**16.03**	**3.77**	**9.58**	**216.0**	**3,540.2**	**77.0**	**1,262.0**	
1,476.7	**61,470**	**527.6**	**21,960**	**6.29**	**15.98**	**3.76**	**9.55**	**202.0**	**3,310.7**	**71.8**	**1,176.8**	
1,373.1	**57,160**	**491.8**	**20,470**	**6.26**	**15.90**	**3.75**	**9.52**	**189.4**	**3,104.3**	**67.1**	**1,099.8**	
1,266.5	**52,720**	**454.9**	**18,940**	**6.23**	**15.82**	**3.73**	**9.47**	**176.3**	**2,889.6**	**62.2**	**1,019.4**	14" WF
1,165.8	**48,530**	**419.7**	**17,470**	**6.21**	**15.77**	**3.72**	**9.45**	**163.6**	**2,681.4**	**57.6**	**944.1**	14×14-1/2
1,063.5	**44,270**	**383.7**	**15,970**	**6.17**	**15.67**	**3.71**	**9.42**	**150.6**	**2,468.3**	**52.8**	**865.4**	
966.9	**40,250**	**349.7**	**14,560**	**6.15**	**15.62**	**3.70**	**9.40**	**138.1**	**2,263.4**	**48.2**	**790.0**	

Wide Flange Shapes



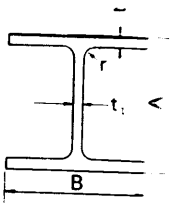
(Inch Series)-Continued

Section Index	Weight		Depth of Section (A)		Flange Width (B)		Web Thickness (t_1)		Flange Thickness (t_2)		Corner Radius		Sectional Area	
	lbs/ft	kg/m	in	mm	in	mm	in	mm	in	mm	in	mm	in²	cm²
14" WF 14×12	84	125.0	14.18	360	12.023	305	0.451	11.46	0.778	19.76	0.60	15.2	24.71	159.4
	78	116.1	14.06	357	12.000	305	0.428	11.87	0.718	18.24	0.60	15.2	22.94	148.1
14" WF 14×10	74	110.1	14.19	360	10.072	256	0.450	11.43	0.783	19.89	0.60	15.2	21.76	140.4
	68	101.2	14.06	357	10.040	255	0.418	10.62	0.718	18.24	0.60	15.2	20.00	129.1
	61	90.78	13.91	353	10.000	254	0.378	9.60	0.643	16.33	0.60	15.2	17.94	115.7
14" WF 14×8	53	78.87	13.94	354	8.062	205	0.370	9.40	0.658	16.71	0.60	15.2	15.59	100.6
	48	71.43	13.81	351	8.031	204	0.339	8.61	0.593	15.06	0.60	15.2	14.11	91.0
	43	63.99	13.68	347	8.000	203	0.308	7.82	0.528	13.41	0.60	15.2	12.65	81.6
14" WF 14×6-3/4	38	56.55	14.12	359	6.776	172	0.313	7.95	0.513	13.03	0.43	10.9	11.17	72.1
	34	50.60	14.00	356	6.750	171	0.287	7.29	0.453	11.51	0.43	10.9	10.00	64.5
	30	44.64	13.86	352	6.733	171	0.270	6.86	0.383	9.73	0.43	10.9	8.81	56.8
12" WF 12×12	190	282.8	14.38	365	12.670	322	1.060	26.92	1.736	44.09	0.60	15.2	55.86	360.4
	161	239.6	13.88	353	12.515	318	0.905	22.99	1.486	37.74	0.60	15.2	47.38	305.7
	133	197.9	13.38	340	12.365	314	0.755	19.18	1.236	31.39	0.60	15.2	39.11	252.3
	120	178.6	13.12	333	12.320	313	0.710	18.03	1.106	28.09	0.60	15.2	35.31	227.8
	106	157.7	12.88	327	12.230	311	0.620	15.75	0.986	25.04	0.60	15.2	31.19	201.2
	99	147.3	12.75	324	12.190	310	0.580	14.73	0.921	23.39	0.60	15.2	29.09	187.7
	92	136.9	12.62	321	12.155	309	0.545	13.84	0.856	21.74	0.60	15.2	27.06	174.6
	85	126.5	12.50	318	12.105	307	0.495	12.57	0.796	20.22	0.60	15.2	24.98	161.2
	79	117.6	12.38	314	12.080	307	0.470	11.94	0.736	18.69	0.60	15.2	23.22	149.8
	72	107.1	12.25	311	12.040	306	0.430	10.92	0.671	17.04	0.60	15.2	21.16	136.5
	65	96.73	12.12	308	12.000	305	0.390	9.91	0.606	15.39	0.60	15.2	19.11	123.3
12" WF 12×10	58	86.31	12.19	310	10.014	254	0.359	9.12	0.641	16.28	0.60	15.2	17.06	110.1
	53	78.87	12.06	306	10.000	254	0.345	8.76	0.576	14.63	0.60	15.2	15.59	100.6
12" WF 12×8	50	74.41	12.19	310	8.077	205	0.371	9.42	0.641	16.28	0.60	15.2	14.71	94.9
	45	66.97	12.06	306	8.042	204	0.336	8.53	0.576	14.63	0.60	15.2	13.24	85.4
	40	59.53	11.94	303	8.000	203	0.294	7.47	0.516	13.11	0.60	15.2	11.77	75.9
12" WF 12×6-1/2	36	53.57	12.24	311	6.565	167	0.305	7.75	0.540	13.72	0.37	9.40	10.59	68.3
	31	46.13	12.09	307	6.525	166	0.265	6.73	0.465	11.81	0.37	9.40	9.12	58.8
	27	40.18	11.96	304	6.500	165	0.240	6.10	0.400	10.16	0.37	9.40	7.97	51.4



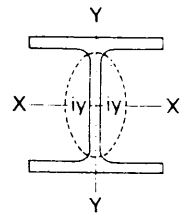
Moment of Inertia				Radius of Gyration				Modulus of Section				Section Index
Jx		Jy		ix		iy		Zx		Zy		
in⁴	cm⁴	in⁴	cm⁴	in	cm	in	cm	in³	cm³	in³	cm³	
928.4	38,650	225.5	9,387	6.13	15.57	3.02	7.67	130.9	2,145.4	37.5	614.6	14" WF
851.2	35,430	206.9	8,613	6.09	15.47	3.00	7.62	121.1	1,984.8	34.5	565.4	14×12
796.8	33,170	133.5	5,557	6.05	15.37	2.48	6.30	112.3	1,840.6	26.5	434.3	14" WF
724.1	30,140	121.2	5,045	6.02	15.29	2.46	6.25	103.0	1,688.1	24.1	395.0	14×10
641.5	26,700	107.3	4,467	5.98	15.19	2.45	6.22	92.2	1,511.2	21.5	352.4	
542.1	22,570	57.5	2,394	5.90	14.99	1.92	4.88	77.8	1,275.1	14.3	234.4	14" WF
484.9	20,180	51.3	2,136	5.86	14.88	1.91	4.85	70.2	1,150.6	12.8	209.8	14×8
429.0	17,860	45.1	1,877	5.82	14.78	1.89	4.80	62.7	1,027.6	11.3	185.2	
385.3	16,040	24.6	1,024	5.87	14.91	1.49	3.78	54.6	894.9	7.3	119.6	14" WF
339.2	14,120	21.3	886.8	5.83	14.81	1.46	3.71	48.5	794.9	6.3	103.2	14×6-3/4
289.6	12,060	17.5	728.5	5.73	14.55	1.41	3.58	41.8	685.1	5.2	85.2	
1,892.5	78,780	589.7	24,550	5.82	14.78	3.25	8.26	263.2	4,313.8	93.1	1,525.9	
1,541.8	64,180	486.2	20,240	5.70	14.48	3.20	8.13	222.2	3,641.8	77.7	1,273.5	
1,221.2	50,840	389.9	16,230	5.59	14.20	3.16	8.03	182.5	2,991.2	63.1	1,034.2	
1,071.7	44,610	345.1	14,360	5.51	14.00	3.13	7.95	163.4	2,678.1	56.0	917.8	
930.7	38,740	300.9	12,520	5.46	13.87	3.11	7.90	144.5	2,368.4	49.2	806.4	
858.5	35,740	278.2	11,580	5.43	13.79	3.09	7.85	134.7	2,207.7	45.7	749.0	12" WF
788.9	32,840	256.4	10,670	5.40	13.72	3.08	7.82	125.0	2,048.8	42.2	691.6	12×12
723.3	30,110	235.5	9,803	5.38	13.66	3.07	7.82	115.7	1,896.3	38.9	637.6	
663.0	27,600	216.4	9,008	5.34	13.56	3.05	7.75	107.1	1,755.4	35.8	586.8	
597.4	24,870	195.3	8,130	5.31	13.49	3.04	7.72	97.5	1,598.0	32.4	531.0	
533.4	22,200	174.6	7,268	5.28	13.41	3.02	7.67	88.0	1,442.3	29.1	476.9	
476.1	19,820	107.4	4,471	5.28	13.41	2.51	6.38	78.1	1,280.0	21.4	350.7	12" WF
426.2	17,740	96.1	4,000	5.23	13.28	2.48	6.30	70.7	1,158.8	19.2	314.7	12×10
394.5	16,420	56.4	2,348	5.18	13.16	1.96	4.98	64.7	1,060.4	14.0	229.5	12" WF
350.8	14,600	50.0	2,081	5.15	13.08	1.94	4.93	58.2	953.9	12.4	203.2	12×8
310.1	12,910	44.1	1,836	5.13	13.03	1.94	4.93	51.9	850.6	11.0	180.3	
280.8	11,690	23.7	986.6	5.15	13.08	1.50	3.81	45.9	752.3	7.2	118.0	12" WF
238.4	9,924	19.8	824.2	5.11	12.98	1.47	3.73	39.4	645.8	6.1	100.0	12×6-1/2
204.1	8,496	16.6	691.0	5.06	12.85	1.44	3.66	34.1	558.9	5.1	83.6	

Wide Flange Shapes



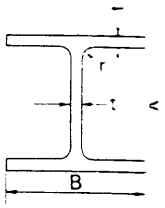
(Inch Series)-Continued

Section Index	Weight		Depth of Section (A)		Flange Width (B)		Web Thickness (t_1)		Flange Thickness (t_2)		Corner Radius		Sectional Area		
	lbs/ft	kg/m	in	mm	in	mm	in	mm	in	mm	in	mm	in²		
10" WF 10×10	112	166.7	11.38	289	10.415	265	0.755	19.18	1.248	31.70	0.50	12.7	32.92	212.4	518
	100	148.8	11.12	282	10.345	263	0.685	17.40	1.118	28.40	0.50	12.7	29.43	189.8	525
	89	132.4	10.88	276	10.275	261	0.615	15.62	0.998	25.35	0.50	12.7	26.19	169.0	542
	77	114.6	10.62	270	10.195	259	0.535	13.59	0.868	22.05	0.50	12.7	22.67	146.2	457
	72	107.1	10.50	267	10.170	258	0.510	12.95	0.808	20.52	0.50	12.7	21.18	136.6	420
	66	98.22	10.38	264	10.117	257	0.457	11.61	0.748	19.00	0.50	12.7	19.41	125.2	382
	60	89.29	10.25	260	10.075	256	0.415	10.54	0.683	17.35	0.50	12.7	17.66	113.9	343
	54	80.36	10.12	257	10.028	255	0.368	9.35	0.618	15.70	0.50	12.7	15.88	102.5	305
	49	72.92	10.00	254	10.000	254	0.340	8.64	0.558	14.17	0.50	12.7	14.40	92.9	272
10" WF 10×8	45	66.97	10.12	257	8.022	204	0.350	8.89	0.618	15.70	0.50	12.7	13.24	85.4	248
	39	58.04	9.94	252	7.990	203	0.318	8.08	0.528	13.41	0.50	12.7	11.48	74.1	209
	33	49.11	9.75	248	7.964	202	0.292	7.42	0.433	11.00	0.50	12.7	9.71	62.6	170
10" WF 10×5-3/4	29	43.16	10.22	260	5.799	147	0.289	7.34	0.500	12.70	0.32	8.12	8.53	55.0	157
	25	37.20	10.08	256	5.762	146	0.252	6.40	0.430	10.92	0.32	8.12	7.35	47.4	133
	21	31.25	9.90	251	5.750	146	0.240	6.10	0.340	8.64	0.32	8.12	6.19	39.9	106
8" WF 8×8	67	99.71	9.00	229	8.287	210	0.575	14.61	0.933	23.70	0.40	10.2	19.70	127.1	357
	58	86.31	8.75	222	8.222	209	0.510	12.95	0.808	20.52	0.40	10.2	17.06	110.0	321
	48	71.43	8.50	216	8.117	206	0.405	10.29	0.683	17.35	0.40	10.2	14.11	91.0	263
	40	59.53	8.25	210	8.077	205	0.365	9.27	0.558	14.17	0.40	10.2	11.76	75.8	215
	35	52.09	8.12	206	8.027	204	0.315	8.00	0.493	12.52	0.40	10.2	10.30	66.5	192
	31	46.13	8.00	203	8.000	203	0.288	7.32	0.433	11.00	0.40	10.2	9.12	58.8	170
8" WF 8×6-1/2	28	41.67	8.06	205	6.540	166	0.285	7.24	0.463	11.76	0.40	10.2	8.23	53.1	153
	24	35.72	7.93	201	6.500	165	0.245	6.22	0.398	10.11	0.40	10.2	7.06	45.5	131
8" WF 8×5-1/4	20	29.76	8.14	207	5.268	134	0.248	6.30	0.378	9.60	0.32	8.12	5.88	37.9	109
	17	25.30	8.00	203	5.250	133	0.230	5.84	0.308	7.82	0.32	8.12	5.00	32.3	93
6" WF 6×6	25	37.20	6.37	162	6.080	154	0.320	8.13	0.456	11.58	0.25	6.35	7.35	47.4	137
	20	29.76	6.20	157	6.018	153	0.258	6.55	0.367	9.32	0.25	6.35	5.88	37.9	109
	15.5	23.07	6.00	152	6.000	152	0.240	6.10	0.269	6.83	0.25	6.35	4.59	29.6	85
5" WF 5×5	18.5	27.53	5.12	130	5.025	128	0.265	6.73	0.420	10.67	0.30	7.62	5.45	35.2	101
	16	23.81	5.00	127	5.000	127	0.240	6.10	0.360	9.14	0.30	7.62	4.70	30.3	87
4" WF 4×4	13	19.35	4.16	106	4.060	122	0.280	7.11	0.345	8.30	0.313	7.95	3.82	25.1	74



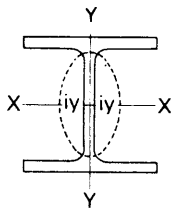
Moment of Inertia				Radius of Gyration				Modulus of Section				Section Index
Jx		Jy		ix		iy		Zx		Zy		
cm²	in⁴	cm⁴	in⁴	cm⁴	in	cm	in	cm	in³	cm³	in³	cm³	
212.4	718.7	29,920	235.4	9,799	4.67	11.89	2.67	6.78	126.3	2,070.0	45.2	740.8	
189.9	625.0	26,020	206.6	8,600	4.61	11.71	2.65	6.73	112.4	1,842.2	39.9	654.0	
169.0	542.4	22,580	180.6	7,518	4.55	11.56	2.63	6.68	99.7	1,634.1	35.2	576.9	
146.3	457.2	19,030	153.4	6,386	4.49	11.40	2.60	6.60	86.1	1,411.2	30.1	493.3	
136.6	420.7	17,510	141.8	5,903	4.46	11.33	2.59	6.58	80.1	1,312.8	27.9	457.3	10" WF
125.2	382.5	15,920	129.2	5,378	4.44	11.28	2.58	6.55	73.7	1,207.9	25.5	417.9	10×10
113.9	343.7	14,310	116.5	4,850	4.41	11.20	2.57	6.53	67.1	1,099.8	23.1	378.6	
102.5	305.7	12,720	103.9	4,325	4.39	11.15	2.56	6.50	60.4	990.0	20.7	339.3	
92.9	272.9	11,360	93.0	3,871	4.35	11.05	2.54	6.45	54.6	894.9	18.6	304.8	
85.4	248.6	10,350	53.2	2,215	4.33	11.00	2.00	5.08	49.1	804.7	13.3	218.0	
74.1	209.7	8,729	44.9	1,869	4.27	10.84	1.98	5.03	42.2	691.6	11.2	183.6	10" WF
62.6	170.9	7,114	36.5	1,519	4.20	10.67	1.94	4.93	35.0	573.6	9.2	150.8	10×8
55.0	157.3	6,548	15.2	632.8	4.29	10.90	1.34	3.40	30.8	504.8	5.2	85.2	
47.4	133.2	5,545	12.7	528.7	4.26	10.82	1.31	3.33	26.4	432.7	4.4	72.1	10" WF
39.9	106.3	4,425	9.7	403.8	4.14	10.52	1.25	3.18	21.5	352.4	3.4	55.7	10×5-3/4
127.*	271.8	11,310	88.6	3,688	3.71	9.42	2.12	5.38	60.4	990.0	21.4	350.7	
110.*	227.3	9,462	74.9	3,118	3.65	9.27	2.10	5.33	52.0	852.3	18.2	298.3	
91.0	183.7	7,647	60.9	2,535	3.61	9.17	2.08	5.28	43.2	708.0	15.0	245.8	8" WF
75.5	146.3	6,090	49.0	2,040	3.53	8.97	2.04	5.18	35.5	581.8	12.1	198.3	8×8
66.5	126.5	5,266	42.5	1,769	3.50	8.89	2.03	5.16	31.1	509.7	10.6	173.7	
58.8	109.7	4,567	37.0	1,540	3.47	8.81	2.01	5.10	27.4	449.1	9.2	150.8	
53.*	97.8	4,071	21.6	899.2	3.45	8.76	1.62	4.11	24.3	398.3	6.6	108.2	8" WF
45.5	82.5	3,434	18.2	757.6	3.42	8.69	1.61	4.09	20.8	340.9	5.6	91.8	8×6-1/2
37.9	69.2	2,881	8.50	353.8	3.43	8.71	1.20	3.05	17.0	278.6	3.2	52.4	8" WF
32.3	56.4	2,348	6.72	279.7	3.36	8.53	1.16	2.95	14.1	231.1	2.6	42.6	8×5-1/4
47.4	53.5	2,227	17.1	711.8	2.69	6.83	1.52	3.86	16.8	275.4	5.6	91.8	
37.9	41.7	1,736	13.3	553.6	2.66	6.76	1.50	3.81	13.4	219.6	4.4	72.1	6" WF
29.8	30.3	1,261	9.69	403.4	2.56	6.50	1.45	3.68	10.1	165.5	3.2	52.4	6×6
35.2	25.4	1,057	8.89	370.0	2.16	5.49	1.28	3.25	9.94	162.9	3.54	58.0	5" WF
30.3	21.3	886.7	7.51	312.6	2.13	5.41	1.26	3.20	8.53	139.8	3.00	49.2	5×5
25.*	11.3	470.3	3.76	156.5	1.72	4.37	0.99	2.51	5.45	89.3	1.9	31.1	4" WF 4×4

Light Beams and Joists



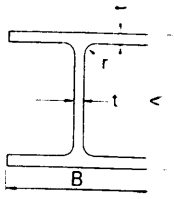
(Inch Series)

Section Index	Weight		Depth of Section (A)		Flange Width (B)		Web Thickness (t_1)		Flange Thickness (t_2)		Corner Radius		Sectional Area	
	lbs/ft	kg/m	in	mm	in	mm	in	mm	in	mm	in	mm	in²	c
L 16×5-1/2	31	46.13	15.84	402	5.525	140	0.275	6.99	0.442	11.23	0.43	10.9	9.12	58
	26	38.69	15.65	398	5.500	140	0.250	6.35	0.345	8.76	0.43	10.9	7.65	49
L 14×5	26	38.69	13.89	353	5.025	128	0.255	6.48	0.418	10.62	0.43	10.9	7.65	49
	22	32.74	13.72	348	5.000	127	0.230	5.84	0.335	8.51	0.43	10.9	6.47	4
L 14×4	17.2	25.60	14.00	356	4.000	102	0.210	5.33	0.272	6.91	0.43	10.9	5.05	32
L 12×4	22	32.74	12.31	313	4.030	102	0.260	6.60	0.424	10.77	0.30	7.62	6.47	41
	19	28.28	12.16	309	4.010	102	0.240	6.10	0.349	8.86	0.30	7.62	5.62	36
	16.5	24.55	12.00	305	4.000	102	0.230	5.84	0.269	6.83	0.30	7.62	4.86	31
J 12×4	14	20.83	11.91	303	3.970	101	0.200	5.08	0.224	5.69	0.30	7.62	4.14	26
L 10×4	19	28.28	10.25	260	4.020	102	0.250	6.35	0.394	10.01	0.30	7.62	5.61	36
	17	25.30	10.12	257	4.010	102	0.240	6.10	0.329	8.36	0.30	7.62	4.98	32
	15	22.32	10.00	254	4.000	102	0.230	5.84	0.269	6.83	0.30	7.62	4.40	28
J 10×4	11.5	17.11	9.87	251	3.950	100	0.180	4.57	0.204	5.18	0.30	7.62	3.39	21
L 8×4	15	22.32	8.12	206	4.015	102	0.245	6.22	0.314	7.98	0.30	7.62	4.43	28
	13	19.35	8.00	203	4.000	102	0.230	5.84	0.254	6.45	0.30	7.62	3.83	24
J 8×4	10	14.88	7.90	201	3.940	100	0.170	4.32	0.204	5.18	0.30	7.62	2.95	19
L 6×4	16	23.81	6.25	159	4.030	102	0.260	6.60	0.404	10.26	0.25	6.35	4.72	30
	12	17.86	6.00	152	4.000	102	0.230	5.84	0.279	7.09	0.25	6.35	3.53	22
J 6×4	8.5	12.65	5.83	148	3.940	100	0.170	4.32	0.194	4.93	0.25	6.35	2.50	16



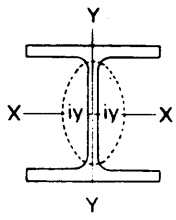
Moment of Inertia				Radius of Gyration				Modulus of Section				Section Index
Jx		Jy		ix		iy		Zx		Zy		
in⁴	cm⁴	in⁴	cm⁴	in	cm	in	cm	in³	cm³	in³	cm³	
372.5	15,500	11.57	481.5	6.39	16.23	1.13	2.87	47.0	770.3	4.19	68.67	L 16×5-1/2
298.1	12,410	8.71	362.5	6.24	15.85	1.07	2.72	38.1	624.5	3.17	51.96	
242.6	10,100	8.26	343.8	5.63	14.30	1.04	2.64	34.9	572.0	3.29	53.92	L 14×5
197.4	8,212	6.40	266.4	5.52	14.02	0.99	2.51	28.8	472.0	2.56	41.96	
147.3	6,131	2.65	110.3	5.40	13.72	0.72	1.83	21.0	344.2	1.32	21.63	L 14×4
155.7	6,482	4.55	189.4	4.91	12.47	0.84	2.13	25.3	414.7	2.26	37.04	
130.1	5,416	3.67	152.8	4.81	12.22	0.81	2.06	21.4	350.7	1.83	29.99	L 12×4
105.3	4,383	2.79	116.1	4.65	11.81	0.76	1.93	17.5	286.8	1.39	22.78	
88.2	3,671	2.25	93.65	4.61	11.71	0.74	1.88	14.8	242.5	1.13	18.52	J 12×4
96.2	4,005	4.19	174.4	4.14	10.52	0.86	2.18	18.8	308.1	2.08	34.09	
81.8	3,405	3.45	143.6	4.05	10.29	0.83	2.11	16.2	265.5	1.72	28.19	L 10×4
68.8	2,864	2.79	116.1	3.95	10.03	0.80	2.03	13.8	226.2	1.39	22.78	
51.9	2,160	2.01	83.66	3.92	9.96	0.77	1.96	10.5	172.1	1.02	16.72	J 10×4
48.0	1,994	3.30	137.4	3.29	8.36	0.86	2.18	11.8	193.4	1.65	27.04	L 8×4
39.5	1,644	2.62	109.1	3.21	8.15	0.83	2.11	9.88	161.9	1.31	21.47	
30.8	1,282	1.99	82.82	3.23	8.20	0.82	2.08	7.79	127.7	1.01	16.55	J 8×4
31.7	1,320	4.32	179.8	2.59	6.58	0.96	2.44	10.1	165.5	2.14	35.07	L 6×4
21.7	903.3	2.89	120.3	2.48	6.30	0.90	2.29	7.24	118.7	1.44	23.60	
14.8	616.0	1.89	78.66	2.43	6.17	0.87	2.21	5.07	83.10	0.96	15.73	J 6×4

H Bearing Piles



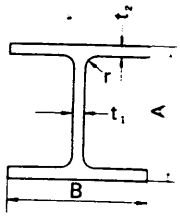
(Inch Series)

Section Index	Weight		Depth of Section (A)		Flange Width (B)		Web Thickness (t_1)		Flange Thickness (t_2)		Corner Radius		Sectional Area		
	lbs/ft	kg/m	in	mm	in	mm	in	mm	in	mm	in	mm	in²	cm²	in⁴
14×14-1/2	117	174.1	14.234	362	14.885	378	0.805	20.45	0.805	20.45	0.60	15.2	34.44	222.2	228.5
	102	151.8	14.032	356	14.784	376	0.704	17.88	0.704	17.88	0.60	15.2	30.01	193.6	055.
	89	132.4	13.856	352	14.696	373	0.616	15.65	0.616	15.65	0.60	15.2	26.19	169.0	909.
	73	108.6	13.636	346	14.586	370	0.506	12.85	0.506	12.85	0.60	15.2	21.46	138.4	733.
12×12	74	110.1	12.122	308	12.217	310	0.607	15.42	0.607	15.42	0.60	15.2	21.76	140.4	566.5
	53	78.87	11.780	299	12.046	306	0.436	11.07	0.436	11.07	0.60	15.2	15.58	100.5	394.8
10×10	57	84.83	10.012	254	10.224	260	0.564	14.33	0.564	14.33	0.50	12.7	16.76	108.	294.
	42	62.50	9.720	247	10.078	256	0.418	10.62	0.418	10.62	0.50	12.7	12.35	79.	210.8
8×8	36	53.57	8.026	204	8.158	207	0.446	11.33	0.446	11.33	0.40	10.2	10.60	68.4	119.8



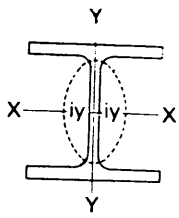
Sectional Area		Moment of Inertia				Radius of Gyration				Modulus of Section				Section Index
		Jx		Jy		ix		iy		Zx		Zy		
in²	cm²	in⁴	cm⁴	in⁴	cm⁴	in	cm	in	cm	in³	cm³	in³	cm³	
44	222.2	1,228.5	51,140	443.1	18,440	5.97	15.16	3.59	9.12	172.6	2,828.9	59.5	975.2	14×14-1/2
01	193.6	1,055.1	43,920	379.6	15,800	5.93	15.06	3.56	9.04	150.4	2,465.0	51.3	840.8	
19	169.0	909.1	37,840	326.2	13,580	5.89	14.96	3.53	8.94	131.2	2,150.4	44.4	727.7	
46	138.5	733.1	30,520	261.9	10,900	5.85	14.86	3.49	8.86	107.5	1,761.9	35.9	588.4	
76	140.4	566.5	23,580	184.7	7,689	5.10	12.95	2.91	7.39	93.5	1,532.5	30.2	495.0	12×12
58	100.5	394.8	16,430	127.3	5,299	5.03	12.78	2.86	7.26	67.0	1,098.1	21.2	347.5	
76	108.1	294.7	12,270	100.6	4,188	4.19	10.64	2.45	6.22	58.9	965.4	19.7	322.9	10×10
35	79.7	210.8	8,775	71.4	2,972	4.13	10.49	2.40	6.09	43.4	711.3	14.2	232.7	
30	68.4	119.8	4,987	40.4	1,682	3.36	8.53	1.95	4.95	29.9	490.0	9.9	162.2	8×8

Wide Flange Shapes



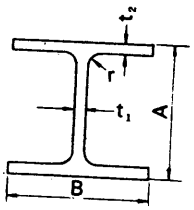
(Metric Series)

Section Index	Weight	Depth of Section (A)	Flange Width (B)	Thickness		Corner Radius (r)	Sectional Area	Moment of Inertia		Radius of Gyration		Modulus of Section	
				Web (t_1)	Flange (t_2)			Jx	Jy	ix	iy	Zx	Zy
mm	kg/m	mm	mm	mm	mm	mm	cm^2	cm^4	cm^4	cm	cm	cm^3	cm^3
900×300	286	912	302	18	34	28	364.0	498,000	15,700	37.0	6.56	10,900	1,040
	243	900	300	16	28	28	309.8	411,000	12,600	36.4	6.39	9,140	843
	213	890	299	15	23	28	270.9	345,000	10,300	35.7	6.16	7,760	688
800×300	241	808	302	16	30	28	307.6	339,000	13,800	33.2	6.70	8,400	915
	210	800	300	14	26	28	267.4	292,000	11,700	33.0	6.62	7,290	782
	191	792	300	14	22	28	243.4	254,000	9,930	32.3	6.39	6,410	662
700×300	215	708	302	15	28	28	273.6	237,000	12,900	29.4	6.86	6,700	853
	185	700	300	13	24	28	235.5	201,000	10,800	29.3	6.78	5,760	722
	166	692	300	13	20	28	211.5	172,000	9,020	28.6	6.53	4,980	602
600×300	175	594	302	14	23	28	222.4	137,000	10,600	24.9	6.90	4,620	701
	151	588	300	12	20	28	192.5	118,000	9,020	24.8	6.85	4,020	601
	137	582	300	12	17	28	174.5	103,000	7,670	24.3	6.63	3,530	511
600×200	134	612	202	13	23	22	107.7	103,000	3,180	24.6	4.31	3,380	314
	120	606	201	12	20	22	152.5	90,400	2,720	24.3	4.22	2,980	271
	106	600	200	11	17	22	134.4	77,600	2,280	24.0	4.12	2,590	228
	94.6	596	199	10	15	22	120.5	68,700	1,980	23.9	4.05	2,310	199
500×300	128	488	300	11	18	26	163.5	71,000	8,110	20.8	7.04	2,910	541
	114	482	300	11	15	26	145.5	60,400	6,760	20.4	6.82	2,500	451
500×200	103	506	201	11	19	20	131.3	56,500	2,580	20.7	4.43	2,230	257
	89.7	500	200	10	16	20	114.2	47,800	2,140	20.5	4.33	1,910	214
	79.5	496	199	9	14	20	101.3	41,900	1,840	20.3	4.27	1,690	185
450×300	124	440	300	11	18	24	157.4	56,100	8,110	18.9	7.18	2,550	541
	106	434	299	10	15	24	135.0	46,800	6,690	18.6	7.04	2,160	448
450×200	76.0	450	200	9	14	18	96.76	33,500	1,870	18.6	4.40	1,490	187
	66.2	446	199	8	12	18	84.30	28,700	1,580	18.5	4.33	1,290	159
400×400	605	498	432	45	70	22	770.1	298,000	94,400	19.7	11.1	12,000	4,370
	415	458	417	30	50	22	528.6	187,000	60,500	18.8	10.7	8,170	2,900
	283	428	407	20	35	22	360.7	119,000	39,400	18.2	10.4	5,570	1,930
	232	414	405	18	28	22	295.4	92,800	31,000	17.7	10.2	4,480	1,530



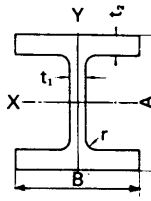
Section Index	Weight	Depth of Section (A)	Flange Width (B)	Thickness		Corner Radius (r)	Sectional Area	Moment of Inertia		Radius of Gyration		Modulus of Section	
				Web (t_1)	Flange (t_2)			Jx	Jy	ix	iy	Zx	Zy
mm	kg/m	mm	mm	mm	mm	mm	cm²	cm⁴	cm⁴	cm	cm	cm³	cm³
400×400	200	406	403	16	24	22	254.9	78,000	26,200	17.5	10.1	3,840	1,300
	197	400	408	21	21	22	250.7	70,900	23,800	16.8	9.75	3,540	1,170
	172	400	400	13	21	22	218.7	66,600	22,400	17.5	10.1	3,330	1,120
	168	394	405	18	18	22	214.4	59,700	20,000	16.7	9.65	3,030	985
	147	394	398	11	18	22	186.8	56,100	18,900	17.3	10.1	2,850	951
	140	388	402	15	15	22	178.5	49,000	16,300	16.6	9.54	2,520	809
400×300	107	390	300	10	16	22	136.0	38,700	7,210	16.9	7.28	1,980	481
	94.3	386	299	9	14	22	120.1	33,700	6,240	16.7	7.21	1,740	418
400×200	66.0	400	200	8	13	16	84.12	23,700	1,740	16.8	4.54	1,190	174
	56.6	396	199	7	11	16	72.16	20,000	1,450	16.7	4.48	1,010	145
350×350	159	356	352	14	22	20	202.0	47,600	16,000	15.3	8.90	2,670	909
	156	350	357	19	19	20	198.4	42,800	14,400	14.7	8.53	2,450	809
	136	350	350	12	19	20	173.9	40,300	13,600	15.2	8.84	2,300	776
	131	344	354	16	16	20	166.6	35,300	11,800	14.6	8.43	2,050	669
	115	344	348	10	16	20	146.0	33,300	11,200	15.1	8.78	1,940	646
	106	338	351	13	13	20	135.3	28,200	9,380	14.4	8.33	1,670	534
350×250	79.7	340	250	9	14	20	101.5	21,700	3,650	14.6	6.00	1,280	292
	69.2	336	249	8	12	20	88.15	18,500	3,090	14.5	5.92	1,100	248
350×175	49.6	350	175	7	11	14	63.14	13,600	984	14.7	3.95	775	112
	41.4	346	174	6	9	14	52.68	11,100	792	14.5	3.88	641	91.0
300×300	106	304	301	11	17	18	134.8	23,400	7,730	13.2	7.57	1,540	514
	106	300	305	15	15	18	134.8	21,500	7,100	12.6	7.26	1,440	466
	94.0	300	300	10	15	18	119.8	20,400	6,750	13.1	7.51	1,360	450
	87.0	298	299	9	14	18	110.8	18,800	6,240	13.0	7.51	1,270	417
	84.5	294	302	12	12	18	107.7	16,900	5,520	12.5	7.16	1,150	365
300×200	65.4	298	201	9	14	18	83.36	13,300	1,900	12.6	4.77	893	189
	56.8	294	200	8	12	18	72.38	11,300	1,600	12.5	4.71	771	160
300×150	36.7	300	150	6.5	9	13	46.78	7,210	508	12.4	3.29	481	67.7
	32.0	298	149	5.5	8	13	40.80	6,320	442	12.4	3.29	424	59.3

Wide Flange Shapes



(Metric Series)-Continued

Section Index	Weight	Depth of Section (A)	Flange Width (B)	Thickness		Corner Radius (r)	Sectional Area	Moment of Inertia		Radius of Gyration		Modulus of Section	
				Web (t_1)	Flange (t_2)			Jx	Jy	ix	iy	Zx	Zy
mm	kg/m	mm	mm	mm	mm	mm	cm²	cm⁴	cm⁴	cm	cm	cm³	cm³
250×250	82.2	250	255	14	14	16	104.7	11,500	3,880	10.5	6.09	919	304
	72.4	250	250	9	14	16	92.18	10,800	3,650	10.8	6.29	867	292
	66.5	248	249	8	13	16	84.70	9,930	3,350	10.8	6.29	801	269
	64.4	244	252	11	11	16	82.06	8,790	2,940	10.3	5.98	720	233
250×175	44.1	244	175	7	11	16	56.24	6,120	984	10.4	4.18	502	113
250×125	29.6	250	125	6	9	12	37.66	4,050	294	10.4	2.79	324	47.0
	25.7	248	124	5	8	12	32.68	3,540	255	10.4	2.79	285	41.1
200×200	65.7	208	202	10	16	13	83.69	6,530	2,200	8.83	5.13	628	218
	56.2	200	204	12	12	13	71.53	4,980	1,700	8.35	4.88	498	167
	49.9	200	200	8	12	13	63.53	4,720	1,600	8.62	5.02	472	160
200×150	30.6	194	150	6	9	13	39.01	2,690	507	8.30	3.61	277	67.6
200×100	21.3	200	100	5.5	8	11	27.16	1,840	134	8.24	2.22	184	26.8
	18.2	198	99	4.5	7	11	23.18	1,580	114	8.26	2.21	160	23.0
175×175	40.2	175	175	7.5	11	12	51.21	2,880	984	7.50	4.38	330	112
175×125	23.3	169	125	5.5	8	12	29.65	1,530	261	7.18	2.97	181	41.8
175× 90	18.1	175	90	5	8	9	23.04	1,210	97.5	7.26	2.06	139	21.7
150×150	31.5	150	150	7	10	11	40.14	1,640	563	6.39	3.75	219	75.1
150×100	21.1	148	100	6	9	11	26.84	1,020	151	6.17	2.37	138	30.1
150× 75	14.0	150	75	5	7	8	17.85	666	49.5	6.11	1.66	88.8	13.2
125×125	23.8	125	125	6.5	9	10	30.31	847	293	5.29	3.11	136	47.0
125× 60	13.2	125	60	6	8	9	16.84	413	29.2	4.95	1.32	66.1	9.73
100×100	17.2	100	100	6	8	10	21.90	383	134	4.18	2.47	76.5	26.7
100× 50	9.30	100	50	5	7	8	11.85	187	14.8	3.98	1.12	37.5	5.91



Heavy Column Sections

(Metric Series)

Section Index	Weight	Depth of Section (A)	Flange Width (B)	Thickness		Corner Radius (r)	Sectional Area	Moment of Inertia		Radius of Gyration		Modulus of Section	
				Web (t_1)	Flange (t_2)			Jx	Jy	ix	iy	Zx	Zy
mm	kg/m	mm	mm	mm	mm	mm	cm^2	cm^4	cm^4	cm	cm	cm^3	cm^3
90	930	538	477	90	90	22	1,185	472,000	165,000	20.0	11.8	17,600	6,920
85	1,170	608	472	85	125	22	1,488	737,000	221,000	22.3	12.2	24,300	9,360
75	758	508	462	75	75	22	965.7	358,000	125,000	19.3	11.4	14,100	5,390
70	953	568	457	70	105	22	1,214	551,000	168,000	21.3	11.8	19,400	7,360
60	804	538	447	60	90	22	1,024	433,000	135,000	20.6	11.5	16,100	6,030
	593	478	447	60	60	22	755.4	260,000	90,000	18.6	10.9	10,900	4,030
50	658	508	437	50	75	22	838.7	331,000	105,000	19.9	11.2	13,000	4,790
45	740	538	432	45	90	22	942.9	414,000	121,000	21.0	11.3	15,400	5,610
	605	498	432	45	70	22	770.1	298,000	94,400	19.7	11.1	12,000	4,370
	435	448	432	45	45	22	554.1	177,000	60,800	17.9	10.5	7,900	2,810
40	518	478	427	40	60	22	659.8	242,000	78,100	19.1	10.9	10,100	3,660
	384	438	427	40	40	22	489.0	152,000	52,100	17.6	10.3	6,950	2,440
35	466	468	422	35	55	22	593.7	214,000	69,000	19.0	10.8	9,130	3,270
	334	428	422	35	35	22	424.9	129,000	44,000	17.4	10.2	6,030	2,080
30	480	478	417	30	60	22	612.0	233,000	72,600	19.5	10.9	9,740	3,480
	415	458	417	30	50	22	528.6	187,000	60,500	18.8	10.7	8,170	2,900
	284	418	417	30	30	22	361.8	107,000	36,400	17.2	10.0	5,120	1,740
25	332	438	412	25	40	22	423.3	142,000	46,700	18.3	10.5	6,470	2,270
20	283	428	407	20	35	22	360.7	119,000	39,400	18.2	10.4	5,570	1,930

Structural Tees

(Inch Series)

Section Index	Weight		Depth of Tee		Area of Section		Flange				Stem Thickness	
							Width		Thickness			
	lbs/ft	kg/m	in	mm	in²	cm²	in	mm	in	mm	in	mm
ST18a 18×16-1/2	150 140 130 122.5 115	223.2 208.3 193.5 182.3 171.1	18.36 18.25 18.12 18.03 17.94	466 464 460 458 456	44.09 41.16 38.28 36.01 33.86	284.5 265.5 247.0 232.3 218.5	16.655 16.595 16.555 16.512 16.475	423 422 421 419 418	1.680 1.570 1.440 1.350 1.260	42.67 39.88 36.58 34.29 32.00	0.945 0.885 0.845 0.802 0.765	24.00 22.48 21.46 20.37 19.43
ST18b 18×12	97 91 85 80 75 67.5	144.4 135.4 126.5 119.1 111.6 100.5	18.24 18.16 18.08 18.00 17.92 17.78	463 461 459 457 455 452	28.56 26.77 24.99 23.54 22.08 19.85	184.3 172.7 161.2 151.9 142.5 128.1	12.117 12.072 12.027 12.000 11.972 11.945	308 307 305 305 304 303	1.260 1.180 1.100 1.020 0.940 0.794	32.00 29.97 27.94 25.91 23.88 20.17	0.770 0.725 0.680 0.653 0.625 0.598	19.56 18.42 17.27 16.59 15.88 15.19
ST16a 16-1/2×15-3/4	120 110 100	178.6 163.7 148.8	16.75 16.63 16.50	425 422 419	35.26 32.36 29.40	227.5 208.8 189.7	15.865 15.810 15.750	403 402 400	1.400 1.275 1.150	35.56 32.39 29.21	0.830 0.775 0.715	21.08 19.69 18.16
ST16b 16-1/2×11-1/2	76 70.5 65 59	113.1 104.9 96.73 87.80	16.75 16.66 16.55 16.43	425 423 420 417	22.35 20.76 19.13 17.36	144.2 133.9 123.4 112.0	11.565 11.535 11.510 11.484	294 293 292 292	1.055 0.960 0.855 0.738	26.80 24.38 21.72 18.74	0.635 0.605 0.580 0.554	16.13 15.37 14.73 14.07
ST15a 15×15	105 95 86	156.3 141.4 128.0	15.19 15.06 14.94	386 383 379	30.89 27.95 25.32	199.3 180.3 163.4	15.105 15.040 14.985	384 382 381	1.315 1.185 1.065	33.40 30.10 27.05	0.775 0.710 0.655	16.69 18.03 16.64
ST15b 15×10-1/2	66 62 58 54 49.5	98.22 92.27 86.31 80.36 73.66	15.15 15.08 15.00 14.91 14.82	385 383 381 379 376	19.41 18.22 17.07 15.88 14.56	125.2 117.5 110.1 102.5 93.9	10.551 10.521 10.500 10.484 10.458	268 267 267 266 266	1.000 0.930 0.850 0.760 0.670	25.40 23.62 21.59 19.30 17.02	0.615 0.585 0.564 0.548 0.522	15.62 14.86 14.33 13.92 13.26
ST13a 13-1/2×14	88.5 80 72.5	131.7 119.1 107.9	13.655 13.54 13.44	347 344 341	26.05 23.52 21.34	168.1 151.7 137.7	14.090 14.023 13.965	358 356 355	1.190 1.075 0.975	30.23 27.31 24.77	0.725 0.658 0.600	18.42 16.71 15.24
ST13b 13-1/2×10	57 51 47 42	84.83 75.90 69.94 62.50	13.64 13.535 13.455 13.35	346 344 342 339	16.77 15.01 13.83 12.36	108.2 96.8 89.2 79.7	10.070 10.018 9.990 9.963	256 254 254 253	0.932 0.827 0.747 0.636	23.67 21.01 18.97 16.15	0.570 0.518 0.490 0.463	14.48 13.16 12.45 11.76

Section Index	Weight		Depth of Tee		Area of Section		Range				Stem Thickness	
							Width		Thickness			
	lbs/ft	kg/m	in	mm	in²	cm²	in	mm	in	mm	in	mm
ST12a 12×14	80 72.5 65	119.1 107.9 96.73	12.36 12.245 12.13	314 311 308	23.52 21.31 19.11	151.8 137.5 123.3	14.091 14.043 14.000	358 357 356	1.135 1.020 0.900	28.83 25.91 22.86	0.656 0.608 0.565	16.66 15.44 14.35
ST12b 12×12	60 55 50	89.29 81.85 74.41	12.155 12.08 12.00	309 307 305	17.64 16.18 14.71	113.8 104.4 94.9	12.088 12.042 12.000	307 306 305	0.930 0.855 0.775	23.62 21.72 19.69	0.556 0.510 0.468	14.12 12.95 11.89
ST12c 12×9	47 42 38 34	69.94 62.50 56.55 50.60	12.145 12.045 11.955 11.86	308 306 304 301	13.81 12.35 11.18 10.00	89.1 79.7 72.1 64.5	9.061 9.015 8.985 8.961	230 229 228 228	0.872 0.772 0.682 0.582	22.15 19.61 17.32 14.78	0.516 0.470 0.440 0.416	13.11 11.94 11.18 10.57
ST10a 10-1/2×13	71 63.5 56	105.7 94.50 83.34	10.73 10.62 10.50	273 270 267	20.89 18.67 16.48	134.8 120.5 106.3	13.132 13.061 13.000	334 332 330	1.095 0.985 0.865	27.81 25.02 21.97	0.659 0.588 0.527	16.74 14.94 13.39
ST10b 10-1/2×9	48 41	71.43 61.01	10.57 10.43	268 265	14.11 12.05	91.0 77.7	9.038 8.962	230 228	0.935 0.795	23.75 20.19	0.575 0.499	14.61 12.67
ST10c 10-1/2×8-1/4	36.5 34 31 27.5	54.32 50.60 46.13 40.92	10.62 10.57 10.495 10.40	270 268 267 264	10.73 10.01 9.12 8.09	69.2 64.6 58.9 52.2	8.295 8.270 8.240 8.215	211 210 209 209	0.740 0.685 0.615 0.522	18.80 17.40 15.62 13.26	0.455 0.430 0.400 0.375	11.56 10.92 10.16 9.52
ST9a 9×11-3/4	57 52.5 48	84.83 78.13 71.43	9.24 9.16 9.08	235 233 231	16.77 15.43 14.11	108.2 99.6 91.0	11.833 11.792 11.750	301 300 298	0.991 0.911 0.831	25.17 23.14 21.11	0.595 0.554 0.512	15.11 14.07 13.00
ST9b 9×8-3/4	42.5 38.5 35 32	63.25 57.29 52.09 47.62	9.16 9.08 9.00 8.935	233 231 229 227	12.49 11.32 10.28 9.40	80.6 73.0 66.3 60.6	8.838 8.787 8.750 8.715	224 223 222 221	0.911 0.831 0.751 0.686	23.14 21.11 19.08 17.42	0.526 0.475 0.438 0.403	13.36 12.07 11.13 10.24
ST9c 9×7-1/2	30 27.5 25 22.5	44.64 40.92 37.20 33.48	9.125 9.06 9.00 8.93	232 230 229 227	8.82 8.09 7.35 6.62	56.9 52.2 47.4 42.7	7.558 7.532 7.500 7.477	192 191 191 190	0.695 0.630 0.570 0.499	17.65 16.00 14.48 12.67	0.416 0.390 0.358 0.335	10.57 9.91 9.09 8.51
ST8a 8×11-1/2	48 44	71.43 65.48	8.16 8.08	233 231	14.11 12.95	91.0 83.5	11.533 11.502	293 292	0.875 0.795	22.23 20.19	0.535 0.504	13.59 12.80

Structural Tees

(Inch Series)-Continued

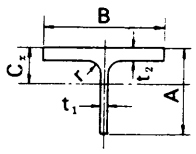
Section Index	Weight		Depth of Tee		Area of Section		Flange				Stem Thickness	
							Width		Thickness			
	lbs/ft	kg/m	in	mm	in²	cm²	in	mm	in	mm	in	mm
ST8b 8×8-1/2	39	58.04	8.16	233	11.46	73.9	8.586	218	0.875	22.23	0.529	13.44
	35.5	52.83	8.08	231	10.43	67.3	8.543	217	0.795	20.19	0.486	12.34
	32	47.62	8.00	203	9.40	60.6	8.500	216	0.715	18.16	0.443	11.25
	29	43.16	7.93	201	8.52	55.0	8.464	215	0.645	16.38	0.407	10.34
ST8c 8×7	25	37.20	8.125	206	7.35	47.4	7.073	180	0.628	15.95	0.380	9.65
	22.5	33.48	8.06	205	6.62	42.7	7.039	179	0.563	14.30	0.346	8.79
	20	29.76	8.00	203	5.88	37.9	7.000	178	0.503	12.78	0.307	7.80
	18	26.79	7.93	201	5.30	34.2	6.992	178	0.428	10.87	0.299	7.59
ST8d 8×5-1/2B	15.5	23.07	7.92	201	4.56	29.4	5.525	140	0.442	11.23	0.275	6.99
	13	19.35	7.83	199	3.83	24.7	5.500	140	0.345	8.76	0.250	6.35
ST7a 7×16	105.5	157.0	7.875	200	31.04	200.3	15.800	401	1.563	39.70	0.980	24.89
	101	150.3	7.815	199	29.70	191.6	15.750	400	1.503	38.18	0.930	23.62
	96.5	143.6	7.75	197	28.36	183.0	15.710	399	1.438	36.53	0.890	22.61
	92	136.9	7.69	195	27.04	174.5	15.660	398	1.378	35.00	0.840	21.34
	88	131.0	7.625	194	25.87	166.9	15.640	397	1.313	33.35	0.820	20.83
	83.5	124.3	7.56	192	24.55	158.4	15.600	396	1.248	31.70	0.780	19.81
	79	117.6	7.50	191	23.24	149.9	15.550	395	1.188	30.18	0.730	18.54
	75	111.6	7.44	189	22.04	142.2	15.515	394	1.128	28.65	0.695	17.65
	71	105.7	7.375	187	20.92	135.0	15.500	394	1.063	27.00	0.680	17.27
ST7b 7×14-1/2	68	101.2	7.375	187	19.99	129.0	14.740	374	1.063	27.00	0.660	16.76
	63.5	94.50	7.31	186	18.67	125.0	14.690	373	0.998	25.35	0.610	15.49
	59.5	88.55	7.25	184	17.49	112.8	14.650	372	0.938	23.83	0.570	14.48
	55.5	82.59	7.185	182	16.33	105.4	14.620	371	0.873	22.17	0.540	13.72
	51.5	76.64	7.125	181	15.13	97.6	14.575	370	0.813	20.65	0.495	12.57
	47.5	70.69	7.06	179	13.97	90.1	14.545	369	0.748	19.00	0.465	11.81
	43.5	64.74	7.00	178	12.78	82.5	14.500	368	0.688	17.48	0.420	10.67
ST7c 7×12	42	62.50	7.09	180	12.36	79.7	12.023	305	0.778	19.76	0.451	11.46
	39	58.04	7.03	179	11.47	74.0	12.000	305	0.718	18.24	0.428	10.87
ST7d 7×10	37	55.06	7.095	180	10.88	70.2	10.072	256	0.783	19.89	0.450	11.43
	34	50.60	7.03	179	10.00	64.5	10.040	255	0.718	18.24	0.418	10.62
	30.5	45.39	6.955	177	8.97	57.9	10.000	254	0.643	16.33	0.378	9.60

Section Index	Weight		Depth of Tee		Area of Section		Flange				Stem Thickness	
							Width		Thickness			
	lbs/ft	kg/m	in	mm	in²	cm²	in	mm	in	mm	in	mm
ST7e 7×8	26.5	39.44	6.97	177	7.79	50.3	8.062	205	0.658	16.71	0.370	9.40
	24	35.72	6.905	175	7.06	45.5	8.031	204	0.593	15.06	0.339	8.61
	21.5	32.00	6.84	174	6.32	40.8	8.000	203	0.528	13.41	0.308	7.82
ST7f 7×6-3/4	19	28.28	7.06	179	5.59	36.1	6.776	172	0.513	13.03	0.313	7.95
	17	25.30	7.00	178	5.00	32.3	6.750	171	0.453	11.51	0.287	7.29
	15	22.32	6.93	176	4.41	28.5	6.733	171	0.383	9.73	0.270	6.86
ST7g 7×5B	13	19.35	6.95	177	3.83	24.7	5.025	128	0.418	10.62	0.255	6.48
	11	16.37	6.86	174	3.24	20.9	5.000	127	0.335	8.51	0.230	5.84
ST7h 7×4B	8.6	12.80	7.00	178	2.53	16.3	4.000	102	0.272	6.91	0.210	5.33
ST6a 6×12	95	141.4	7.19	183	27.93	180.2	12.670	322	1.736	44.09	1.060	26.92
	80.5	119.8	6.94	176	23.69	152.8	12.515	318	1.486	37.74	0.905	22.99
	66.5	98.96	6.69	170	19.56	126.2	12.365	314	1.236	31.39	0.755	19.18
	60	89.29	6.56	167	17.65	113.9	12.320	313	1.106	28.09	0.710	18.03
	53	78.87	6.44	164	15.59	100.6	12.230	311	0.986	25.04	0.620	15.75
	49.5	73.66	6.375	162	14.54	93.8	12.190	310	0.921	23.39	0.580	14.73
	46	68.46	6.31	160	13.53	87.3	12.155	309	0.856	21.74	0.545	13.84
	42.5	63.25	6.25	159	12.49	80.6	12.105	307	0.796	20.22	0.495	12.57
	39.5	58.78	6.19	157	11.61	74.9	12.080	307	0.736	18.69	0.470	11.94
	36	53.57	6.125	156	10.58	68.3	12.040	306	0.671	17.04	0.430	10.92
	32.5	48.37	6.06	154	9.55	61.6	12.000	305	0.606	15.39	0.390	9.91
ST6b 6×10	29	43.16	6.095	155	8.53	55.0	10.014	254	0.641	16.28	0.359	9.12
	26.5	39.44	6.03	153	7.80	50.3	10.000	254	0.576	14.63	0.345	8.76
ST6c 6×8	25	37.20	6.095	155	7.36	47.5	8.077	205	0.641	16.28	0.371	9.42
	22.5	33.48	6.03	153	6.62	42.7	8.042	204	0.576	14.63	0.336	8.53
	20	29.76	5.97	152	5.89	38.0	8.000	203	0.516	13.11	0.294	7.47
ST6d 6×6-1/2	18	26.79	6.12	155	5.29	34.1	6.565	167	0.540	13.72	0.305	7.75
	15.5	23.07	6.045	154	4.56	29.4	6.525	166	0.465	11.81	0.265	6.73
	13.5	20.09	5.98	152	3.99	25.7	6.500	165	0.400	10.16	0.240	6.10
ST6e 6×4B	11	16.37	6.16	156	3.24	20.9	4.030	102	0.424	10.77	0.260	6.60
	9.5	14.14	6.08	154	2.81	18.1	4.010	102	0.349	8.86	0.240	6.10
	8.25	12.28	6.00	152	2.43	15.7	4.000	102	0.269	6.83	0.230	5.84
ST6f 6×4J	7.00	10.42	5.96	151	2.07	13.4	3.970	101	0.224	5.69	0.200	5.84

Structural Tees

(Inch Series)-Continued

Section Index	Weight		Depth of Tee		Area of Section		Flange				Stem Thickness	
							Width		Thickness			
	lbs/ft	kg/m	in	mm	in²	cm²	in	mm	in	mm	in	mm
ST5a 5×10	56	83.34	5.69	145	16.46	106.2	10.415	265	1.248	31.70	0.755	19.18
	50	74.41	5.56	141	14.72	95.0	10.345	263	1.118	28.40	0.685	17.40
	44.5	66.22	5.44	138	13.09	84.5	10.275	261	0.998	25.35	0.615	15.62
	38.5	57.29	5.31	135	11.33	73.1	10.195	259	0.868	22.05	0.535	13.59
	36	53.57	5.25	133	10.59	68.3	10.170	258	0.808	20.52	0.510	12.95
	33	49.11	5.19	132	9.70	62.6	10.117	257	0.748	19.00	0.457	11.61
	30	44.64	5.125	130	8.83	57.0	10.075	256	0.683	17.35	0.415	10.54
	27	40.18	5.06	129	7.94	51.2	10.028	255	0.618	15.70	0.368	9.35
	24.5	36.46	5.00	127	7.20	46.5	10.000	245	0.558	14.17	0.340	8.64
ST5b 5×8	22.5	33.48	5.06	129	6.62	42.7	8.022	204	0.618	15.70	0.350	8.89
	19.5	29.02	4.97	126	5.74	37.0	7.990	203	0.528	13.41	0.318	8.08
	16.5	24.55	4.875	124	4.85	31.3	7.964	202	0.433	11.00	0.292	7.42
ST5c 5×5-3/4	14.5	21.58	5.11	130	4.27	27.5	5.799	147	0.500	12.70	0.289	7.34
	12.5	18.60	5.04	128	3.67	23.7	5.762	146	0.430	10.92	0.252	6.40
	10.5	15.63	4.95	126	3.10	20.0	5.750	146	0.340	8.64	0.240	6.10
ST5d 5×4B	9.50	14.14	5.13	130	2.80	18.1	4.020	102	0.394	10.01	0.250	6.35
	8.50	12.65	5.06	129	2.49	16.1	4.010	102	0.329	8.36	0.240	6.10
	7.50	11.16	5.00	127	2.20	14.2	4.000	102	0.269	6.83	0.230	5.84
ST5e 5×4J	5.75	8.557	4.94	125	1.69	10.9	3.950	100	0.204	5.18	0.180	4.57
ST4a 4×8	33.5	49.85	4.50	114	9.85	63.5	8.287	210	0.933	23.70	0.575	14.61
	29	43.16	4.375	111	8.53	55.0	8.222	209	0.808	20.52	0.510	12.95
	24	35.72	4.25	108	7.06	45.5	8.117	206	0.683	17.35	0.405	10.29
	20	29.76	4.125	105	5.88	37.9	8.077	205	0.558	14.17	0.365	9.27
	17.5	26.04	4.06	103	5.15	33.2	8.027	204	0.493	12.52	0.315	8.00
	15.5	23.07	4.00	102	4.56	29.4	8.000	203	0.433	11.00	0.288	7.32
ST4b 4×6-1/2	14	20.83	4.03	102	4.11	26.5	6.540	166	0.463	11.76	0.285	7.24
	12	17.86	3.965	101	3.53	22.8	6.500	165	0.398	10.11	0.245	6.22
ST4c 4×5-1/4	10	14.88	4.07	103	2.94	19.0	5.268	134	0.378	9.60	0.248	6.30
	8.5	12.65	4.00	102	2.50	16.1	5.250	133	0.308	7.82	0.230	5.84
ST4d 4×4B	7.50	11.16	4.06	103	2.22	14.3	4.015	102	0.314	7.98	0.245	6.22
	6.50	9.673	4.00	102	1.91	12.3	4.000	102	0.254	6.45	0.230	5.84
ST4e 4×4J	5.00	7.441	3.95	100	1.48	9.5	3.940	100	0.204	5.18	0.170	4.32
ST3a 3×4B	8.00	11.91	3.13	80	2.36	15.2	4.030	102	0.404	10.26	0.260	6.60
	6.00	8.929	3.00	76	1.77	11.4	4.000	102	0.279	7.09	0.230	5.84
ST3b 3×4J	4.25	6.325	2.92	74	1.25	8.1	3.940	100	0.194	4.93	0.170	4.32



Structural Tees

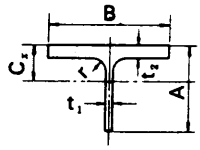
(Metric Series)

Section Index	Weight	Depth of Section (A)	Flange Width (B)	Thickness		Corner Radius (r)	Sectional Area	Moment of Inertia		Radius of Gyration		Modulus of Section		Centre of Gravity
				Web (t_1)	Flange (t_2)			Jx	Jy	ix	iy	Zx	Zy	Cx
mm	kg/m	mm	mm	mm	mm	mm	cm²	cm⁴	cm⁴	cm	cm	cm³	cm³	cm
900×300	143	456	302	18	34	28	182.0	34,200	7,820	13.7	6.56	997	518	11.3
	122	450	300	16	28	28	154.9	29,200	6,310	13.7	6.39	866	421	11.3
	106	445	299	15	23	28	135.4	26,000	5,140	13.9	6.16	790	344	11.6
800×300	121	404	302	16	30	22	153.8	21,900	6,900	11.9	6.70	705	457	9.41
	105	400	300	14	26	28	133.7	18,800	5,860	11.9	6.62	610	391	9.18
	95.6	396	300	14	22	28	121.7	17,700	4,960	12.1	6.38	593	331	9.66
700×300	107	354	302	15	28	28	136.8	14,200	6,440	10.2	6.86	513	426	7.78
	92.4	350	300	13	24	28	117.7	12,000	5,410	10.1	6.78	438	361	7.55
	83.0	346	300	13	20	28	105.7	11,300	4,510	10.3	6.53	425	301	7.99
600×300	87.3	297	302	14	23	28	111.2	7,920	5,290	8.44	6.90	339	350	6.33
	75.6	294	300	12	20	28	96.24	6,710	4,510	8.35	6.85	288	301	6.08
	68.5	291	300	12	17	28	87.24	6,360	3,830	8.54	6.63	280	256	6.39
600×300	67.0	306	202	13	23	22	85.33	7,340	1,590	9.27	4.31	322	157	7.79
	59.8	303	201	12	20	22	76.24	6,570	1,360	9.28	4.22	292	135	7.79
	52.8	300	200	11	17	22	67.21	5,810	1,140	9.30	4.12	262	114	7.84
	47.3	298	199	10	15	22	60.23	5,190	989	9.29	4.05	236	99.4	7.79
500×300	64.2	244	300	11	18	26	81.76	3,620	4,060	6.66	7.07	184	270	4.66
	57.1	241	300	11	15	26	72.76	3,420	3,380	6.85	6.82	178	225	4.92
500×200	51.5	253	201	11	19	20	65.65	3,670	1,290	7.48	4.43	190	128	5.95
	44.8	250	200	10	16	20	57.12	3,210	1,070	7.50	4.33	169	107	5.96
	39.7	248	199	9	14	20	50.64	2,840	922	7.49	4.27	150	92.6	5.90
450×300	61.8	220	300	11	18	24	78.69	2,680	4,060	5.84	7.68	149	270	4.05
	53.0	217	299	10	15	24	67.52	2,350	3,350	5.89	7.04	133	224	4.04
450×200	38.0	225	200	9	14	18	48.38	2,160	936	6.68	4.40	124	93.6	5.15
	33.1	223	199	8	12	18	42.15	1,880	790	6.67	4.33	109	79.4	5.10
400×400	302	249	432	45	70	22	385.0	13,200	47,100	5.87	11.1	706	2,180	6.13
	207	229	417	30	50	22	264.3	7,470	30,200	5.32	10.7	414	1,450	4.85
	142	214	407	20	35	22	180.3	4,380	19,700	4.93	10.4	250	967	3.90
	116	207	405	18	28	22	147.7	3,620	15,500	4.95	10.2	213	766	3.68

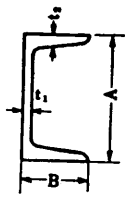
Structural Tees

(Metric Series)-Continued

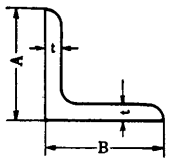
Section Index	Weight	Depth of Section (A)	Flange Width (B)	Thickness		Corner Radius (r)	Sectional Area	Moment of Inertia		Radius of Gyration		Modulus of Section		Centre of Gravity
				Web (t_1)	Flange (t_2)			Jx	Jy	ix	iy	Zx	Zy	Cx
mm	kg/m	mm	mm	mm	mm	mm	cm²	cm⁴	cm⁴	cm	cm	cm³	cm³	cm
400×400	100	203	403	16	24	22	127.4	3,090	13,100	4.92	10.0	184	650	3.51
	98.4	200	408	21	21	22	125.3	3,650	11,900	5.40	9.75	229	584	4.07
	85.8	200	400	13	21	22	109.3	2,480	11,200	4.76	10.1	147	560	3.21
	84.1	197	405	18	18	22	107.2	3,050	9,980	5.34	9.65	193	493	3.89
	73.3	197	398	11	18	22	93.41	2,050	9,460	4.68	10.1	123	475	3.01
	70.0	194	402	15	15	22	89.23	2,480	8,130	5.27	9.54	158	404	3.70
400×300	53.4	195	300	10	16	22	67.98	1,730	3,600	5.05	7.28	108	240	3.41
	47.1	193	299	9	14	22	60.05	1,530	3,120	5.04	7.21	95.5	209	3.33
400×200	33.0	200	200	8	13	16	42.06	1,400	868	5.76	4.54	88.6	86.8	4.23
	28.3	198	199	7	11	16	36.08	1,190	723	5.76	4.48	76.4	72.7	4.17
350×350	79.3	178	352	14	22	20	101.0	1,820	8,000	4.25	8.90	124	455	3.05
	77.9	175	357	19	19	20	99.19	2,200	7,220	4.71	8.53	158	404	3.59
	68.2	175	350	12	19	20	86.94	1,520	6,790	4.18	8.84	104	388	2.86
	65.4	172	354	16	16	20	83.32	1,800	5,920	4.65	8.43	131	335	3.40
	57.3	172	348	10	16	20	73.00	1,230	5,620	4.11	8.78	84.7	323	2.67
	53.1	169	351	13	13	20	67.63	1,420	4,690	4.59	8.33	104	267	3.21
350×250	39.8	170	250	9	14	20	50.76	1,020	1,830	4.48	6.00	73.1	146	3.09
	34.6	168	249	8	12	20	44.08	881	1,540	4.47	5.92	64.0	124	3.02
350×175	24.8	175	175	7	11	14	31.57	815	492	5.08	3.95	59.3	56.2	3.75
	20.7	173	174	6	9	14	26.34	679	396	5.08	3.88	50.0	45.5	3.71
300×300	52.9	152	301	11	17	18	67.41	903	3,870	3.66	7.57	71.4	257	2.55
	52.9	150	305	15	15	18	67.39	4,110	3,550	4.05	7.26	92.5	233	3.03
	47.0	150	300	10	15	18	59.89	798	3,380	3.65	7.51	63.7	225	2.47
	43.5	149	299	9	14	18	55.40	715	3,120	3.59	7.51	57.0	209	2.36
	42.3	147	302	12	12	18	53.83	858	2,760	3.99	7.16	72.3	183	2.84
300×200	32.7	149	201	9	14	18	41.68	662	949	3.99	4.77	55.2	94.4	2.91
	28.4	147	200	8	12	18	36.19	572	802	3.97	4.71	48.2	80.2	2.83
300×150	18.4	150	150	6.5	9	13	23.39	464	254	4.45	3.29	40.0	33.8	3.41
	16.0	149	149	5.5	8	13	20.40	393	221	4.39	3.29	33.8	29.7	3.26



Section Index	Weight	Depth of Section (A)	Flange Width (B)	Thickness		Corner Radius (r)	Sectional Area	Moment of Inertia		Radius of Gyration		Modulus of Section		Centre of Gravity
				Web (t_1)	Flange (t_2)			Jx	Jy	ix	iy	Zx	Zy	Cx
mm	kg/m	mm	mm	mm	mm	mm	cm²	cm⁴	cm⁴	cm	cm	cm³	cm³	cm
250×250	41.1	125	255	14	14	16	52.34	589	1,940	3.36	6.09	59.4	152	2.58
	36.2	125	250	9	14	16	46.09	412	1,820	2.99	6.29	39.5	146	2.08
	33.2	124	249	8	13	16	42.35	364	1,670	2.93	6.29	34.9	134	1.98
	32.2	122	252	11	11	16	41.03	445	1,470	3.29	5.98	45.3	117	2.39
250×175	22.1	122	175	7	11	16	28.12	289	492	3.20	4.18	29.1	56.3	2.27
250×125	14.8	125	125	6	9	12	18.83	248	147	3.63	2.79	25.6	23.5	2.78
	12.8	124	124	5	8	12	16.34	208	127	3.57	2.79	21.3	20.5	2.63
200×200	32.8	104	202	10	16	13	41.85	251	1,100	2.45	5.13	29.5	109	1.91
	28.1	100	204	12	12	13	35.77	256	851	2.67	4.88	32.4	83.4	2.09
	24.9	100	200	8	12	13	31.77	184	801	2.41	5.02	22.3	80.1	1.73
200×150	15.3	97	150	6	9	13	19.51	125	254	2.53	3.61	15.8	33.8	1.79
200×100	10.7	100	100	5.5	8	11	13.58	114	67.0	2.90	2.22	14.8	13.4	2.29
	9.10	99	99	4.5	7	11	11.59	93.8	56.8	2.84	2.21	12.1	11.5	2.14
175×175	20.1	87.5	175	7.5	11	12	25.61	115	492	2.12	4.38	15.9	56.2	1.55
175×125	11.6	84.5	125	5.5	8	12	14.83	74.1	131	2.24	2.97	10.9	20.9	1.63
175× 90	9.05	87.5	90	5	8	9	11.52	70.7	48.7	2.48	2.06	10.4	10.8	1.93
150×150	15.8	75	150	7	10	11	20.07	66.4	282	1.82	3.75	10.8	37.6	1.37
150×100	10.5	74	100	6	9	11	13.42	51.7	75.3	1.96	2.37	8.84	15.1	1.55
150× 75	7.01	75	75	5	7	8	8.925	42.6	24.7	2.18	1.66	7.46	6.59	1.79
125×125	11.9	62.5	125	6.5	9	10	15.16	35.0	147	1.52	3.11	6.91	23.5	1.19
125× 60	6.61	62.5	60	6	8	9	8.418	27.5	14.6	1.81	1.32	5.96	4.86	1.64
100×100	8.60	50	100	6	8	10	10.95	16.1	66.9	1.21	2.47	4.03	13.4	1.00
100× 50	4.65	50	50	5	7	8	5.925	11.8	7.39	1.41	1.12	3.18	2.96	1.28



A × B × t_1 × t_2	Luas tampang	Berat	Pusat titik berat	Momen Inertia cm^4		Jari-jari Inertia cm		Modulus tampang cm^3	
	cm^2	kg/m	cm	Ix	Iy	ix	iy	Zx	Zy
75 × 40 × 5 × 7	8,818	6,92	1,27	75,9	12,4	2,93	1,19	20,2	4,54
100 × 50 × 5 × 7,5	11,92	9,36	1,55	189	26,9	3,98	1,50	37,8	7,82
125 × 65 × 6 × 8	17,11	13,4	1,94	425	65,5	4,99	1,96	68,0	14,4
150 × 75 × 6,5 × 10	23,71	18,6	2,31	864	122	6,04	2,27	115	23,6
150 × 75 × 9 × 12,5	30,59	24,0	2,31	1,050	147	5,86	2,19	140	28,3
180 × 75 × 7 × 10,5	27,20	21,4	2,15	1,380	137	7,13	2,24	154	25,5
200 × 70 × 7 × 10	26,92	21,1	1,85	1,620	113	7,77	2,04	162	[illegible]
200 × 80 × 7,5 × 11	31,33	24,6	2,24	1,950	177	7,89	2,38	195	[illegible]
200 × 90 × 8 × 13,5	38,63	30,3	2,77	2,490	286	8,03	2,72	249	[illegible]
250 × 90 × 9 × 13	44,07	34,6	2,42	4,180	306	9,74	2,64	335	[illegible]
250 × 90 × 11 × 14,5	51,17	40,2	2,39	4,690	342	9,57	2,58	375	[illegible]
300 × 90 × 9 × 13	48,57	38,1	2,23	6,440	326	11,5	2,59	429	[illegible]
300 × 90 × 10 × 15,5	55,74	43,8	2,33	7,400	373	11,5	2,59	494	[illegible]
300 × 90 × 12 × 16	61,90	48,6	2,25	7,870	391	11,3	2,51	525	[illegible]
380 × 100 × 10,5 × 16	69,39	54,5	2,41	14,500	557	14,5	2,83	762	[illegible]
380 × 100 × 13 × 20	85,71	67,3	2,50	17,600	671	14,3	2,80	924	[illegible]

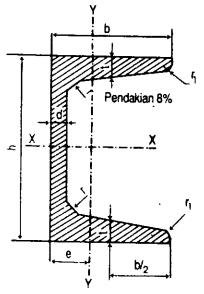


A × B × t_1	Luas tampang	Berat	Pusat titik berat Cx = Cy	Momen Inertia			Jari-Jari Inertia			Modulus tampang Zx = Zy
				Ix = Iy	max.Ix	min.Iy	ix = iy	max.ix	min.iy	
	cm^2	kg/m	cm	cm	cm^4	cm^4	cm	cm	cm	cm
40 × 40 × 3	2.336	1,83	1,09	3,53	5,60	1,45	1,23	1,55	0,79	1,21
40 × 40 × 5	3.755	2,95	1,17	5,42	8,59	2,25	1,20	1,51	0,77	1,91
45 × 45 × 4	3.492	2,74	1,24	6,50	10,3	2,69	1,36	1,72	0,88	2,00
50 × 50 × 4	3.892	3,06	1,37	9,06	14,4	3,74	1,53	1,92	0,98	2,49
50 × 50 × 6	5.644	4,43	1,44	12,6	20,0	5,24	1,50	1,88	0,96	3,55
60 × 60 × 4	4.692	3,68	1,61	16,0	25,4	6,62	1,85	2,33	1,19	3,66
60 × 60 × 5	5.802	4,55	1,66	19,6	31,2	8,06	1,84	2,32	1,18	4,52
65 × 65 × 6	7.527	5,91	1,81	29,4	46,6	12,1	1,98	2,49	1,27	6,27
65 × 65 × 8	9.761	7,66	1,88	36,8	58,3	15,3	1,94	2,44	1,25	7,97
75 × 75 × 6	8.727	6,85	2,06	46,1	73,2	19,0	2,30	2,90	1,47	8,47
75 × 75 × 9	12.69	9,96	2,17	64,4	102	26,7	2,25	2,84	1,45	12,1
75 × 75 × 12	16,56	13,0	2,29	81,9	129	34,5	2,22	2,79	1,44	15,7
90 × 90 × 6	10,55	8,28	2,42	80,7	129	32,3	2,77	3,50	1,75	12,3
90 × 90 × 7	12,22	9,59	2,46	93,0	148	38,3	2,76	3,48	1,77	14,2
90 × 90 × 10	17,00	13,3	2,58	125	199	51,6	2,71	3,42	1,74	19,5
90 × 90 × 13	21,71	17,0	2,69	156	248	65,3	2,68	3,38	1,73	24,5
100 × 100 × 7	13,62	10,7	2,71	129	205	53,1	3,08	3,88	1,97	17,7
100 × 100 × 10	19,00	14,9	2,83	175	278	71,9	3,03	3,83	1,95	24,4
100 × 100 × 13	24,31	19,1	2,94	220	348	91,0	3,00	3,78	1,93	31,1
120 × 120 × 8	18,76	14,7	3,24	258	410	106	3,71	4,68	2,38	29,5
130 × 130 × 9	22,74	17,9	3,53	366	583	150	4,01	5,06	2,57	38,7
130 × 130 × 12	29,76	23,4	3,64	467	743	192	3,96	5,00	2,54	49,9
130 × 130 × 15	36,75	28,8	3,76	368	902	234	3,93	4,95	2,53	61,5
150 × 150 × 10	29,21	22,9	4,05	627	997	258	4,63	5,84	2,97	57,3
150 × 150 × 12	34,77	27,3	4,14	740	1.176	304	4,61	5,82	2,96	68,2
150 × 150 × 15	41,74	33,6	4,24	888	1.410	365	4,56	5,75	2,92	82,6
150 × 150 × 19	53,38	41,9	4,40	1.090	1.730	451	4,52	5,69	2,91	103
175 × 175 × 12	40,52	31,8	4,73	1.170	1.860	479	5,37	6,78	3,44	91,6
175 × 175 × 15	50,21	39,4	4,85	1.440	2.290	588	5,35	6,75	3,42	114
200 × 200 × 15	57,75	45,3	5,47	2.180	3.470	891	6,14	7,75	3,93	150
200 × 200 × 20	76,00	59,7	5,67	2.820	4.490	1.160	6,09	7,68	3,90	197
200 × 200 × 25	93,75	73,6	5,87	3.420	5.420	1.410	6,04	7,61	3,88	242
200 × 200 × 29	107,6	84,5	6,01	3.866	6.118	1.613	5,99	7.54	3,87	276
250 × 250 × 25	119,4	93,7	7,10	6.950	11.000	2.860	7,63	9,62	4,89	388
250 × 250 × 35	162,6	126	7,45	9.110	14.400	3.790	7,48	9,42	4,83	519

Baja Kanal

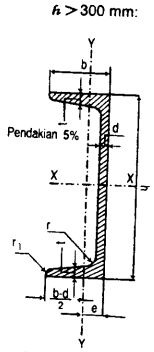
Baja — [; panjang biasa 4 ÷ 15 m

$h \leq 300$ mm:



F = penampang
e = jarak antara titik berat dan sisi luar badan
I = momen kelambatan
W = momen tahanan
i = jari-jari kelambatan = $\sqrt{\frac{I}{F}}$

$h > 300$ mm:



1 cm⁴ = 10^{-4} m⁴

[	ukuran-ukuran dalam mm					Penampang F dalam cm²			berat kg/m	e mm	sumbu-lentur X–X				
	h	b	d	$t=r$	r_1	prof.	flens	badan			I_x cm⁴	W_x cm³	i_x cm	r_{kx} cm	k_x cm
3	30	33	5	7	3,5	5,4	2,3	0,8	4,27	13,1	6,4	4,26	1,08	0,78	4,56
4	40	35	5	7	3,5	6,2	2,5	1,2	4,87	13,3	14,1	7,05	1,50	1,14	2,72
5	50	38	5	7	3,5	7,1	2,7	1,7	5,59	13,7	26,4	10,6	1,92	1,49	1,91
6½	65	42	5,5	7,5	4,0	9,0	3,2	2,6	7,09	14,2	57,5	17,7	2,52	1,96	1,41
8	80	45	6	8	4,0	11,0	3,6	3,8	8,64	14,5	106	26,5	3,10	2,41	1,14
10	100	50	6	8,5	4,5	13,5	4,3	4,9	10,6	15,5	206	41,2	3,91	3,05	0,885
12	120	55	7	9	4,5	17,0	5,0	7,0	13,4	16,0	364	60,7	4,62	3,57	0,795
14	140	60	7	10	5,0	20,4	6,0	8,4	16,0	17,5	605	86,4	5,45	4,23	0,690
16	160	65	7,5	10,5	5,5	24,0	6,8	10,4	18,8	18,4	925	116	6,21	4,83	0,625
18	180	70	8	11	5,5	28,0	7,7	12,6	22,0	19,2	1350	150	6,95	5,36	0,580
20	200	75	8,5	11,5	6,0	32,2	8,6	15,0	25,3	20,1	1910	191	7,70	5,93	0,545
22	220	80	9	12,5	6,5	37,4	10,0	17,4	29,4	21,4	2690	245	8,48	6,55	0,520
24	240	85	9,5	13	6,5	42,3	11,1	20,1	33,2	22,3	3600	300	9,22	7,09	0,495
26	260	90	10	14	7,0	48,3	12,6	23,1	37,9	23,6	4820	371	9,99	7,68	0,485
28	280	95	10	15	7,5	53,3	14,3	24,7	41,8	25,3	6280	448	10,9	8,41	0,455
30	300	100	10	16	8,0	58,8	16,0	26,8	46,2	27,0	8030	535	11,7	9,10	0,435
32	320	100	14	17,5	8,8	75,8	17,5	40,8	59,5	26,0	10870	679	12,1	8,96	0,530
35	350	100	14	16	8,0	77,3	16,0	45,3	60,6	24,0	12840	734	12,9	9,50	0,470
38	380	102	13,5	16	11,2	79,7	16,3	47,1	62,6	23,5	15730	826	14,1	10,4	0,400
40	400	110	14	18	9,0	91,5	19,8	51,9	71,8	26,5	20350	1020	14,9	11,1	0,410

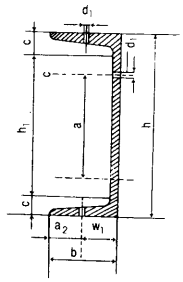
r_k = jari-jari teras = $\frac{W}{F}$

k = kofisen profil = $\frac{F^2}{I} = \frac{F}{i^2}$

d_l = garis tengah lubang badan

w_f = ukuran-ukuran-gores flens

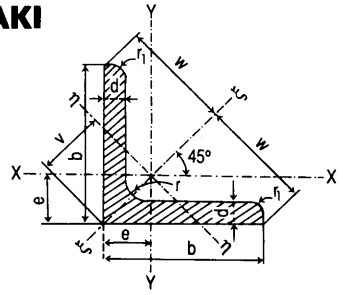
d_f = garis tengah lubang flens



[	sumbu-lentur Y–Y				tinggi pelat penyambung h_1 dan ukuran-ukuran-gores a dalam mm pada garis tengah-lubang badan d_l								lubang-lubang flens		luas bidang cat	
	I_y cm^4	W_y cm^3	i_y cm	k_y cm	c mm	h_1 mm	14 mm	17 mm	20 mm	23 mm	26 mm	29 mm	w_f mm	d_f mm	F_m m^2/m^1	F_t m^2/t
3	5,3	2,68	0,99	5,55	14,5	1	–	–	–	–	–	–	–	–	0,174	40,7
4	6,7	3,08	1,04	5,77	14,5	11	–	–	–	–	–	–	20	11	0,199	40,9
5	9,1	3,75	1,13	5,56	15	20	–	–	–	–	–	–	20	11	0,232	41,5
6½	14,1	5,07	1,25	5,78	16	33	–	–	–	–	–	–	25	11	0,273	38,5
8	19,4	6,36	1,33	6,24	17	46	–	–	–	–	–	–	25	14	0,312	36,1
10	29,3	8,49	1,47	6,22	18	64	–	–	–	–	–	–	30	14	0,372	35,1
12	43,2	11,1	1,59	6,69	19	82	40	–	–	–	–	–	30	17	0,434	32,4
14	62,7	14,8	1,75	6,64	21	98	60	50	–	–	–	–	35	17	0,489	30,6
16	85,3	18,3	1,89	6,75	22,5	115	70	60	–	–	–	–	35	20	0,546	29,0
18	114	22,4	2,02	6,88	23,5	133	–	80	70	–	–	–	40	20	0,611	27,8
20	148	27,0	2,14	7,01	24,5	151	–	100	90	80	–	–	40	23	0,661	26,1
22	197	33,6	2,27	7,10	26,5	167	–	110	100	90	80	–	45	23	0,718	24,4
24	248	39,6	2,42	7,21	28	184	–	130	120	110	100	90	45	26	0,775	23,3
26	317	47,7	2,56	7,36	30	200	–	150	140	130	120	110	50	26	0,834	22,0
28	399	57,2	2,74	7,12	32	216	–	160	150	140	130	120	50	26	0,890	21,3
30	495	67,8	2,90	6,98	34	232	–	180	170	160	150	140	55	26	0,950	20,6
32	597	80,6	2,81	9,62	37	246	–	190	180	170	160	150	55	26	0,98	16,5
35	570	75,0	2,72	10,50	34	282	–	230	220	210	200	190	55	26	1,05	17,3
38	613	78,4	2,78	10,30	34	312	–	260	250	240	230	220	55	26	1,11	17,7
40	846	102	3,04	9,90	38	324	–	270	260	250	240	230	60	26	1,18	16,5

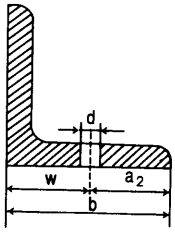
BAJA SIKU-SIKU SAMAKAKI

panjang biasa 3 ÷ 15 m

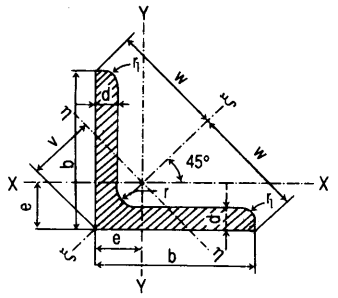


F = penampang
I = momen kelambatan
W = momen tahanan
i = jari-jari kelambatan $= \sqrt{\frac{I}{F}}$
k = kofisen profil $= \frac{F^2}{I} = \frac{F}{i^2}$

L	ukuran-ukuran dalam mm				F	berat	jarak titikberat-titikberat dalam cm			$I_x = I_y$	$W_x = W_y$	$i_x = i_y$	$k_x = k_y$
	b	d	r	r_1	cm²	kg/m	e	w	v	cm⁴	cm³	cm	
15· 15· 3	15	3	3,5	2	0,82	0,64	0,48	1,06	0,67	0,15	0,15	0,43	4,48
15· 15· 4		4			1,05	0,82	0,51		0,73	0,19	0,19	0,42	5,81
20· 20· 3	20	3	3,5	2	1,12	0,88	0,60	1,41	0,85	0,39	0,28	0,59	3,23
20· 20· 4		4			1,45	1,14	0,64		0,90	0,48	0,35	0,58	4,38
25· 25· 3	25	3	3,5	2	1,42	1,12	0,73	1,77	1,03	0,79	0,45	0,75	2,56
25· 25· 4		4			1,85	1,45	0,76		1,08	1,01	0,58	0,74	3,38
25· 25· 5		5			2,26	1,77	0,80		1,13	1,18	0,69	0,72	4,32
30· 30· 3	30	3	5	2,5	1,74	1,36	0,84	2,12	1,18	1,41	0,65	0,90	2,14
30· 30· 4		4			2,27	1,78	0,89		1,24	1,81	0,86	0,89	2,85
30· 30· 5		5			2,78	2,18	0,92		1,30	2,16	1,04	0,88	3,56
35· 35· 4	35	4	5	2,5	2,67	2,10	1,00	2,47	1,41	2,96	1,18	1,05	2,41
35· 35· 6		6			3,87	3,04	1,08		1,53	4,14	1,71	1,04	3,51
40· 40· 4	40	4	6	3	3,08	2,42	1,12	2,83	1,58	4,48	1,56	1,21	2,12
40· 40· 5		5			3,79	2,97	1,16		1,64	5,43	1,91	1,20	2,64
40· 40· 6		6			4,48	3,52	1,20		1,70	6,33	2,26	1,19	3,18
45· 45· 5	45	5	7	3,5	4,30	3,38	1,28	3,18	1,81	7,83	2,43	1,35	2,36
45· 45· 7		7			5,86	4,60	1,36		1,92	10,4	3,31	1,33	3,29
50· 50· 5	50	5	7	3,5	4,80	3,77	1,40	3,54	1,98	11,0	3,05	1,51	2,10
50· 50· 6		6			5,69	4,47	1,45		2,04	12,8	3,61	1,50	2,54
50· 50· 7		7			6,56	5,15	1,49		2,11	14,6	4,15	1,49	2,94
50· 50· 9		9			8,24	6,74	1,56		2,21	17,9	5,20	1,47	3,80
55· 55· 6	55	6	8	4	6,31	4,95	1,56	3,89	2,21	17,3	4,40	1,66	2,30
55· 55· 8		8			8,23	6,46	1,64		2,32	22,1	5,72	1,64	3,08
55· 55·10		10			10,1	7,90	1,72		2,43	26,3	6,97	1,62	3,88
60· 60· 6	60	6	8	4	6,91	5,42	1,69	4,24	2,39	22,8	5,29	1,82	2,09
60· 60· 8		8			9,03	7,09	1,77		2,50	29,1	6,88	1,80	2,82
60· 60·10		10			11,1	8,69	1,85		2,62	34,9	8,41	1,78	3,55
65· 65· 7	65	7	9	4,5	8,70	6,83	1,85	4,60	2,62	33,4	7,18	1,96	2,27
65· 65· 9		9			11,0	8,62	1,93		2,73	41,3	9,04	1,94	2,93
65· 65·11		11			13,2	10,3	2,00		2,83	48,8	10,8	1,91	3,56
70· 70· 7	70	7	9	4,5	9,40	7,38	1,97	4,95	2,79	42,4	8,43	2,12	2,09
70· 70· 9		9			11,9	9,34	2,05		2,90	52,6	10,6	2,10	2,70
70· 70·11		11			14,3	11,2	2,13		3,01	61,8	12,7	2,08	3,32
75· 75· 7	75	7	10	5	10,1	7,94	2,09	5,30	2,95	52,4	9,67	2,28	1,95
75· 75· 8		8			11,5	9,03	2,13		3,01	58,9	11,0	2,26	2,24
75· 75·10		10			14,1	11,1	2,21		3,12	71,4	13,5	2,25	2,78
75· 75·12		12			16,7	13,1	2,29		3,24	82,4	15,8	2,22	3,42

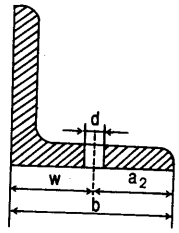


L	I_ξ	i_ξ	k_ξ	I_η	W_η	i_η	k_η	Penampang yang dilemahkan				Fv
	cm^4	cm		cm^4	cm^3	cm		w mm	d mm	F_{n1} cm^2	F_{n2} cm^2	m^2/m
15. 15. 3	0,24	0,54	2,80	0,06	0,09	0,27	11,2					0,057
15. 15. 4	0,29	0,53	3,80	0,08	0,11	0,28	13,8					
20. 20. 3	0,62	0,74	2,03	0,15	0,18	0,37	8,36					0,077
20. 20. 4	0,77	0,73	2,73	0,19	0,21	0,36	11,1					
25. 25. 3	1,27	0,95	1,59	0,31	0,30	0,47	6,50					0,097
25. 25. 4	1,61	0,93	2,13	0,40	0,37	0,47	8,56					
25. 25. 5	1,87	0,91	2,73	0,50	0,44	0,47	10,3					
30. 30. 3	2,24	1,14	1,35	0,57	0,48	0,57	5,33	17	8,5	1,49		0,116
30. 30. 4	2,85	1,12	1,81	0,76	0,61	0,58	6,78			1,93		
30. 30. 5	3,41	1,11	2,26	0,91	0,70	0,57	8,50			2,36		
35. 35. 4	4,68	1,33	1,53	1,24	0,88	0,68	5,75	20	11	2,23		0,136
35. 35. 6	6,50	1,30	2,32	1,77	1,16	0,68	8,46			3,21		
40. 40. 4	7,09	1,52	1,34	1,86	1,18	0,78	5,10	22	11	2,64		0,155
40. 40. 5	8,64	1,51	1,66	2,22	1,35	0,77	6,47			3,24		
40. 40. 6	9,98	1,49	2,01	2,67	1,57	0,77	7,52			3,82		
45. 45. 5	12,4	1,70	1,49	3,25	1,80	0,87	5,69	25	14	3,60		0,174
45. 45. 7	16,4	1,67	2,09	4,39	2,29	0,87	7,82			4,88		
50. 50. 5	17,4	1,90	1,33	4,59	2,32	0,98	5,02	30	14	4,10		0,194
50. 50. 6	20,4	1,89	1,60	5,24	2,57	0,96	6,19			4,85		
50. 50. 7	23,1	1,88	1,86	6,02	2,85	0,96	7,15			5,58		
50. 50. 9	28,1	1,85	2,42	7,67	3,47	0,97	8,85			6,98		
55. 55. 6	27,4	2,08	1,45	7,24	3,28	1,07	5,50	30	17	5,29		0,213
55. 55. 8	34,8	2,06	1,96	9,35	4,03	1,07	7,24			6,87		
55. 55.10	41,4	2,02	2,46	11,3	4,65	1,06	9,03			8,40		
60. 60. 6	36,1	2,29	1,32	9,43	3,95	1,17	5,06	35	17	5,89		0,233
60. 60. 8	46,1	2,26	1,78	12,1	4,84	1,16	6,74			7,67		
60. 60.10	55,1	2,23	2,23	14,6	5,57	1,15	8,44			9,40		
65. 65. 7	53,0	2,47	1,43	13,8	5,27	1,26	5,48	35	20	7,30		0,252
65. 65. 9	65,4	2,44	1,85	17,2	6,30	1,25	7,03			9,20		
65. 65.11	76,8	2,42	2,27	20,7	7,31	1,25	8,42			11,0		
70. 70. 7	67,1	2,67	1,34	17,6	6,31	1,37	5,02	40	20	8,00		0,272
70. 70. 9	83,1	2,64	1,71	22,0	7,59	1,36	6,44			10,1		
70. 70.11	97,6	2,61	2,10	26,0	8,64	1,35	7,87			12,1		
75. 75. 7	83,6	2,88	1,22	21,1	7,15	1,45	4,85	40	23	8,49		0,291
75. 75. 8	93,3	2,85	1,42	24,4	8,11	1,46	5,42			9,66		
75. 75.10	113	2,83	1,76	29,8	9,55	1,45	6,67			11,8		
75. 75.12	130	2,79	2,14	34,7	10,7	1,44	8,04			13,9		



Lanjutan: baja siku-siku samakaki;
panjang biasa 3 ÷ 15 m

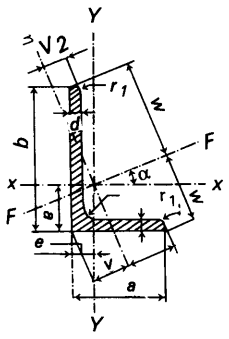
L	ukuran-ukuran dalam mm				F	berat	jarak titikberat-titikberat dalam cm			$I_x = I_y$	$W_x = W_y$	$i_x = i_y$	$k_x = k_y$
	b	d	r	r_1	cm^2	kg/m	e	w	v	cm^4	cm^3	cm	
80. 80. 8	80	8	10	5	12,3	9,66	2,26	5,66	3,20	72,3	12,6	2,42	2,09
80. 80.10		10			15,1	11,9	2,34		3,31	87,5	15,5	2,41	2,61
80. 80.12		12			17,9	14,1	2,41		3,41	102	18,2	2,39	3,14
80. 80.14		14			20,6	16,1	2,48		3,51	115	20,8	2,36	3,68
90. 90. 9	90	9	11	5,5	15,5	12,2	2,54	6,36	3,59	116	18,0	2,74	2,07
90. 90.11		11			18,7	14,7	2,62		3,70	138	21,6	2,72	2,54
90. 90.13		13			21,8	17,1	2,60		3,81	158	25,1	2,69	3,01
90. 90.16*		16			26,4	20,7	2,81		3,97	186	30,1	2,66	3,74
100.100.10	100	10	12	6	19,2	15,1	2,82	7,07	3,99	177	24,7	3,04	2,09
100.100.12		12			22,7	17,8	2,90		4,10	207	29,2	3,02	2,49
100.100.14		14			26,2	20,6	2,98		4,21	235	33,5	3,00	2,92
100.100.20*		20			36,2	28,4	3,20		4,54	311	45,8	2,93	4,20
110.110.10	110	10	12	6	21,2	16,6	3,07	7,78	4,34	239	30,1	3,36	1,88
110.110.12		12			25,1	19,7	3,15		4,45	280	35,7	3,34	2,25
110.110.14		14			29,0	22,8	3,21		4,54	319	41,0	3,32	2,63
120.120.11	120	11	13	6,5	25,4	19,9	3,36	8,49	4,75	341	39,5	3,66	1,89
120.120.13		13			29,7	23,3	3,44		4,86	394	46,0	3,64	2,24
120.120.15		15			33,9	26,6	3,51		4,96	446	52,5	3,63	2,58
120.120.20*		20			44,2	34,7	3,70		5,24	562	67,7	3,57	3,46
130.130.12	130	12	14	7	30,0	23,6	3,64	9,19	5,15	472	50,4	3,97	1,91
130.130.14		14			34,7	27,2	3,72		5,26	540	58,2	3,94	2,23
130.130.16		16			39,3	30,9	3,80		5,37	605	65,8	3,92	2,55
140.140.13	140	13	15	7,5	35,0	27,5	3,92	9,90	5,54	638	63,3	4,27	1,92
140.140.15		15			40,0	31,4	4,00		5,66	723	72,3	4,25	2,21
140.140.17		17			45,0	35,3	4,08		5,77	805	81,2	4,23	2,51
150.150.14	150	14	16	8	40,3	31,6	4,21	10,6	5,95	845	78,2	4,58	1,92
150.150.16		16			45,7	35,9	4,29		6,07	949	88,7	4,56	2,20
150.150.18		18			51,0	40,1	4,36		6,17	1050	99,3	4,54	2,48
160.160.15	160	15	17	8,5	46,1	36,2	4,49	11,3	6,35	1100	95,6	4,88	1,93
160.160.17		17			51,8	40,7	4,57		6,46	1230	108	4,86	2,20
160.160.19		19			57,5	45,1	4,65		6,58	1350	118	4,84	2,53
180.180.16	180	16	18	9	55,4	43,5	5,02	12,7	7,11	1680	130	5,51	1,84
180.180.18		18			61,9	48,6	5,10		7,22	1870	145	5,49	2,06
180.180.20		20			68,4	53,7	5,18		7,33	2040	160	5,47	2,29
200.200.16	200	16	18	9	61,8	48,5	5,52	14,1	7,80	2340	162	6,15	1,65
200.200.18		18			69,1	54,3	5,60		7,92	2600	181	6,13	1,83
200.200.20		20			76,4	59,9	5,68		8,04	2850	199	6,11	2,05



L	I_ξ cm⁴	i_ξ cm	k_ξ	I_η cm⁴	W_η cm³	i_η cm	k_η	Penampang yang dilemahkan				Fv m²/m
								w mm	d mm	F_{n1} cm²	F_{n2} cm²	
80· 80· 8	115	3,06	1,32	29,6	9,25	1,55	5,11	45	23	10,46		0,311
80· 80·10	139	3,03	1,64	35,9	10,9	1,54	6,35			12,8		
80· 80·12	161	3,00	1,99	43,0	12,6	1,53	7,45			15,1		
80· 80·14	181	2,96	2,34	48,6	13,9	1,54	8,08			17,4		
90· 90· 9	184	3,45	1,31	47,8	13,3	1,76	5,03	50	23	13,4		0,351
90· 90·11	218	3,41	1,61	57,1	15,4	1,75	6,12		23	16,2		
90· 90·13	250	3,39	1,90	65,9	17,3	1,74	7,21		26	18,4		
90· 90·16*	294	3,34	2,37	79,1	19,9	1,73	8,79		26	22,2		
100·100·10	280	3,82	1,32	73,3	18,4	1,95	5,03	55	23	16,9		0,390
100·100·12	328	3,80	1,57	86,2	21,0	1,95	5,98		23	19,9		
100·100·14	372	3,77	1,84	98,3	23,4	1,94	6,98		26	22,6		
100·100·20*	488	3,67	2,69	134	29,5	1,93	9,72		26	31,0		
110·110·10	379	4,23	1,19	98,6	22,7	2,16	4,56	45/70	23	18,9	16,6	0,430
110·110·12	444	4,21	1,42	116	26,1	2,15	5,43		23	22,3	19,6	
110·110·14	505	4,18	1,66	133	29,3	2,14	6,32		26	25,4	21,7	
120·120·11	541	4,62	1,20	140	29,5	2,35	4,61	50/80	23	22,9	20,3	0,469
120·120·13	625	4,59	1,41	162	33,3	2,34	5,45		26	26,3	22,9	
120·120·15	705	4,56	1,63	186	37,5	2,34	6,18		26	30,0	26,1	
120·120·20*	887	4,48	2,21	236	45,0	2,31	8,26		26	39,0	33,8	
130·130·12	750	5,00	1,20	194	37,7	2,54	4,64	50/90	23	27,2	24,5	0,508
130·130·14	857	4,97	1,41	223	42,4	2,53	5,40		26	31,1	27,4	
130·130·16	959	4,94	1,62	251	46,7	2,52	6,15		26	35,1	31,0	
140·140·13	1010	5,38	1,21	262	47,3	2,74	4,68	55/100	26	31,6	28,2	0,547
140·140·15	1150	5,36	1,39	298	52,7	2,73	5,37			36,1	32,2	
140·140·17	1280	5,33	1,58	334	57,9	2,72	6,06			40,6	36,2	
150·150·14	1340	5,77	1,21	347	58,3	2,94	4,68	55/110	26	36,7	33,0	0,586
150·150·16	1510	5,74	1,39	391	64,4	2,93	5,34			41,5	37,4	
150·150·18	1670	5,70	1,56	438	71,0	2,93	5,94			46,3	41,6	
160·160·15	1750	6,15	1,21	453	71,3	3,14	4,69	60/115	26	42,2	38,3	0,625
160·160·17	1950	6,13	1,39	506	78,3	3,13	5,30			47,4	43,0	
160·160·19	2140	6,10	1,60	558	84,8	3,12	5,93			52,6	47,6	
180·180·16	2690	6,96	1,15	679	95,5	3,50	4,52	60/135	26	51,2	47,1	0,705
180·180·18	2970	6,93	1,30	757	105	3,49	5,07			57,2	52,5	
180·180·20	3260	6,90	1,43	830	113	3,49	5,63			63,2	58,0	
200·200·16	3740	7,78	1,03	943	121	3,91	4,05	60/150	26	57,6	53,5	0,785
200·200·18	4150	7,75	1,15	1050	133	3,90	4,55			65,4	59,7	
200·200·20	4540	7,72	1,28	1160	144	3,89	5,04			71,2	66,0	

BAJA SIKU-SIKU TIDAK SAMAKAKI

panjang biasa 3 ÷ 15



F = penampang
I = momen kelambatan
W = momen tahanan
i = jari-jari kelambatan = $\sqrt{\frac{I}{F}}$

L	ukuran-ukuran dalam mm					F cm²	berat kg/m	jarak titikberat-titikberat dalam cm						
	a	b	d	r	r_1			e_x	e_y	w	w_1	v	v_1	v_2
20· 30· 3	20	30	3	3,5	2	1,42	1,11	0,99	0,50	2,04	1,51	0,86	1,04	0,56
20· 30· 4			4			1,85	1,45	1,03	0,54	2,02	1,52	0,91	1,03	0,58
20· 30· 5			5			2,26	1,77	1,07	0,58	2,00	1,53	0,95	1,03	0,60
20· 40· 3	20	40	3	3,5	2	1,72	1,35	1,43	0,44	2,61	1,77	0,79	1,19	0,46
20· 40· 4			4			2,25	1,77	1,47	0,48	2,57	1,80	0,83	1,18	0,50
30· 45· 3	30	45	3	4,5	2	2,19	1,72	1,43	0,70	3,09	2,24	1,22	1,58	0,81
30· 45· 4			4			2,87	2,25	1,48	0,74	3,07	2,26	1,27	1,58	0,83
30· 45· 5			5			5,83	2,77	1,52	0,78	3,05	2,27	1,32	1,58	0,85
30· 60· 5	30	60	5	6	3	4,29	3,37	2,15	0,68	3,90	2,67	1,20	1,77	0,72
30· 60· 7			7			3,53	4,59	2,24	0,76	3,83	2,72	1,28	1,73	0,78
40· 50· 3	40	50	3	4	2	2,63	2,06	1,48	0,99	3,50	2,85	1,62	1,87	1,22
40· 50· 4			4			3,46	2,71	1,52	1,03	3,50	2,85	1,67	1,84	1,26
40· 50· 5			5			4,27	3,35	1,56	1,07	3,49	2,88	1,73	1,84	1,27
40· 60· 5	40	60	5	6	3	4,79	3,76	1,96	0,97	4,08	3,01	1,68	2,09	1,10
40· 60· 6			6			5,68	4,46	2,00	1,01	4,06	3,02	1,72	2,08	1,12
40· 60· 7			7			6,55	5,14	2,04	1,05	4,04	3,03	1,77	2,07	1,14
40· 80· 4	40	80	4	7	3,5	4,69	3,68	2,76	0,80	5,25	3,51	1,48	2,44	0,85
40· 80· 6			6			6,89	5,41	2,85	0,88	5,21	3,53	1,55	2,42	0,89
40· 80· 8			8			9,01	7,07	2,94	0,95	5,15	3,57	1,65	2,38	1,04
50· 65· 5	50	65	5	6,5	3,5	5,54	4,35	1,99	1,25	4,52	3,61	2,08	2,38	1,50
50· 65· 7			7			7,60	5,97	2,07	1,33	4,50	3,62	2,19	2,37	1,52
50· 65· 9			9			9,58	7,52	2,15	1,41	4,48	3,63	2,28	2,36	1,57
50·100· 6	50	100	6	9	4,5	8,73	6,85	3,49	1,04	6,50	4,39	1,91	2,98	1,15
50·100· 8			8			11,5	8,99	3,59	1,13	6,48	4,44	2,00	2,95	1,18
50·100·10			10			14,1	11,1	3,67	1,20	6,43	4,49	2,08	2,91	1,22
55· 75· 5	55	75	5	7	3,5	6,30	4,95	2,31	1,33	5,19	4,00	2,27	2,71	1,58
55· 75· 7			7			8,66	6,80	2,40	1,41	5,16	4,02	2,37	2,70	1,62
55· 75· 9			9			10,9	8,59	2,47	1,48	5,14	4,04	2,46	2,70	1,66

L	tg α	I_x cm^4	W_x cm^3	i_x cm	I_y cm^4	W_y cm^3	i_y cm	k_y	I_ξ cm^4	i_ξ cm	I_η cm^4	i_η cm	k_η
20· 30· 3	0,431	1,25	0,62	0,94	0,44	0,29	0,56	4,58	1,43	1,00	0,25	0,42	7,99
20· 30· 4	0,423	1,59	0,81	0,93	0,55	0,38	0,55	6,22	1,81	0,99	0,33	0,42	10,4
20· 30· 5	0,412	1,90	0,99	0,92	0,66	0,46	0,54	7,75	2,15	0,98	0,40	0,42	12,7
20· 40· 3	0,259	2,79	1,08	1,27	0,47	0,30	0,52	6,31	2,96	1,31	0,30	0,42	9.76
20· 40· 4	0,252	3,59	1,42	1,26	0,60	0,39	0,52	8,45	3,79	1,30	0,39	0,42	12,9
30· 45· 3	0,441	4,48	1,46	1,43	1,60	0,70	0,86	3,00	5,17	1,54	0,91	0,64	5,27
30· 45· 4	0,436	5,78	1,91	1,42	2,50	0,91	0,85	4,01	6,65	1,52	1,18	0,64	6,97
30· 45· 5	0,430	6,99	2,35	1,41	2,47	1,11	0,84	5,05	8,02	1,51	1,44	0,64	8,65
30· 60· 5	0,256	15,6	4,04	1,90	2,60	1,12	0,78	7,05	16,5	1,96	1,69	0,63	10,9
30· 60· 7	0,248	20,7	5,50	1,88	3,41	1,52	0,76	10,0	21,8	1,93	2,28	0,62	15,0
40· 50· 3	0,632	6,58	1,87	1,58	3,76	1,25	1,20	1,84	8,46	1,79	1,89	0,85	3,66
40· 50· 4	0,629	8,54	2,47	1,57	4,86	1,64	1,19	2,46	10,9	1,78	2,46	0,84	4,85
40· 50· 5	0,625	10,4	3,02	1,56	5,89	2,01	1,18	3,10	13,3	1,76	3,02	0,84	6,04
40· 60· 5	0,437	17,2	4,25	1,89	6,11	2,02	1,13	3,73	19,8	2,03	3,50	0,86	6,56
40· 60· 6	0,433	20,1	5,03	1,88	7,12	2,38	1,12	4,52	23,1	2,02	4,12	0,85	7,83
40· 60· 7	0,429	23,0	5,79	1,87	8,07	2,74	1,11	5,31	26,3	2,00	4,73	0,85	9,07
40· 80· 4	0,265	31,1	5,93	2,57	5,32	1,66	1,07	4,63	33,0	2,65	3,38	0,85	6,52
40· 80· 6	0,259	44,9	8,73	2,55	7,59	2,44	1,05	6,24	47,6	2,63	4,90	0,84	9,70
40· 80· 8	0,253	57,6	11,4	2,53	9,68	3,18	1,04	8,40	60,9	2,60	6,41	0,84	12,7
50· 65· 5	0,583	23,1	5,11	2,04	11,9	3,18	1,47	2,59	28,8	2,28	6,21	1,06	5,89
50· 65· 7	0,574	31,0	6,99	2,02	15,8	4,31	1,44	3,66	38,4	2,25	8,37	1,05	6,90
50· 65· 9	0,567	38,2	8,77	2,00	19,4	5,39	1,42	4,75	47,0	2,22	10,5	1,05	8,72
50·100· 6	0,263	89,7	13,8	3,20	15,3	3,86	1,32	5,00	95,2	3,30	9,78	1,06	7,78
50·100· 8	0,258	116	18,0	3,18	19,5	5,04	1,31	6,80	123	3,28	12,6	1,05	10,4
50·100·10	0,252	141	22,2	3,16	23,4	6,17	1,29	8,50	149	3,25	15,5	1,04	12,8
55· 75· 5	0,530	35,5	6,84	2,37	16,2	3,89	1,60	2,45	43,1	2,61	8,68	1,17	4,58
55· 75· 7	0,525	47,9	9,39	2,35	21,8	5,32	1,59	3,43	57,9	2,59	11,8	1,17	6,40
55· 75· 9	0,518	59,4	11,8	2,33	26,8	6,66	1,57	4,44	71,3	2,55	14,8	1,16	8,09

Lanjutan: baja siku-siku tidak samakaki

panjang biasa 3 ÷ 15 m

L	ukuran-ukuran dalam mm					F cm²	berat kg/m	jarak titikberat-titikberat dalam cm						
	a	b	d	r	r_1			e_x	e_y	w	w_1	v	v_1	v_2
60· 90· 6	60	90	6	7	3,5	8,69	6,82	2,89	1,41	6,14	4,50	2,46	3,16	1,60
60· 90· 8			8			11,4	8,96	2,97	1,49	6,11	4,54	2,56	3,15	1,69
60· 90·10			10			14,1	11,0	3,05	1,56	6,08	4,57	2,66	3,14	1,74
65· 75· 6	65	75	6	8	4	8,11	6,37	2,19	1,70	5,28	4,60	2,68	2,75	2,11
65· 75· 8			8			10,6	8,34	2,28	1,78	5,26	4,62	2,79	2,78	2,14
65· 75·10			10			13,1	10,3	2,35	1,86	5,23	4,64	2,89	2,79	2,20
65· 80· 6	65	80	6	8	4	8,41	6,60	2,39	1,65	5,61	4,63	2,69	2,94	2,01
65· 80· 8			8			11,0	8,66	2,47	1,73	5,59	4,65	2,79	2,94	2,05
65· 80·10			10			13,6	10,7	2,55	1,81	5,56	4,68	2,90	2,95	2,11
65· 80·12			12			16,0	12,6	2,63	1,88	5,54	4,70	3,00	2,98	2,15
65·100· 7	65	100	7	10	5	11,2	8,77	3,23	1,51	6,83	4,91	2,66	3,48	1,73
65·100· 9			9			14,2	11,1	3,32	1,59	6,78	4,94	2,76	3,46	1,78
65·100·11			11			17,1	13,4	3,40	1,67	6,74	4,97	2,85	3,45	1,83
65·115· 6	65	115	6	8	4	10,5	8,25	3,85	1,38	7,70	5,26	2,52	3,74	1,52
65·115· 8			8			13,8	10,9	3,94	1,46	7,63	5,30	2,61	3,73	1,59
65·115·10			10			17,1	13,4	4,02	1,54	7,57	5,34	2,70	3,72	1,68
65·130· 8	65	130	8	11	5,5	15,1	11,9	4,56	1,37	8,50	5,71	2,49	3,86	1,47
65·130·10			10			18,6	14,6	4,65	1,45	8,43	5,76	2,58	3,82	1,54
65·130·12			12			22,1	17,3	4,74	1,53	8,37	5,81	2,66	3,80	1,60
75· 90· 7	75	90	7	8,5	4,5	11,1	8,74	2,67	1,93	6,32	5,33	3,11	3,32	2,38
75· 90· 9			9			14,1	11,1	2,76	2,01	6,30	5,35	3,22	3,34	2,41
75· 90·11			11			17,0	13,4	2,83	2,09	6,28	5,37	3,33	3,35	2,45
75·100· 7	75	100	7	10	5	11,9	9,32	3,06	1,83	6,96	5,42	3,10	3,61	2,18
75·100· 9			9			15,1	11,8	3,15	1,91	6,91	5,45	3,22	3,63	2,22
75·100·11			11			18,2	14,3	3,23	1,99	6,87	5,49	3,32	3,65	2,27
75·130· 8	75	130	8	10,5	5,5	15,9	12,5	4,36	1,65	8,73	6,01	2,99	4,26	1,83
75·130·10			10			19,6	15,4	4,45	1,73	8,66	6,05	3,08	4,24	1,88
75·130·12			12			23,3	18,3	4,53	1,81	8,61	6,09	3,18	4,21	1,95
75·150· 9	75	150	9	10,5	5,5	19,5	15,3	5,28	1,57	9,79	6,62	2,90	4,46	1,72
75·150·11			11			23,6	18,6	5,37	1,65	9,73	6,66	2,97	4,44	1,77
75·150·13			13			27,7	21,7	5,45	1,73	9,67	6,70	3,04	4,42	1,85
75·170·10	75	170	10	11,5	5,5	23,7	18,6	6,21	1,52	10,9	7,33	2,81	4,62	1,81
75·170·12			12			28,1	22,1	6,30	1,60	10,8	7,38	2,89	4,59	1,75
75·150·14			14			32,5	25,5	6,39	1,68	10,7	7,44	2,96	4,56	1,70
75·170·16			16			36,8	28,9	6,47	1,76	10,7	7,48	3,03	4,54	1,65

L	tg α	I_x cm⁴	W_x cm³	i_x cm	I_y cm⁴	W_y cm³	i_y cm	k_y	I_ξ cm⁴	i_ξ cm	I_η cm⁴	i_η cm	k_η
60· 90· 6	0,442	71,7	11,7	2,87	25,8	5,61	1,72	2,94	82,8	3,09	14,6	1,30	5,18
60· 90· 8	0,437	92,5	15,4	2,85	33,0	7,31	1,70	3,94	107	3,06	19,0	1,29	6,87
60· 90·10	0,431	112	18,8	2,82	39,6	8,92	1,68	5,00	129	3,02	23,1	1,28	8,56
65· 75· 6	0,740	44,0	8,30	2,33	30,7	6,39	1,94	2,14	60,2	2,73	14,4	1,34	4,55
65· 75· 8	0,736	56,7	10,9	2,31	39,4	8,34	1,92	2,85	77,3	2,70	18,8	1,33	6,01
65· 75·10	0,732	68,4	13,3	2,29	47,3	10,2	1,90	3,63	92,7	2,66	23,0	1,33	7,42
65· 80· 6	0,649	52,8	9,41	2,51	31,2	6,44	1,93	2,26	68,5	2,85	15,6	1,36	4,55
65· 80· 8	0,645	68,1	12,3	2,49	40,1	8,41	1,91	3,02	88,0	2,82	20,3	1,36	6,01
65· 80·10	0,640	82,2	15,1	2,46	48,3	10,3	1,89	3,83	106	2,79	24,8	1,35	7,44
65· 80·12	0,634	95,4	17,8	2,44	55,8	12,1	1,87	4,57	122	2,76	29,2	1,35	8,81
65·100· 7	0,419	113	16,6	3,17	37,6	7,54	1,84	3,34	128	3,39	21,6	1,39	5,76
65·100· 9	0,415	141	21,0	3,15	46,7	9,52	1,82	4,32	160	3,36	27,2	1,39	7,36
65·100·11	0,410	167	25,3	3,13	55,1	11,4	1,80	5,30	190	3,34	32,6	1,38	8,92
65·115· 6	0,327	145	18,9	3,71	34,4	6,71	1,81	3,21	158	3,88	21,1	1,42	5,22
65·115· 8	0,324	188	24,8	3,69	44,2	8,78	1,79	4,31	205	3,85	27,4	1,41	6,99
65·115·10	0,321	229	30,6	3,66	53,3	10,8	1,77	5,45	249	3,82	33,2	1,40	8,77
65·130· 8	0,263	263	31,1	4,17	44,8	8,72	1,72	5,01	280	4,31	28,6	1,38	7,95
65·130·10	0,259	321	38,4	4,15	54,2	10,7	1,71	6,40	340	4,27	35,0	1,37	9,93
65·130·12	0,255	376	45,5	4,12	63,0	12,7	1,69	7,75	397	4,24	41,2	1,37	11,8
75· 90· 7	0,683	88,1	13,9	2,81	55,5	9,98	2,23	2,22	117	3,24	27,1	1,56	4,57
75· 90· 9	0,679	110	17,6	2,79	69,1	12,6	2,21	2,82	145	3,21	34,1	1,56	5,83
75· 90·11	0,675	130	21,1	2,77	81,7	18,5	2,19	3,55	171	3,17	40,9	1,55	7,07
75·100· 7	0,553	118	17,0	3,15	56,9	10,0	2,19	2,49	145	3,49	30,1	1,59	4,69
75·100· 9	0,549	148	21,5	3,13	71,0	12,7	2,17	3,21	181	3,47	37,8	1,59	5,99
75·100·11	0,545	176	25,9	3,11	84,0	15,3	2,15	3,95	214	3,44	45,4	1,58	7,26
75·130· 8	0,339	276	31,9	4,17	68,3	11,7	2,08	3,69	303	4,37	41,3	1,61	6,10
75·130·10	0,336	337	39,4	4,14	82,9	14,4	2,06	4,63	369	4,34	50,6	1,61	7,60
75·130·12	0,332	395	46,6	4,12	96,5	17,0	2,04	5,65	432	4,31	59,6	1,60	9,09
75·150· 9	0,265	455	46,8	4,83	78,3	13,2	2,00	4,85	484	4,98	50,0	1,60	7,65
75·150·11	0,261	545	56,6	4,80	93,0	15,9	1,98	6,00	578	4,95	59,8	1,59	9,35
75·150·13	0,258	631	66,1	4,78	107	18,5	1,96	7,15	668	4,91	69,4	1,58	11,0
75·170·10	0,214	709	65,7	5,47	88,2	14,8	1,93	6,40	739	5,59	58,5	1,57	9,56
75·170·12	0,210	834	78,0	5,45	103	17,4	1,91	7,65	868	5,56	68,9	1,57	11,5
75·170·14	0,207	955	90,0	5,42	117	20,0	1,89	9,05	992	5,53	79,0	1,56	13,4
75·170·16	0,204	1070	102	5,39	130	22,6	1,88	10,4	1110	5,50	88,8	1,55	15,3

Lanjutan: baja siku-siku tidak samakaki

panjang biasa 3 ÷ 15 m

L	ukuran-ukuran dalam mm					F cm²	berat kg/m	jarak titikberat-titikberat dalam cm						
	a	b	d	r	r_1			e_x	e_y	w	w_1	v	v_1	v_2
80·120· 8	80	120	8	11	5,5	15,5	12,2	3,83	1,87	8,23	5,99	3,27	4,20	2,16
80·120·10			10			19,1	15,0	3,92	1,95	8,18	6,03	3,37	4,19	2,19
80·120·12			12			22,7	17,8	4,00	2,03	8,14	6,06	3,46	4,18	2,25
80·120·14			14			26,2	20,5	4,08	2,10	8,10	6,08	3,55	4,17	2,29
90·110· 9	90	110	9	12	6	17,3	13,6	3,30	2,32	7,72	6,41	3,74	4,06	2,79
90·110·11			11			20,9	16,4	3,38	2,40	7,69	6,44	3,85	4,06	2,84
90·110·13			13			24,5	19,2	3,46	2,48	7,67	6,45	3,96	4,07	2,88
90·130·10	90	130	10	12	6	21,2	16,6	4,15	2,18	8,92	6,69	3,75	4,62	2,51
90·130·12			12			25,1	19,7	4,24	2,26	8,88	6,72	3,85	4,60	2,56
90·130·14			14			29,0	22,8	4,32	2,34	8,85	6,74	3,96	4,58	2,61
90·150·10	90	150	10	12,5	6,5	23,2	18,2	4,99	2,03	10,1	7,09	3,63	4,99	2,26
90·150·12			12			27,5	21,6	5,08	2,11	10,0	7,12	3,71	4,98	2,32
90·150·14			14			31,8	25,0	5,16	2,19	9,99	7,15	3,79	4,97	2,36
90·250·10	90	250	10	12,5	6,5	33,2	26,0	9,49	1,57	15,6	10,5	3,02	5,90	1,76
90·250·12			12			39,5	31,0	9,59	1,65	15,5	10,6	3,09	5,87	1,80
90·250·14			14			45,8	36,0	9,68	1,74	15,4	10,7	3,17	5,82	1,87
90·250·16			16			52,0	40,8	9,77	1,82	15,3	10,8	3,24	5,78	1,96
100·150·10	100	150	10	13	6,5	24,2	19,0	4,80	2,34	10,3	7,50	4,10	5,25	2,68
100·150·12			12			28,7	22,6	4,89	2,42	10,2	7,53	4,19	5,24	2,73
100·150·14			14			33,2	26,1	4,97	2,50	10,2	7,56	4,28	5,23	2,77
100·200·10	100	200	10	15	7,5	29,2	23,0	6,93	2,01	13,2	8,76	3,75	5,98	2,22
100·200·12			12			34,8	27,3	7,03	2,10	13,1	8,82	3,84	5,95	2,26
100·200·14			14			40,3	31,6	7,12	2,18	13,0	8,88	3,93	5,92	2,32
100·200·16			16			45,7	35,9	7,20	2,26	12,9	8,93	4,02	5,88	2,39
100·200·18			18			51,0	40,0	7,29	2,34	12,9	8,97	4,09	5,86	2,46

L	tg α	I_x cm^4	W_x cm^3	i_x cm	I_y cm^4	W_y cm^3	i_y cm	k_y	I_ξ cm^4	i_ξ cm	I_η cm^4	i_η cm	k_η
80·120· 8	0,441	226	27,6	3,82	80,8	13,2	2,29	2,97	261	4,10	45,8	1,72	5,24
80·120·10	0,438	276	34,1	3,80	98,1	16,2	2,27	3,73	318	4,07	56,1	1,71	6,52
80·120·12	0,433	323	40,4	3,77	114	19,1	2,25	4,52	371	4,04	66,1	1,71	7,79
80·120·14	0,429	368	46,4	3,75	130	22,0	2,23	5,30	421	4,01	75,8	1,70	9,03
90·110· 9	0,652	204	26,5	3,43	122	18,3	2,66	2,46	264	3,90	62,2	1,89	4,83
90·110·11	0,650	243	31,9	3,41	146	22,1	2,64	2,99	315	3,88	74,3	1,88	5,90
90·110·13	0,648	281	37,2	3,39	168	25,7	2,62	3,58	362	3,85	86,0	1,88	6,96
90·130·10	0,472	358	40,5	4,11	141	20,6	2,58	3,19	420	4,46	78,5	1,93	5,70
90·130·12	0,468	420	48,0	4,09	165	24,4	2,56	3,82	492	4,43	92,6	1,92	6,81
90·130·14	0,465	480	55,3	4,07	187	28,1	2,54	4,50	560	4,40	106	1,91	7,91
90·150·10	0,363	532	53,1	4,79	146	21,0	2,51	3,69	591	5,05	87,3	1,94	6,14
90·150·12	0,360	626	63,1	4,77	170	24,7	2,49	4,45	694	5,02	102	1,93	7,39
90·150·14	0,357	716	72,8	4,75	194	28,4	2,47	5,20	792	4,99	118	1,92	8,60
90·250·10	0,156	2170	140	8,09	163	22,0	2,22	6,75	2220	8,18	113	1,84	9,75
90·250·12	0,154	2570	167	8,06	191	26,0	2,20	8,15	2630	8,15	133	1,83	11,8
90·250·14	0,152	2960	193	8,03	218	30,0	2,18	9,60	3020	8,12	152	1,82	13,8
90·250·16	0,150	3330	219	8,01	243	33,8	2,16	11,2	3400	8,09	172	1,82	15,7
100·150·10	0,442	552	54,1	4,78	198	25,8	2,86	2,96	637	5,13	112	2,15	5,22
100·150·12	0,439	650	64,2	4,76	232	30,6	2,84	3,55	749	5,10	132	2,15	6,24
100·150·14	0,435	744	74,1	4,73	264	35,2	2,82	4,18	856	5,07	152	2,14	7,26
100·200·10	0,266	1220	93,2	6,46	210	26,3	2,68	4,06	1300	6,66	133	2,14	6,41
100·200·12	0,264	1440	111	6,43	247	31,3	2,67	4,91	1530	6,63	158	2,13	7,68
100·200·14	0,262	1650	128	6,41	282	36,1	2,65	5,75	1760	6,60	181	2,12	8,95
100·200·16	0,259	1860	145	6,38	316	40,8	2,63	6,60	1970	6,57	204	2,11	10,2
100·200·18	0,256	2060	162	6,36	347	45,3	2,61	7,50	2180	6,54	227	2,11	11,5

TEGANGAN-TEGANGAN YANG DIIZINKAN MENURUT N 1055

Bahan		Macam tegangan		Tegangan yang diizinkan untuk pembebanan gabungan	
				A dan B	C
Baja konstruksi Bd. 37 menurut N 702 dan **Bd. 00** yang memenuhi syarat-syarat percobaan untuk Bd. 37		tarikan $\bar{\sigma}_t$ tekanan $\bar{\sigma}_d$ lenturan $\bar{\sigma}_b$		1400	1610
Baja paku-keling Bd. K 34 menurut N 718, kalau jarak *a* dari tepi sampai tengah-tengah paku-keling itu dalam arah gaya ialah:	$a = 2d$	putus-geseran $\bar{\tau}$ tekanan tumpuan $\bar{\sigma}_s$	$8{,}0\,\bar{\tau}_t$ $2\,\bar{\sigma}_t$ dari Bd. 37	1120 2800	1288 3220
	$a = 1{,}5d$	putus-geseran $\bar{\tau}$ *tekanan tumpuan* $\bar{\sigma}_s$	$0{,}8\bar{\sigma}_t$ $1{,}6\,\bar{\sigma}_t$ dari Bd. 37	1120 2240	1288 2576
Baut-baut-sekerup, baut-baut jangkar dll, kalau jarak *a dari tepi sampai tengah-tengah baut dalam arah gaya ialah:*	$a = 2d$	tarikan $\bar{\sigma}_t$ putus-geseran $\bar{\tau}$ tekanan tumpuan $\bar{\sigma}_s$	$0{,}7\,\bar{\sigma}_t$ $0{,}6\bar{\sigma}_t$ $1{,}5\bar{\sigma}_t$ dari Bd. 37	980 840 2100	1127 966 2415
	$a = 1{,}5d$	*tarikan* $\bar{\sigma}_t$ putus-geseran $\bar{\tau}_t$ tekanan tumpuan $\bar{\sigma}_s$	$0{,}7\bar{\sigma}_t$ $0{,}6\bar{\sigma}_t$ $1{,}2\bar{\sigma}_t$ dari Bd. 37	980 840 1680	1127 966 1933
Besi-tulang B. tu. 00 menurut N 715		tarikan σ_t tekanan $\bar{\sigma}_d$ lenturan σ_b putus-geseran $\bar{\tau}$	250 500 300 200		

1) Kalau *a* sama dengan berat sendiri konstruksi; *b* pembebanan yang berguna; *c* pembebanan salju; *d* pembebanan angin sedang dan *e* pembebanan angin tinggi, maka pembebanan gabungan: $A = a + b + c$; $B = a + b + d$ dan $C = a + b + e$.

2) Tegangan yang diizinkan yang tersebut di atas ini berlaku untuk pelaksanaan dan konstruksi, di mana petunjuk-petunjuk dari panitia Normalisasi telah dipenuhi. Kalau syarat-syarat ini tidak dipenuhi maka tegangan-tegangan yang diizinkan ini harus dikurangi dengan 15%.

Kalau rencana, konstruksi, perhitungan, penyelenggaraan dan pelaksanaan berlaku di bawah pimpinan seorang ahli sendiri, maka dapatlah diizinkan untuk menambah nilai-nilai dari daftar itu dengan 15%.

GAYA-PIKUL (KEKUATAN MENAHAN) PAKU-PAKU-KELING

Garis tengah lubang = garis tengah paku yang telah dikeling mm	Gaya-pikul dalam ton pada *putus-geseran*		Gaya-pikul Ns dalam ton pada tekanan-tumpuan pada tebal-pelat dalam mm dari:											
	irisan tunggal Na_1	irisan berganda Na_2	5	6	7	8	9	10	11	12	13	14	15	16
I untuk $\bar{\sigma}_t = 1400$ kg/cm^2; $\bar{\tau} = 1120$ kg/cm^2 dan $\bar{\sigma}_s = 2800$ kg/cm^2														
11	1,06	2,13	1,54	1,85	2,16									
14	1,72	3,45	1,96	2,35	2,74	3,14	3,53							
17	2,54	5,08	2,38	2,86	3,33	3,81	4,28	4,76	5,24					
20	3,52	7,04	2,80	3,36	3,92	4,48	5,04	5,60	6,16	6,72	7,28			
23	4,65	9,31	3,22	3,86	4,51	5,15	5,80	6,44	7,08	7,73	8,37	9,02	9,66	
26	5,95	11,89	3,64	4,37	5,10	5,82	6,55	7,28	8,01	8,74	9,46	10,19	10,92	11,65
29	7,40	14,79	4,06	4,87	5,68	6,50	7,31	8,12	8,93	9,74	10,55	11,37	12,18	12,99
II untuk $\bar{\sigma}_t = 1400$ kg/cm^2; $\bar{\tau} = 1120$ kg/cm^2 dan $\bar{\sigma}_s = 2240$ kg/cm^2														
11	1,06	2,13	1,23	1,48	1,72	1,97	2,22							
14	1,72	3,45	1,57	1,88	2,20	2,51	2,82	3,14	3,45	3,76				
17	2,54	5,08	1,90	2,28	2,67	3,05	3,43	3,81	4,19	4,57	4,95	5,33		
20	3,52	7,04	2,24	2,69	3,14	3,58	4 03	4,48	4,93	5,38	5,82	6,27	6,72	7,17
23	4,65	9,31	2,58	3,09	3,61	4,12	4,64	5,15	5,67	6,18	6,70	7,21	7,73	8,24
26	5 95	11,89	2,91	3,49	4,08	4,66	5,24	5,82	6,41	6,99	7,57	8,15	8,74	9,32
29	7,40	14,79	3,25	3,90	4,55	5,20	5,85	6,50	7,15	7,80	8,44	9,09	9,74	10,30
III untuk $\bar{\sigma}_t = 1610$ kg/cm^2; $\bar{\tau} = 1288$ kg/cm^2 dan $\bar{\sigma}_s = 3220$ kg/cm^2														
11	1,22	2,45	1,77	2,12	2,48									
14	1 98	3,96	2,25	2,70	3,16	3,61	4,06							
17	2 92	5,85	2,74	3,28	3,83	4,38	4,93	5,47	6,02					
20	4,04	8,09	3,22	3,86	4,51	5,15	5,80	6,44	7,08	7,73	8,37			
23	5 35	10,7;	3,70	4,44	5,18	5,92	6,67	7,41	8,15	8,89	9,63	10,37	11,11	
26	6 84	13,68	4,19	5,02	5,86	6,70	7,53	8,37	9,21	10,05	10,88	11,72	12,56	13,40
29	8,51	17,01	4,67	5,60	6,54	7,47	8,40	9,34	10,27	11,21	12,14	13,07	14,01	14,94
IV untuk $\bar{\sigma}_t = 1610$ kg/cm^2; $\bar{\tau} = 1288$ kg/cm^1 dan $\bar{\sigma}_s = 2576$ kg/cm^1														
11	1,22	2,45	1,42	1,70	1,98	2,27	2,55							
14	1,98	3,96	1,80	2,16	2,52	2,88	3,25	3,61	3,97					
17	2,92	5,85	2,19	2,63	3,06	3,50	3,94	4,38	4,82	5,25	5,69	6,13		
20	4,04	8,09	2,58	3,09	3,61	4,12	4,64	5,15	5,67	6,18	6,70	7,21	7,73	8,24
23	5,35	10,70	2,96	3,55	4,15	4,74	5,33	5,92	6,52	7,11	7,70	8,29	8,89	9 48
26	6,84	13,68	3 35	4,02	4,69	5,36	6,03	6,70	7,37	8,04	8,71	9,38	10,05	10,71
29	8,51	17,01	3 73	4,48	5,23	5,98	6,72	7,47	8,22	8,96	9,71	10,46	11,20	11 95

Untuk sambungan-sambungan dengan irisan tunggal, maka gaya-pikul pada tekanan tumpuan, sebelah kiri di bawah garis tangga yang pertama lebih kecil daripada gaya-pikul pada putus-geseran, jadi yang menentukan penghitungan gaya-pikul; untuk sambungan-sambungan dengan irisan berganda, maka gaya-pikul letaknya di bawah garis tangga yang kedua.

DAFTAR KOEFISIEN TEKUK ω UNTUK BAJA Fe 360

λ	0	1	2	3	4	5	6	7	8	9
0	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
10	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
20	1,00	1,01	1,01	1,02	1,02	1,03	1,04	1,05	1,05	1,06
30	1,07	1,08	1,09	1,09	1,10	1,11	1,12	1,13	1,13	1,14
40	1,15	1,16	1,17	1,17	1,18	1,19	1,20	1,21	1,22	1,23
50	1,24	1,25	1,26	1,27	1,28	1,29	1,30	1,31	1,32	1,33
60	1,34	1,35	1,36	1,38	1,39	1,40	1,41	1,43	1,44	1,46
70	1,47	1,48	1,50	1,51	1,53	1,54	1,56	1,57	1,59	1,60
80	1,62	1,64	1,66	1,67	1,69	1,71	1,73	1,75	1,76	1,78
90	1,80	1,82	1,84	1,87	1,89	1,91	1,94	1,96	1,99	2,01
100	2,04	2,07	2,10	2,12	2,15	2,18	2,21	2,24	2,28	2,31
110	2,34	2,38	2,42	2,47	2,51	2,55	2,60	2,64	2,69	2,73
120	2,78	2,83	2,88	2,92	2,97	3,02	3,07	3,12	3,16	3,21
130	3,26	3,31	3,36	3,42	3,47	3,52	3,57	3,62	3,68	3,73
140	3,78	3,84	3,89	3,95	4,00	4,06	4,12	4,17	4,23	4,28
150	4,34	4,40	4,46	4,52	4,58	4,66	4,70	4,76	4,82	4,88
160	4,94	5,00	5,06	5,13	5,19	5,25	5,32	5,38	5,45	5,51
170	5,58	5,65	5,71	5,78	5,84	5,91	5,98	6,05	6,11	6,18
180	6,25	6,32	6,39	6,47	6,54	6,61	6,68	6,75	6,82	6,89
190	6,96	7,04	7,11	7,19	7,26	7,34	7,42	7,49	7,57	7,64
200	7,72	7,80	7,88	7,95	8,03	8,11	8,19	8,27	8,35	8,43
210	8,51	8,59	8,67	8,75	8,84	8,92	9,00	9,09	9,17	9,25
220	9,34	9,42	9,51	9,59	9,68	9,77	9,86	9,94	10,03	10,12
230	10,21	10,30	10,38	10,47	10,56	10,66	10,75	10,84	10,93	11,02
240	11,11	11,21	11,30	11,39	11,49	11,58	11,68	11,77	11,87	11,96
250	12,06	–	–	–	–	–	–	–	–	–

Daftar koefisien tekuk tersebut di atas disusun berdasarkan peraturan Belanda: NEN 3851: Technische grondslagen voor de berekening van bouwconstructies — TGB 1972 — Staal.

* Tabel ini dari Ir. Ths. A. Adi Soebagio (Universitas Trisakti).

RUMUS-RUMUS UNTUK MENENTUKAN/ MENGHITUNG PENAMPANG BATANG-BATANG BAJA YANG DITEKAN

1. Untuk kerampingan-kerampingan lebih besar daripada 90.
   $I_{pend.} \approx 1{,}7\, PL_k^2$ untuk $v = 3{,}5$ ($\bar{\sigma}_d = 1400$ kg/cm²);
   $I_{pend.} \approx 1{,}5\, PL_k^2$ untuk $v = 3{,}04$ ($\bar{\sigma}_d = 16.10$ kg/cm²).
   Dalam rumus ini, maka P harus diisi dalam t dan L_k dalam m.

2. Untuk kerampingan-kerampingan lebih kecil daripada 90.
   A. Untuk **batang-batang tunggal:**

   profil-profil-Din : $F_{pend.} = \frac{P}{\bar{\sigma}_d} + 2L_k^2$

   profil-profil-Dir : $F_{pend.} = \frac{P}{\bar{\sigma}_d} + 3{,}2L_k^2$

   profil-profil-Dil : $F_{pend.} = \frac{P}{\bar{\sigma}_d} + 1{,}65L_k^2$

   profil-profil-Die : $F_{pend.} = \frac{P}{\bar{\sigma}_d} + 1{,}5L_k^2$

   B. Untuk **kolom-kolom majemuk (II;][; [ ]) di mana $I_y > 1{,}1\, I_x$:**

   $$F_{pend.} = \frac{P}{\bar{\sigma}_d}\, 0{,}65L_k^2.$$

   C. Untuk **batang-batang rangka yang dikerjakan berganda,** di mana pelat buhul ditempatkan di antara profil-profil:

   Untuk ⌟⌞ = $F_{pend.} = \frac{P}{\bar{\sigma}_d} + 2{,}5L_k^2$

   ⊣⊢ dan ⟨⟩: $F_{pend.} = \frac{P}{\bar{\sigma}_d} + 1{,}75L_k^2$.

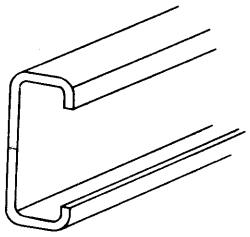
   Untuk ⌟⌞: $F_{pend.} = \frac{P}{\bar{\sigma}_d} + 2{,}25L_k^2$

   Untuk][: $F_{pend.} = \frac{P}{\bar{\sigma}_d} + 3{,}5L_k^2$

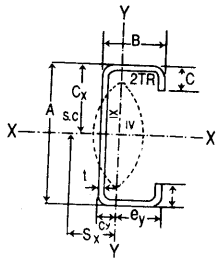
   Dalam rumus ini maka L_k ialah panjang-tekuk dalam m; untuk P dalam t, maka $\bar{\sigma}_d$ harus diisi dalam t/cm^2, untuk P dalam kg, maka $\bar{\sigma}_d$ dalam kg/cm².

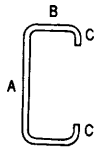
SECTION PROPERTIES

LIGHT LIP CHANNELS



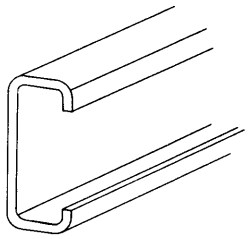
SIZE	SIZE								SECTION AREA		WEIGHT		
	A		B		C		t						
	mm	in	mm	in	mm	in	mm	in	cm^2	in^2	*kg/m*	*kg*/ft	lb/ft
200×75×20×3.2	200	7.874	75	2.953	20	0.787	3.2	0.126	11.81	1.831	9.27	2.824	6.229
150×75×20×4.5	150	5.906	75	2.953	20	0.787	4.5	0.177	13.97	2.165	11.0	3.351	7.392
150×65×20×3.2	150	5.906	65	2.559	20	0.787	3.2	0.126	9.567	1.483	7.51	2 288	5.047
150×50×20×4.5	150	5.906	50	1.969	20	0 787	4.5	0.177	11.72	1.817	9.20	2.802	6.182
150×50×20×3.2	150	5.906	50	1.969	20	0.787	3.2	0.126	8.607	0.207	6.76	2.059	4.543
150×50×20×2.3	150	5.906	50	1.969	20	0.787	2.3	0.150	6.322	0.980	4.96	1.511	3.333
125×50×20×4.5	125	4.921	50	1.969	20	0.787	4.5	0.177	10.59	1.641	8.32	2.534	5.591
125×50×20×4.0	125	4.921	50	1.969	20	0.787	4.0	0.157	9.548	1.480	7.50	2.285	5.040
125×50×20×3.2	125	4.921	50	1.969	20	0.787	3.2	0.126	7.807	1.210	6.13	1.867	4.119
125×50×20×2.3	125	4.921	50	1.969	20	0.787	2.3	0.150	5.747	0.891	4.51	1.374	3.031
100×50×20×4.5	100	3.937	50	1.969	20	0.787	4.5	0.177	9.469	1.468	7.43	2.263	4.993
100×50×20×4.0	100	3.937	50	1.969	20	0.787	4.0	0.157	8.548	1.325	6.71	2.044	4.509
100×50×20×3.2	100	3.937	50	1.969	20	0.787	3.2	0.126	7.007	1.086	5.50	1.675	3.696
100×50×20×2.6	100	3.937	50	1.969	20	0.787	2.6	0.102	5.796	0.898	4.55	1.386	3.057
100×50×20×2.3	100	3.937	50	1.969	20	0.787	2.3	0.091	5.172	0.802	4.06	1.237	2.728
100×50×20×1.6	100	3.937	50	1.969	20	0.787	1.6	0.063	3.672	0.569	2.88	0.877	1.935
75×45×15×2.3	75	2.953	45	1.772	15	0.591	2.3	0.091	4.137	0.641	3.25	0.990	2.184
75×45×15×1.6	75	2.953	45	1.772	15	0.591	1.6	0.063	2.952	0.458	2.32	0.707	1.559
60×30×10×2.3	60	2.362	30	1.181	10	0.394	2.3	0.091	2.872	0.445	2.25	0.685	1.512
60×30×10×1.6	60	2 362	30	1.181	10	0.394	1.6	0.063	2.072	0.321	1.63	0.496	1.095



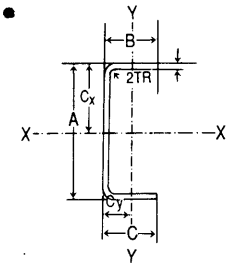


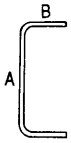
CENTER OF GRAVITY				MOMENT OF INERTIA				RADIUS OF GYRATION				SECTION MODULUS			
Cx		Cy		Ix		Iy		i_x		i_y		Zx		Zy	
cm	in	cm	in	cm^4	in^4	cm^4	in^4	cm	in	cm	in	cm^3	in^3	cm^3	in^3
0	0	2.27	0.894	721	17.32	87.5	2.102	7.77	3.059	2.71	1.067	72.1	4.400	16.8	1.025
0	0	2.50	0.984	489	11.75	99.2	2.383	5.92	2.331	2.66	1.047	65.2	3.979	19.8	1.208
0	0	2.11	0.131	332	7.976	53.8	1.293	5.89	2.319	2.37	0.933	44.3	2.703	12.2	0.744
0	0	1.54	0.604	368	8.841	35.7	0.858	5.60	2.205	1.75	0.689	49.0	2.990	10.5	0.641
0	0	1.54	0.604	280	6.727	28.3	0.680	5.71	2.248	1.81	0.713	37.4	2.282	8.19	0.031
0	0	1.55	0.610	210	5.045	21.9	0.526	5.77	2.272	1.86	0.772	28.0	1.709	6.33	0.513
0	0	1.68	0.661	238	5.718	33.5	0.805	4.74	1.866	1.78	0.701	38.0	2.319	10.1	0.616
0	0	1.68	0.661	217	5.213	33.1	0.795	4.77	1.878	1.81	0.713	34.7	2.117	9.38	0.572
0	0	1.68	0.661	181	4.349	26.6	0.639	4.82	1.898	1.85	0.728	29.0	1.770	8.02	0.489
0	0	1.69	0.665	137	3.291	20.6	0.495	4.88	1.921	1.89	0.783	21.9	1.336	6.22	0.520
0	0	1.86	0.732	139	3.339	30.9	0.742	3.82	1.504	1.81	0.713	27.7	1.690	9.82	0.599
0	0	1.86	0.732	127	3.051	28.7	0.690	3.85	1.516	1.83	0.720	25.4	1.550	9.13	0.557
0	0	1.86	0.732	107	2.571	24.5	0.589	3.90	1.535	1.87	0.736	21.3	1.300	7.81	0.477
0	0	1.86	0.732	89.7	2.155	21.0	0.509	3.93	1.547	1.90	0.748	17.9	1.092	6.68	0.408
0	0	1.86	0.732	80.7	1.939	19.0	0.456	3.95	1.555	1.92	0.756	16.1	0.982	6.06	0.370
0	0	1.87	0.736	58.4	1.403	14.0	0.336	3.99	1.571	1.95	0.768	11.7	0.714	4.47	0.273
0	0	1.72	0.677	37.1	0.891	11.8	0.283	3.00	1.181	1.69	0.665	9.90	0.604	4.24	0.259
0	0	1.72	0.677	27.1	0.651	8.71	0.209	3.03	1.193	1.72	0.677	7.24	0.442	3.13	0.191
0	0	1.06	0.417	15.6	0.375	3.32	0.080	2.33	0.917	1.07	0.421	5.20	0.317	1.71	0.104
0	0	1.06	0.417	11.6	0.279	2.56	0.062	2.37	0.933	1.11	0.437	3.88	0.237	1.32	0.081

LIGHT CHANNEL



SIZE	SIZE						SECTION AREA		WEIGHT		
	A		B		t						
	mm	in	mm	in	mm	in	cm^2	in^2	kg/m	kg/ft	lb/ft
350×50×50×4.5	350	13.78	50	1.969	4.5	0.177	19.58	3.035	15.4	4.691	10.35
350×50×50×4.0	350	13.78	50	1.969	4.0	0.157	17.47	2.708	13.7	4.173	9.206
300×50×50×4.5	300	11.81	50	1.969	4.5	0.177	17.33	2.686	13.6	4.143	9.139
300×50×50×4.0	300	11.81	50	1.969	4.0	0.157	15.47	2.398	12.1	3.686	8.131
250×50×50×4.5	250	9.843	50	1.969	4.5	0.177	15.08	2.337	11.8	3.594	7.929
250×50×50×4.0	250	9.843	50	1.969	4.0	0.157	13.47	2.088	10.6	3.229	7.123
200×50×50×4.5	200	7.874	50	1.969	4.5	0.177	12.83	1.983	10.1	3.076	6.787
200×50×50×4.0	200	7.874	50	1.969	4.0	0.157	11.47	1.778	9.00	2.741	6.048
200×50×50×3.2	200	7.874	50	1.969	3.2	0.126	9.263	1.436	7.27	2.214	4.885
150×75×75×4.5	150	5.906	75	2.953	4.5	0.177	12.83	1.989	10.1	3.076	6.787
150×50×50×4.5	150	5.906	50	1.969	4.5	0.177	10.58	1.640	8.31	2.531	5.584
100×50×50×3.2	100	3.937	50	1.969	3.2	0.126	6.063	0.940	4.76	1.450	3.199
75×40×15×3.2	75	2.953	40	1.575	3.2	0.126	3.823	0.593	3.00	0.914	2.016
60×30×30×2.3	60	2.362	30	1.181	2.3	0.091	2.586	0.401	2.03	0.618	1.364
38×15×15×1.5	38	1.496	15	0.591	1.5	0.059	0.901	0.140	0.71	0.216	0.477
19×12×12×1.5	19	0.748	12	0.472	1.5	0.059	0.563	0.087	0.45	0.137	0.302

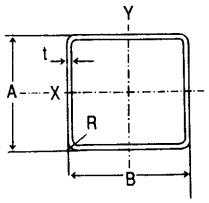




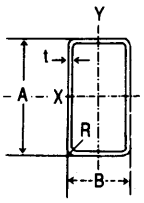
CENTER OF GRAVITY				MOMENT OF INERTIA				RADIUS OF GYRATION				SECTION MODULUS			
Cx		Cy		Ix		Iy		ix		iy		Zx		Zy	
cm	in	cm	in	cm^4	in^4	cm^4	in^4	cm	in	cm	in	cm^3	in^3	cm^3	in^3
0	0	0.75	0.295	2750	66.07	27.5	0.661	11.8	4.646	1.19	0.469	157	9.580	6.48	0.395
0	0	0.73	0.287	2470	59.34	24.8	0.596	11.9	4.685	1.19	0.469	151	9.214	5.81	0.355
0	0	0.82	0.323	1850	44.45	26.8	0.644	10.3	4.055	1.24	0.488	123	7.505	6.41	0.391
0	0	0.80	0.315	1660	39.88	24.1	0.579	10.3	4 055	1.25	0.492	111	6.773	5.74	0.350
0	0	0.91	0.358	1160	27.87	25.9	0.622	8.78	3.457	1.31	0.516	93.0	5.675	6.31	0.385
0	0	0.88	0.346	1050	25.23	23.3	0.560	8.81	3.468	1.32	0.520	83.7	5.107	5.66	0.345
0	0	1.03	0.406	666	16.00	24.6	0.591	7.20	2.835	1.38	0.543	66.6	4.064	6.18	0.377
0	0	1.00	0.394	600	14.42	22.2	0.533	7.23	2.846	1.39	0.547	60.0	3.661	5.55	0.339
0	0	0.97	0.382	490	11.77	18.2	0.437	7.28	2.866	1.40	0.551	49.0	2.990	4.51	0.275
0	0	2.08	0.819	438	10.52	71.4	1.715	5.84	2.299	2.36	0.929	58.4	3.564	13.2	0.805
0	0	1.20	0.472	329	7.904	22.8	0.548	5.57	2.193	1.47	0.579	43.9	2.679	5.99	0.366
0	0	1.40	0.551	93.6	2.249	14.9	0.358	3.93	1.547	1.57	0.618	18.7	1.141	4.14	0.253
0.85		0.75	0.295	27.3	0.656	4.48	0.108	2.67	1.051	1.08	0.425	9.12	0.557	6.93	0.423
0	0	0.86	0.339	14.2	0.341	2.26	0.054	2.34	0.921	0.94	0.370	4.72	0.288	1.06	0.065
0	0	0.40	0.157	1.93	0.046	0.19	0.005	1.43	0.563	0.45	0.177	1.02	0.062	0.17	0.010
0	0	0.41	0.167	0.30	0.007	0.08	0.002	0.73	0.287	0.37	0.146	0.32	0.020	0.98	0.060

HOLLOW STRUCTURAL TUBINGS (mm SIZE)

Hollow structural tubings are welded and cold-formed from hot rolled steel strip, conforming to the standard specification for "cold formed and seamless carbon steel structural tubing in rounds and shapes", ASTM designation: A500-65 with several more strict restrictions as to certain tolerances.
Cold-forming produces a clean and smooth finish suitable for painting and exposed applications.
Hollow structural tubings always furnish you unlimited opportunities for your designs in: __

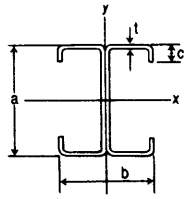


SIZE	SIZE						SECTION AREA		WEIGHT		
	A		B		t						
	mm	in	mm	in	mm	in	cm^2	in^2	kg/m	kg/ft	lb/ft
125×125×6.0	125	4.921	125	4.921	6.0	0.236	27.63	4.281	21.70	6.610	14.58
125×125×4.5	125	4.921	125	4.921	4.5	0.177	21.17	3.281	16.60	5.056	11.16
125×125×3.2	125	4.921	125	4.921	3.2	0.126	15.33	2.376	12.00	3.655	8.064
100×100×4.5	100	3.937	100	3.937	4.5	0.177	16.67	2.584	13.10	3.990	8.803
100×100×3.2	100	3.937	100	3.937	3.2	0.162	12.13	1.880	9.520	2.900	6.397
100×100×2.3	100	3.937	100	3.937	2.3	0.091	8.852	1.372	6.950	2.117	4.670
75× 75×3.2	75	2.953	75	2.953	3.2	0.162	8.927	1.384	7.010	2.135	4.711
75× 75×2.3	75	2.953	75	2.953	2.3	0.091	6.552	1.016	5.140	1.566	3.454
60× 60×2.3	60	2.362	60	2.36	2.3	0.091	5.172	0.802	4.060	1.237	2.728
60× 60×1.6	60	2.362	60	2.36	1.6	0.063	3.672	0.569	2.880	0.877	1.935
50× 50×2.3	50	1.969	50	1.96	2.3	0.901	4.252	0.659	3.340	1.017	2.244
50× 50×1.6	50	1.969	50	1.96	1.6	0.603	3.032	0.470	2.380	0.725	1.599
150×100×6.0	150	5.906	100	3.937	6.0	0.236	27.63	4.283	21.70	6.610	14.58
150×100×4.5	150	5.906	100	3.937	4.5	0.177	21.17	3.281	16.60	5.056	11.16
125× 75×3.2	125	4.921	75	2.953	3.2	0.162	12.13	1.880	9.520	2.900	6.397
125× 75×2.3	125	4.921	75	2.953	2.3	0.091	8.852	1.372	6.950	2.117	4.676
100× 50×3.2	100	3.937	50	1.969	3.2	0.162	8.927	1.384	7.010	2.131	4.711
100× 50×2.3	100	3.937	50	1.969	2.3	0.091	6.552	1.016	5.140	1.565	3.454
75× 45×2.3	75	2.953	45	1.772	2.3	0.091	5.172	0.802	4.060	1.232	2.728
60× 30×2.3	60	2.362	30	1.181	2.3	0.091	3.972	0.616	2.980	0.909	2.002
60× 30×1.6	60	2.362	30	1.181	1.6	0.061	2.712	0.420	2.130	0.646	1.411



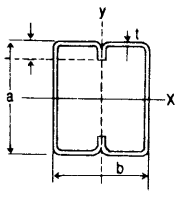
CENTER of GRAVITY				MOMENT of INERTIA				RADIUS of GYRATION				SECTION MODULUS			
Cx		Cy		I_x		I_y		i_x		i_y		Zy		Zx	
cm	in	cm	in	cm^4	in^4	cm^4	in^4	cm	in	cm	in	cm^3	in^3	cm^3	in^3
0	0	0	0	641.0	15.40	641.0	15.40	4.820	1.898	4.820	1.898	103.0	6.285	103.0	6.285
0	0	0	0	506.0	12.16	506.0	12.16	4.890	1.925	4.890	1.925	80.90	4.937	80.90	4.937
0	0	0	0	376.0	9.033	376.0	9.033	4.950	1.949	4.950	1.949	60.10	3.667	60.10	3.667
0	0	0	0	249.0	5.982	249.0	5.982	3.870	1.524	3.870	1.524	49.90	3.045	49.90	3.045
0	0	0	0	187.0	4.493	187.0	4.493	3.930	1.547	3.930	1.547	37.50	2.880	37.50	2.880
0	0	0	0	140.0	3.364	140.0	3.364	3.970	1.563	3.970	1.563	27.90	1.702	27.90	1.702
0	0	0	0	75.50	1.814	75.50	1.814	2.910	1.146	2.910	1.146	20.10	1.227	20.10	1.227
0	0	0	0	57.10	1.372	57.10	1.372	2.950	1.168	2.950	1.168	15.20	0.928	15.20	0.928
0	0	0	0	28.30	0.680	28.30	0.680	2.340	0.921	2.340	0.921	9.440	0.576	9.440	0.576
0	0	0	0	20.70	0.497	20.70	0.497	2.370	0.933	2.370	0.933	6.890	0.420	6.890	0.420
0	0	0	0	15.90	0.382	15.90	0.382	1.930	0.760	1.930	0.760	6.340	0.387	6.340	0.387
0	0	0	0	11.70	0.281	11.70	0.281	1.960	0.772	1.960	0.772	4.680	0.286	4.680	0.286
0	0	0	0	835.0	20.06	444.0	10.67	5.500	2.165	4.010	1.579	111.0	6.773	88.80	5.419
0	0	0	0	658.0	15.81	352.0	8.457	5.580	2.197	4.080	1.606	87.70	5.351	70.40	4.296
0	0	0	0	257.0	6.174	117.0	2.811	4.600	1.811	3.100	1.220	41.10	2.508	31.10	1.808
0	0	0	0	192.0	4.613	87.50	2.102	4.650	1.831	3.140	1.236	30.60	1.867	23.30	1.422
0	0	0	0	112.0	2.691	38.00	0.913	3.550	1.398	2.060	0.811	22.50	1.373	15.20	0.928
0	0	0	0	84.8	2.037	29.00	0.697	3.600	1.417	2.100	0.827	17.00	1.037	11.60	0.708
0	0	0	0	38.90	0.935	17.60	0.423	2.740	0.961	1.840	0.724	10.40	0.635	7.820	0.477
0	0	0	0	16.80	0.404	5.650	0.136	2.110	0.831	1.220	0.480	5.610	0.342	3.760	0.229
0	0	0	0	12.50	0.300	4.250	0.102	2.150	0.846	1.250	0.492	4.160	0.254	2.830	0.173

LIP CHANNELS IN BACK TO BACK ARRANGEMENT



a x b x c	t	Sectional Area	Unit Weight	Position of Centre of Gravity		Second Moment of Area		Radius of Gyration of Area		Sectional Modulus	
				Cx	Cy	Ix	Iy	ix	iy	Zx	Zy
		cm²	kg/m	cm		cm4		cm		cm3	
100 x 100 x 20	2,3	10,34	8,12	0	0	181	73,8	3,94	2,67	32,2	14,8
	3,2	14,01	11,00	0	0	214	97,5	3,91	2,64	42,8	19,5
125 x 100 x 20	2,3	11,49	9,02	0	0	274	74,1	4,88	2,55	43,8	14,9
	3,2	15,60	12,3	0	0	362	97,2	4,82	2,50	58,0	19,4
150 x 130 x 20	2,3	14,02	11,0	0	0	496	145	5,95	3,22	66,1	22,3
	3,2	19,14	15,0	0	0	664	193	5,89	3,18	88,6	29,7
200 x 150 x 20	3,2	23,62	18,5	0	0	1442	297	7,81	3,54	144	39,6

LIP CHANNELS IN FRONT TO FRONT ARRANGEMENT



a x b x c	t	Sectional Area	Unit Weight	Position of Centre of Gravity		Second Moment of Area		Radius of Gyration of Area		Sectional Modulus	
				Cx	Cy	Ix	Iy	ix	iy	Zx	Zy
		cm²	kg/m	cm		cm4		cm		cm3	
100 x 100 x 20	2,3	10,34	8,12	0	0	161	140	3,95	3,68	32,2	28,0
	3,2	14,01	11,00	0	0	214	187	3,90	3,65	42,8	37,4
125 x 100 x 20	2,3	11,49	9,02	0	0	274	167	4,88	3,81	43,8	33,4
	3,2	15,60	12,3	0	0	362	225	4,82	3,38	58,0	45,0
150 x 130 x 20	2,3	14,02	11,0	0	0	496	351	5,94	5,00	66,1	54,0
	3,2	19,14	15,0	0	0	664	476	5,89	4,99	88,6	73,2
200 x 150 x 20	3,2	23,62	18,5	0	0	1432	834	7,79	5,94	143	111

Elastic Design Euler Stress Values $F'e$ for Compression Members

ALL GRADES OF STEEL

$\frac{Kl_\delta}{r_\delta}$	F'_e (ksi)	$\frac{Kl_\delta}{r_\delta}$	F'_e (ksi)	$\frac{Kl_\delta}{r_\delta}$	F'_e (ksi)	$\frac{Kl_\delta}{r_\delta}$	F'_e (ksi)	$\frac{Kl_\delta}{r_\delta}$	F'_e (ksi)	$\frac{Kl_\delta}{r_\delta}$	F'_e (ksi)
21	338.62	51	57.41	81	22.76	111	12.12	141	7.51	171	5.11
22	308.54	52	55.23	82	22.21	112	11.90	142	7.41	172	5.05
23	282.29	53	53.16	83	21.68	113	11.69	143	7.30	173	4.99
24	259.26	54	51.21	84	21.16	114	11.49	144	7.20	174	4.93
25	238.93	55	49.37	85	20.67	115	11.29	145	7.10	175	4.88
26	220.90	56	47.62	86	20.19	116	11.10	146	7.01	176	4.82
27	204.84	57	45.96	87	19.73	117	10.91	147	6.91	177	4.77
28	190.47	58	44.39	88	19.28	118	10.72	148	5.82	178	4.71
29	177.56	59	42.90	89	18.85	119	10.55	149	6.73	179	4.66
30	165.92	60	41.48	90	18.44	120	10.37	150	6.64	180	4.61
31	155.39	61	40.13	91	18.03	121	10.20	151	6.55	181	4.56
32	145.83	62	38.85	92	17.64	122	10.03	152	6.46	182	4.51
33	137.13	63	37.62	93	17.27	123	9.87	153	6.38	183	4.46
34	129.18	64	36.46	94	16.90	124	9.71	154	6.30	184	4.41
35	121.90	65	35.34	95	16.55	125	9.56	155	6.22	185	4.36
36	115.22	66	34.28	96	16.20	126	94.1	156	6.14	186	4.32
37	109.08	67	33.27	97	15.87	127	9.26	157	6.06	187	4.27
38	103.42	68	32.29	98	15.55	128	9.11	158	5.98	188	4.23
39	98.18	69	31.37	99	15.24	129	8.97	159	5.91	189	4.18
40	93.33	70	30.48	100	14.93	130	8.84	160	5.83	190	4.14
41	88.83	71	29.62	101	14.64	131	8.70	161	5.76	191	4.09
42	84.65	72	28.81	102	14.35	132	8.57	162	5.69	192	4.05
43	80.76	73	28.02	103	14.08	133	8.44	163	5.62	193	4.01
44	77.13	74	27.27	104	13.81	134	8.32	164	5.55	194	3.97
45	73.74	75	26.55	105	13.54	135	8.19	165	5.49	195	3.93
46	70.57	76	25.85	106	13.29	136	8.07	166	5.42	196	3.89
47	67.60	77	25.19	107	13.04	137	7.96	167	5.35	197	3.85
48	64.81	78	24.54	108	12.80	138	7.84	168	5.29	198	3.81
49	62.20	79	23.93	109	12.57	139	7.73	169	5.23	199	3.77
50	59.73	80	23.33	110	12.34	140	7.62	170	5.17	200	3.73

$$F'_e = \frac{12\pi^2 E}{23(Kl_\delta / r_\delta)^2}$$

TABLE 1-36

ALLOWABLE STRESS (KSI)
FOR COMPRESSION MEMBERS OF 36 KSI SPECIFIED YIELD POINT STEEL

$F_y = 36$ ksi

Main and Secondary Members Kl/r not over 120						Main Members Kl/r 121 to 200				Secondary Members* l/r 121 to 200			
$\frac{Kl}{r}$	F_a (ksi)	$\frac{Kl}{r}$	F_a (ksi)	$\frac{Kl}{r}$	F_a (ksi)	$\frac{Kl}{r}$	F_a (ksi)	$\frac{Kl}{r}$	F_a (ksi)	$\frac{l}{r}$	F_{as} (ksi)	$\frac{l}{r}$	F_{as} (ksi)
1	21.56	41	19.11	81	15.24	121	10.14	161	5.76	121	10.19	161	7.25
2	21.52	42	19.03	82	15.13	122	9.99	162	5.69	122	10.09	162	7.20
3	21.48	43	18.95	83	15.02	123	9.85	163	5.62	123	10.00	163	7.16
4	21.44	44	18.86	84	14.90	124	9.70	164	5.55	124	9.90	164	7.12
5	21.39	45	18.78	85	14.79	125	9.55	165	5.49	125	9.80	165	7.08
6	21.35	46	18.70	86	14.67	126	9.41	166	5.42	126	9.70	166	7.04
7	21.30	47	18.61	87	14.56	127	9.26	167	5.35	127	9.59	167	7.00
8	21.25	48	18.53	88	14.44	128	9.11	168	5.29	128	9.49	168	6.96
9	21.21	49	18.44	89	14.32	129	8.97	169	5.23	129	9.40	169	6.93
10	21.16	50	18.35	90	14.20	130	8.84	170	5.17	130	9.30	170	6.89
11	21.10	51	18.26	91	14.09	131	8.70	171	5.11	131	9.21	171	6.85
12	21.05	52	18.17	92	13.97	132	8.57	172	5.05	132	9.12	172	6.82
13	21.00	53	18.08	93	13.84	133	8.44	173	4.99	133	9.03	173	6.79
14	20.95	54	17.99	94	13.72	134	8.32	174	4.93	134	8.94	174	6.76
15	20.89	55	17.90	95	13.60	135	8.19	175	4.88	135	8.86	175	6.73
16	20.83	56	17.81	96	13.48	136	8.07	176	4.82	136	8.78	176	6.70
17	20.78	57	17.71	97	13.35	137	7.96	177	4.77	137	8.70	177	6.67
18	20.72	58	17.62	98	13.23	138	7.84	178	4.71	138	8.62	178	6.64
19	20.66	59	17.53	99	13.10	139	7.73	179	4.66	139	8.54	179	6.61
20	20.60	60	17.43	100	12.98	140	7.62	180	4.61	140	8.47	180	6.58
21	20.54	61	17.33	101	12.85	141	7.51	181	4.56	141	8.39	181	6.56
22	20.48	62	17.24	102	12.72	142	7.41	182	4.51	142	8.32	182	6.53
23	20.41	63	17.14	103	12.59	143	7.30	183	4.46	143	8.25	183	6.51
24	20.35	64	17.04	104	12.47	144	7.20	184	4.41	144	8.18	184	6.49
25	20.28	65	16.94	105	12.33	145	7.10	185	4.36	145	8.12	185	6.46
26	20.22	66	16.84	106	12.20	146	7.01	186	4.32	146	8.05	186	6.44
27	20.15	67	16.74	107	12.07	147	6.91	187	4.27	147	7.99	187	6.42
28	20.08	68	16.64	108	11.94	148	6.82	188	4.23	148	7.93	188	6.40
29	20.01	69	16.53	109	11.81	149	6.73	189	4.18	149	7.87	189	6.38
30	19.94	70	16.43	110	11.67	150	6.64	190	4.14	150	7.81	190	6.36
31	19.87	71	16.33	111	11.54	151	6.55	191	4.09	151	7.75	191	6.35
32	19.80	72	16.22	112	11.40	152	6.46	192	4.05	152	7.69	192	6.33
33	19.73	73	16.12	113	11.26	153	6.38	193	4.01	153	7.64	193	6.31
34	19.65	74	16.01	114	11.13	154	6.30	194	3.97	154	7.59	194	6.30
35	19.58	75	15.90	115	10.99	155	6.22	195	3.93	155	7.53	195	6.28
36	19.50	76	15.79	116	10.85	156	6.14	196	3.89	156	7.48	196	6.27
37	19.42	77	15.69	117	10.71	157	6.06	197	3.85	157	7.43	197	6.26
38	19.35	78	15.58	118	10.57	158	5.98	198	3.81	158	7.39	198	6.24
39	19.27	79	15.47	119	10.43	159	5.91	199	3.77	159	7.34	199	6.23
40	19.19	80	15.36	120	10.28	160	5.83	200	3.73	160	7.29	200	6.22

* K taken as 1.0 for secondary members.

TABLE 1-50

ALLOWABLE STRESS (KSI)
FOR COMPRESSION MEMBERS OF 50 KSI SPECIFIED YIELD POINT STEEL

Main and Secondary Members Kl/r not over 120						Main Members Kl/r 121 to 200				Secondary Members* l/r 121 to 200			
$\frac{Kl}{r}$	F_a (ksi)	$\frac{Kl}{r}$	F_a (ksi)	$\frac{Kl}{r}$	F_a (ksi)	$\frac{Kl}{r}$	F_a (ksi)	$\frac{Kl}{r}$	F_a (ksi)	$\frac{l}{r}$	F_{as} (ksi)	$\frac{l}{r}$	F_{as} (ksi)
1	29.94	41	25.69	81	18.81	121	10.20	161	5.76	121	10.25	161	7.25
2	29.87	42	25.55	82	18.61	122	10.03	162	5.69	122	10.13	162	7.20
3	29.80	43	25.40	83	18.41	123	9.87	163	5.62	123	10.02	163	7.16
4	29.73	44	25.26	84	18.20	124	9.71	164	5.55	124	9.91	164	7.12
5	29.66	45	25.11	85	17.99	125	9.56	165	5.49	125	9.80	165	7.08
6	29.58	46	24.96	86	17.79	126	9.41	166	5.42	126	9.70	166	7.04
7	29.50	47	24.81	87	17.58	127	9.26	167	5.35	127	9.59	167	7.00
8	29.42	48	24.66	88	17.37	128	9.11	168	5.29	128	9.49	168	6.96
9	29.34	49	24.51	89	17.15	129	8.97	169	5.23	129	9.40	169	6.93
10	29.26	50	24.35	90	16.94	130	8.84	170	5.17	130	9.30	170	6.89
11	29.17	51	24.19	91	16.72	131	8.70	171	5.11	131	9.21	171	6.85
12	29.08	52	24.04	92	16.50	132	8.57	172	5.05	132	9.12	172	6.82
13	28.99	53	23.88	93	16.29	133	8.44	173	4.99	133	9.03	173	6.79
14	28.90	54	23.72	94	16.06	134	8.32	174	4.93	134	8.94	174	6.76
15	28.80	55	23.55	95	15.84	135	8.19	175	4.88	135	8.86	175	6.73
16	28.71	56	23.39	96	15.62	136	8.07	176	4.82	136	8.78	176	6.70
17	28.61	57	23.22	97	15.39	137	7.96	177	4.77	137	8.70	177	6.67
18	28.51	58	23.06	98	15.17	138	7.84	178	4.71	138	8.62	178	6.64
19	28.40	59	22.89	99	14.94	139	7.73	179	4.66	139	8.54	179	6.61
20	28.30	60	22.72	100	14.71	140	7.62	180	4.61	140	8.47	180	6.58
21	28.19	61	22.55	101	14.47	141	7.51	181	4.56	141	8.39	181	6.56
22	28.08	62	22.37	102	14.24	142	7.41	182	4.51	142	8.32	182	6.53
23	27.97	63	22.20	103	14.00	143	7.30	183	4.46	143	8.25	183	6.51
24	27.86	64	22.02	104	13.77	144	7.20	184	4.41	144	8.18	184	6.49
25	27.75	65	21.85	105	13.53	145	7.10	185	4.36	145	8.12	185	6.46
26	27.63	66	21.67	106	13.29	146	7.01	186	4.32	146	8.05	186	6.44
27	27.52	67	21.49	107	13.04	147	6.91	187	4.27	147	7.99	187	6.42
28	27.40	68	21.31	108	12.80	148	6.82	188	4.23	148	7.93	188	6.40
29	27.28	69	21.12	109	12.57	149	6.73	189	4.18	149	7.87	189	6.38
30	27.15	70	20.94	110	12.34	150	6.64	190	4.14	150	7.81	190	6.36
31	27.03	71	20.75	111	12.12	151	6.55	191	4.09	151	7.75	191	6.35
32	26.90	72	20.56	112	11.90	152	6.46	192	4.05	152	7.69	192	6.33
33	26.77	73	20.38	113	11.69	153	6.38	193	4.01	153	7.64	193	6.31
34	26.64	74	20.19	114	11.49	154	6.30	194	3.97	154	7.59	194	6.30
35	26.51	75	19.99	115	11.29	155	6.22	195	3.93	155	7.53	195	6.28
36	26.38	76	19.80	116	11.10	156	6.14	196	3.89	156	7.48	196	6.27
37	26.25	77	19.61	117	10.91	157	6.06	197	3.85	157	7.43	197	6.26
38	26.11	78	19.41	118	10.72	158	5.98	198	3.81	158	7.39	198	6.24
39	25.97	79	19.21	119	10.55	159	5.91	199	3.77	159	7.34	199	6.23
40	25.83	80	19.01	120	10.37	160	5.83	200	3.73	160	7.29	200	6.22

$F_y = 50$ ksi

* K taken as 1.0 for secondary members.

Plastic Design Selection Tables

Z_x	Shape	A	$\frac{d}{t_w}$	r_x	r_y	$F_y = 36$ ksi		$F_y = 50$ ksi	
						M_p	P_y	M_p	P_y
In.³		In.²		In.	In.	Kip-ft.	Kips	Kip-ft.	Kips
1660	W 14 × 730	215	7.31	8.18	4.69	4980	7740	[a]6360	[a]9890
1480	W 14 × 665	196	7.67	7.99	4.62	4440	7060	[a]5670	[a]9020
1320	W 14 × 605	178	8.06	7.81	4.55	3960	6410	[a]5060	[a]8190
1260	W 36 × 300	88.3	38.9	15.2	3.83	3780	3180	5250	*4420
1180	W 14 × 550	162	8.49	7.64	4.49	3540	5830	4920	8100
1170	W 36 × 280	82.4	41.2	15.1	3.81	3510	2970	4880	*4120
1080	W 36 × 260	76.5	43.1	15.0	3.77	3240	*2750	4500	*3830
1050	W 14 × 500	147	8.97	7.49	4.43	3150	5290	4380	7350
1010	W 36 × 245	72.1	45.0	15.0	3.75	3030	*2600	4210	*3610
943	W 36 × 230	67.7	47.1	14.9	3.73	2830	*2440	3930	*3390
938	W 14 × 455	134	9.49	7.35	4.37	2810	4820	3910	6700
919	W 33 × 240	70.6	40.4	13.9	3.64	2760	2540	3830	*3530
869	W 14 × 426	125	9.97	7.26	4.34	2610	4500	3620	6250
838	W 33 × 220	64.8	42.9	13.8	3.60	2510	*2330	3490	*3240
802	W 14 × 398	117	10.3	7.17	4.31	2410	4210	3340	5850
768	W 36 × 194	57.2	47.4	14.6	2.56	2300	*2060	3200	*2860
756	W 33 × 200	58.9	46.2	13.7	3.57	2270	*2120	3150	*2950
737	W 14 × 370	109	10.8	7.08	4.27	2210	3920	3070	5450
735	W 30 × 210	61.9	39.2	12.6	3.50	2210	2230	3060	*3100
718	W 36 × 182	53.6	50.1	14.5	2.55	2150	*1930	2990	*2680
673	W 14 × 342	101	11.4	6.99	4.24	2020	3640	2800	5050
668	W 36 × 170	50.0	53.2	14.5	2.53	2000	*1800	2780	*2500
661	W 30 × 190	56.0	42.4	12.6	3.47	1980	2020	2750	*2800
625	W 36 × 160	47.1	55.1	14.4	2.50	1880	*1700	2600	*2360
611	W 14 × 314	92.3	12.1	6.90	4.20	1830	3320	2550	4620
594	W 30 × 172	50.7	45.6	12.5	3.43	1780	*1830	2480	*2540
592	W 14 × 320	94.1	8.89	6.63	4.17	1780	3390	2470	4710
581	W 36 × 150	44.2	57.3	14.3	2.47	1740	*1590	2420	*2210
559	W 33 × 152	44.8	52.8	13.5	2.47	1680	*1610	2330	*2240
557	W 27 × 177	52.2	37.7	11.4	3.26	1670	1880	2320	*2610
551	W 14 × 287	84.4	12.8	6.81	4.17	1650	3040	2300	4220
514	W 33 × 141	41.6	55.1	13.4	2.43	1540	*1500	2140	*2080

* Check shape for compliance with Formulas (2.7-1a) or (2.7-1b), Section 2.7, AISC Specification, as applicable, when subjected to combined axial force and bending moment at ultimate loading.

[a] Values of M_p and P_y for these shapes computed on the basis of $F_y = 46$ *ksi*.

Z_x	Shape	A	$\frac{d}{t_w}$	r_x	r_y	F_y = 36 ksi		F_y = 50 ksi	
						M_p	P_y	M_p	P_y
In.^{2}		In.^{2}		In.	In.	Kip.ft.	Kips	Kip.ft.	Kips
510	**W 36 × 135**	39.8	59.4	14.0	2.39	1530	*1430	–	–
502	W 14 × 254	77.6	13.7	6.74	4.14	1510	2790	2090	3880
501	W 27 × 160	47.1	41.2	11.3	3.24	1500	1700	2090	*2360
467	**W 33 × 130**	38.3	57.1	13.2	2.38	1400	*1380	1950	*1920
465	W 24 × 160	47.1	37.7	10.4	3.35	1400	1700	1940	*2360
464	W 14 × 246	72.3	14.4	6.68	4.12	1390	2600	1930	3620
453	W 27 × 145	42.7	44.8	11.3	3.22	1360	*1540	–	–
445	W 14 × 237	69.7	14.8	6.65	4.11	1340	2510	1850	3490
437	W 30 × 132	38.9	49.3	12.2	2.25	1310	*1400	1820	*1950
427	W 14 × 228	67.1	15.3	6.62	4.10	1280	2420	1780	3360
417	W 24 × 145	42.7	40.3	10.3	3.32	1250	1540	1740	*2140
415	**W 33 × 118**	34.8	59.3	13.0	2.32	1250	*1250	–	–
408	W 30 × 124	36.5	51.6	12.1	2.23	1220	*1310	1700	*1830
408	W 14 × 219	64.4	15.8	6.59	4.08	1220	2320	1700	3220
391	W 14 × 211	62.1	16.1	6.56	4.07	1170	2240	1630	3110
378	**W 30 × 116**	34.2	53.2	12.0	2.19	1130	*1230	1580	*1710
373	W 14 × 202	59.4	16.8	6.54	4.06	1120	2140	1550	2970
370	W 24 × 130	38.3	42.9	10.2	3.28	1110	*1380	–	–
357	W 21 × 142	41.8	32.6	9.03	3.15	1070	1500	1490	2090
355	W 14 × 193	56.7	17.4	6.51	4.05	1070	2040	1480	2840
346	**W 30 × 108**	31.8	54.4	11.9	2.15	1040	*1140	1440	*1590
343	W 27 × 114	33.6	47.9	11.0	2.18	1030	*1210	1430	*1680
338	W 24 × 120	35.4	43.7	10.2	2.78	1010	*1270	1410	*1770
338	W 14 × 184	54.1	18.3	6.49	4.04	1010	1950	1410	2710
321	W 14 × 176	51.7	18.6	6.45	4.02	963	1860	1340	2590
318	W 21 × 127	37.4	36.1	8.99	3.13	954	1350	1330	1870
313	**W 30 × 99**	29.1	56.8	11.7	2.10	939	*1050	–	–
311	W 12 × 190	55.9	13.6	5.82	3.25	933	2010	1300	2800
309	W 24 × 110	32.5	47.4	10.1	2.77	927	1170	1290	*1630
305	W 27 × 102	30.0	52.3	11.0	2.15	915	*1080	1270	*1500
303	W 14 × 167	49.1	19.4	6.42	4.01	909	1770	1260	2460
299	S 24 × 120	35.3	30.1	9.26	1.54	897	1270	1250	1770
286	W 14 × 158	46.5	20.5	6.40	4.00	858	1670	1190	2330
280	W 24 × 100	29.5	51.3	10.1	2.75	840	*1060	–	–
278	**W 27 × 94**	27.7	54.9	10.9	2.12	834	* 997	1160	*1390
278	W 21 × 112	33.0	39.8	8.92	3.10	834	1190	–	–
274	S 24 × 105.9	31.1	38.4	9.53	1.58	822	1120	1140	*1560
270	W 14 × 150	44.1	21.4	6.37	3.99	810	1590	1130	2210
259	W 12 × 161	47.4	15.3	5.70	3.20	777	1710	1080	2370
255	W 14 × 142	41.8	21.7	6.32	3.97	765	1500	–	–

* Check shape for compliance with Formulas (2.7-1a) or (2.7-1b), Section 2.7, AISC Specification, as applicable, when subjected to combined axial force and bending moment at ultimate loading.

Z_x	Shape	A	$\frac{d}{t_w}$	r_x	r_y	F_y = 36 ksi		F_y = 50 ksi	
						M_p	P_y	M_p	P_y
In.^{2}		In.^{2}		In.	In.	Kip.ft.	Kips	Kip.ft.	Kips
253	**W 24 × 94**	27.7	47.1	9.86	1.98	759	* 997	1050	*1390
248	W 18 × 114	33.5	31.1	7.79	2.86	744	1210	1030	1680
244	**W 27 × 84**	24.8	57.6	10.7	2.06	732	* 893	–	–
243	W 14 × 136	40.0	22.3	6.31	3.77	729	1440	1010	2000
240	S 24 × 100	29.4	32.1	9.01	1.27	720	1060	1000	1470
227	W 21 × 96	28.3	36.8	8.61	2.02	681	1020	946	*1420
227	W 18 × 105	30.9	33.1	7.75	2.84	681	1110	946	1550
226	W 14 × 127	37.3	24.0	6.29	3.76	678	1340	–	–
224	**W 24 × 84**	24.7	51.3	9.79	1.95	672	* 889	933	*1240
222	S 24 × 90	26.5	38.5	9.22	1.30	666	954	925	*1330
211	W 14 × 119	35.0	25.4	6.26	3.75	633	1260	–	–
210	W 12 × 133	39.1	17.7	5.59	3.16	630	1410	875	1960
206	W 18 × 96	28.2	35.5	7.70	2.82	618	1020	–	–
205	**S 24 × 79.9**	23.5	47.9	9.47	1.34	615	* 846	854	*1180
201	**W 24 × 76**	22.4	54.3	9.69	1.92	603	* 806	838	*1120
196	W 14 × 111	32.7	26.6	6.23	3.73	588	1180	–	–
194	S 20 × 95	27.9	25.0	7.60	1.33	582	1000	808	1400
192	W 21 × 82	24.2	41.8	8.53	1.99	576	871	800	*1210
186	W 16 × 96	28.2	30.5	6.93	2.82	558	1020	775	1410
186	W 12 × 120	35.3	18.5	5.51	3.13	558	1270	775	1770
179	S 20 × 85	25.0	30.6	7.79	1.36	537	900	746	1250
178	W 18 × 85	25.0	34.8	7.57	2.05	534	900	742	1250
176	**W 24 × 68**	20.0	57.0	9.53	1.87	528	* 720	–	–
172	W 21 × 73	21.5	46.7	8.64	1.81	516	* 774	717	*1080
169	W 16 × 80	25.9	32.1	6.87	2.79	507	932	–	–
164	W 12 × 106	31.2	20.8	5.46	3.11	492	1120	683	1560
161	W 18 × 77	22.7	38.2	7.54	2.04	483	817	671	*1140
160	**W 21 × 68**	20.0	49.1	8.60	1.80	480	* 720	667	*1000
153	S 20 × 75	22.1	31.2	7.60	1.16	459	796	638	1110
152	**W 24 × 61**	18.0	56.6	9.25	1.38	456	* 648	633	* 900
152	W 12 × 99	29.1	21.9	5.43	3.09	456	1050	633	1460
148	W 10 × 112	32.9	15.1	4.67	2.67	444	1180	617	1650
146	W 16 × 78	23.0	30.9	6.75	2.01	438	828	608	1150
145	W 18 × 70	20.6	41.1	7.50	2.02	435	742	604	*1030
145	W 14 × 84	24.7	31.4	6.13	3.02	435	889	–	–
144	W 21 × 62	18.3	52.5	8.54	1.77	432	* 659	600	* 915
140	W 12 × 92	27.1	23.2	5.40	3.08	420	976	–	–
138	S 20 × 65.4	19.2	40.0	7.84	1.19	414	691	575	* 960

* Check shape for compliance with Formulas (2.7-1a) or (2.7-1b), Section 2.7, AISC Specification, as applicable, when subjected to combined axial force and bending moment at ultimate loading.

Z_x	Shape	A	$\frac{d}{t_w}$	r_x	r_y	F_y = 36 ksi		F_y = 50 ksi	
						M_p	P_y	M_p	P_y
In.^{2}		In.^{2}		In.	In.	Kip.ft.	Kips	Kip.ft.	Kips
134	**W 24 × 55**	16.2	59.5	9.10	1.34	402	* 583	–	–
134	W 14 × 78	22.9	32.9	6.09	3.00	402	824	–	–
132	W 18 × 64	18.9	44.3	7.46	2.00	396	* 680	550	* 945
132	W 16 × 71	20.9	33.3	6.71	1.99	396	752	550	1050
130	W 10 × 100	29.4	16.2	4.61	2.65	390	1060	542	1470
129	W 12 × 85	25.0	25.3	5.38	3.07	387	900	–	–
126	**W 21 × 55**	16.2	55.5	8.40	1.73	378	* 583	–	–
126	W 14 × 74	21.8	31.5	6.05	2.48	378	785	525	1090
125	S 18 × 70	20.6	25.3	6.71	1.08	375	742	521	1030
123	W 18 × 60	17.7	43.9	7.47	1.68	369	* 637	513	* 885
119	W 12 × 79	23.2	26.3	5.34	3.05	357	835	–	–
118	W 16 × 64	18.8	36.1	6.66	1.97	354	677	492	940
115	W 14 × 68	20.0	33.6	6.02	2.46	345	720	479	1000
114	W 10 × 89	26.2	17.7	4.55	2.63	342	943	475	1310
112	**W 18 × 55**	16.2	46.5	7.42	1.67	336	* 583	467	* 810
108	**W 21 × 49**	14.4	66.6	8.21	1.31	324	* 518	450	* 720
106	W 16 × 58	17.1	39.0	6.62	1.96	318	616	442	* 855
105	S 18 × 54.7	16.1	39.0	7.07	1.14	315	580	438	* 805
102	W 14 × 61	17.9	36.8	5.98	2.45	306	644	–	–
101	W 18 × 50	14.7	50.3	7.38	1.65	303	* 529	421	* 735
97.8	W 10 × 77	22.7	19.9	4.49	2.60	293	817	408	1140
95.3	**W 21 × 44**	13.0	59.4	8.07	1.27	286	* 468	–	–
91.8	W 16 × 50	14.7	42.8	6.68	1.59	275	529	383	* 735
90.6	W 10 × 72	21.2	20.6	4.46	2.59	272	763	378	1060
89.7	W 18 × 45	13.2	53.3	7.30	1.62	269	* 475	–	–
87.1	W 14 × 53	15.6	37.7	5.90	1.92	261	562	363	* 780
86.5	W 12 × 58	17.1	34.0	5.28	2.51	260	616	–	–
82.8	W 10 × 66	19.4	22.7	4.44	2.58	248	698	345	970
82.1	W 16 × 45	13.3	46.6	6.64	1.57	246	* 479	342	* 665
78.4	**W 18 × 40**	11.8	56.6	7.21	1.27	235	* 425	327	* 590
78.4	W 14 × 48	14.1	40.7	5.86	1.91	235	508	327	* 705
77.1	S 15 × 50	14.7	27.3	5.75	1.03	231	529	321	735
75.0	W 10 × 60	17.7	24.7	4.41	2.57	225	637	–	–
72.8	**W 16 × 40**	11.8	52.1	6.62	1.56	218	* 425	303	* 590
72.5	W 12 × 50	14.7	32.9	5.18	1.96	218	529	302	735
70.2	W 8 × 67	19.7	15.7	3.71	2.12	211	709	293	985
69.7	W 14 × 43	12.6	44.4	5.82	1.89	209	* 454	–	–
69.3	S 15 × 42.9	12.6	36.5	5.95	1.07	208	454	289	* 630
67.1	W 10 × 54	15.9	27.5	4.39	2.56	201	572	–	–

* Check shape for compliance with Formulas (2.7-1a) or (2.7-1b), Section 2.7, AISC Specification, as applicable, when subjected to combined axial force and bending moment at ultimate loading.

Z_x	Shape	A	$\frac{d}{t_w}$	r_x	r_y	F_y = 36 ksi		F_y = 50 ksi	
						M_p	P_y	M_p	P_y
In.^{2}		In.^{2}		In.	In.	Kip.ft.	Kips	Kip.ft.	Kips
66.8	**W 18 × 35**	10.3	59.4	7.05	1.23	200	* 371	–	–
64.8	W 12 × 45	13.2	35.9	5.15	1.94	194	475	270	660
64.0	W 16 × 36	10.6	53.0	6.50	1.52	192	* 382	–	–
61.6	W 14 × 38	11.2	45.1	5.88	1.54	185	* 403	257	560
61.2	S 12 × 50	14.7	17.5	4.55	1.03	184	529	255	735
59.7	W 8 × 58	17.1	17.2	3.65	2.10	179	616	249	855
57.5	W 12 × 40	11.8	40.6	5.13	1.94	173	425	–	–
54.9	W 10 × 45	13.2	28.9	4.33	2.00	165	475	229	660
54.6	**W 14 × 34**	10.0	48.8	5.83	1.52	164	* 360	–	–
54.0	**W 16 × 31**	9.13	57.6	6.40	1.17	162	* 329	225	* 457
53.1	S 12 × 40.8	12.0	26.0	4.77	1.06	159	432	221	600
51.6	W 12 × 36	10.6	40.1	5.15	1.55	155	382	215	* 530
49.0	W 8 × 48	14.1	21.0	3.61	2.08	147	508	204	705
46.9	W 10 × 39	11.5	31.3	4.27	1.98	141	414	–	–
44.8	S 12 × 35	10.3	28.0	4.72	0.98	134	371	187	515
44.1	**W 12 × 31**	9.13	45.6	5.12	1.54	132	* 329	184	457
44.0	**W 16 × 26**	7.67	62.6	6.25	1.12	132	* 276	–	–
42.0	S 12 × 31.8	9.35	34.3	4.83	1.00	126	337	175	468
40.0	**W 14 × 26**	7.67	54.5	5.64	1.08	120	* 276	167	* 384
39.8	W 8 × 40	11.8	22.6	3.53	2.04	119	425	–	–
38.0	W 12 × 27	7.95	50.5	5.07	1.52	114	* 286	–	–
36.6	M 8 × 37.7	11.1	21.5	3.46	1.91	110	400	–	–
35.4	S 10 × 35	10.3	16.8	3.78	0.901	106	371	148	515
34.7	W 10 × 29	8.54	35.4	4.30	1.38	104	307	145	427
34.7	W 8 × 35	10.3	25.8	3.50	2.03	104	371	–	–
33.1	**W 14 × 22**	6.49	59.7	5.53	1.04	99.3	* 234	–	–
30.9	M 10 × 29.1	8.56	23.1	3.92	1.14	92.7	308	–	–
29.6	W 10 × 25	7.36	40.0	4.26	1.37	88.8	265	123	* 368
29.3	**W 12 × 22**	6.47	47.3	4.91	0.847	87.9	* 233	122	* 324
28.4	S 10 × 25.4	7.46	32.2	4.07	0.954	85.2	269	118	373
27.1	W 8 × 28	8.23	28.3	3.45	1.62	81.3	296	–	–
26.4	M 10 × 22.9	6.73	40.8	4.16	1.22	79.2	242	–	–
24.8	**M 14 × 17.2**	5.05	66.7	5.40	0.725	74.4	* 182	–	–
24.7	W 12 × 19	5.59	51.3	4.82	0.820	74.1	* 201	103	* 280
24.1	W 10 × 21	6.20	41.3	4.15	1.32	72.3	223	–	–
24.1	M 6 × 33.75	9.93	12.8	2.55	1.47	72.3	357	100	497
23.1	W 8 × 24	7.06	32.4	3.42	1.61	69.3	254	–	–
21.6	W 10 × 19	5.61	41.0	4.14	0.874	64.8	202	90.0	* 281

* **Check shape for compliance with Formulas (2.7-1a) or (2.7-1b), Section 2.7, AISC Specification, as applicable, when subjected to combined axial force and bending moment at ultimate loading.**

Z_x	Shape	A	$\frac{d}{t_w}$	r_x	r_y	F_y = 36 ksi		F_y = 50 ksi	
						M_p	P_y	M_p	P_y
In.^{2}		In.^{2}		In.	In.	Kip.ft.	Kips	Kip.ft.	Kips
20.6	**W 12 × 16.5**	4.87	52.2	4.65	0.770	61.8	* 175	—	—
19.7	M 8 × 22.5	6.60	21.3	3.22	1.06	59.1	238	—	—
19.3	S 8 × 23	6.77	18.1	3.10	0.798	57.9	244	80.4	339
19.1	W 8 × 20	5.89	32.8	3.43	1.25	57.3	212	79.6	295
18.9	W 6 × 25	7.35	19.9	2.69	1.53	56.7	265	78.8	368
18.6	W 10 × 17	4.99	42.2	4.05	0.844	55.8	180	77.5	* 250
17.4	M 8 × 18.5	5.44	34.8	3.38	1.12	52.2	196	—	—
16.5	S 8 × 18.4	5.41	29.5	3.26	0.831	49.5	195	68.8	271
16.0	**W 10 × 15**	4.41	43.5	3.95	0.809	48.0	* 159	—	—
15.9	W 8 × 17	5.01	34.8	3.36	1.22	47.7	180	—	—
15.6	M 6 × 22.5	6.62	16.1	2.49	1.37	46.8	238	—	—
15.0	W 6 × 20	5.88	24.0	2.66	1.51	45.0	212	—	—
14.5	S 7 × 20	5.88	15.6	2.69	0.734	43.5	212	60.4	294
14.5	M 6 × 20	5.89	24.0	2.57	1.40	43.5	212	—	—
14.3	**M 12 × 11.8**	3.47	67.8	4.55	0.532	42.9	* 125	—	—
13.6	W 8 × 15	4.43	33.1	3.29	0.876	40.8	159	56.7	222
12.1	S 7 × 15.3	4.50	27.8	2.86	0.766	36.3	162	50.4	225
11.5	W 6 × 16	4.72	24.0	2.59	0.967	34.8	170	48.3	236
11.4	W 8 × 13	3.83	34.8	3.21	0.842	34.2	138	—	—
11.3	W 5 × 18.5	5.43	19.3	2.16	1.28	33.9	195	47.1	272
1108	M 5 × 18.9	5.55	15.8	2.08	1.19	33.0	200	45.8	278
10.6	S 6 × 17.25	5.07	12.9	2.28	0.675	31.8	183	44.2	254
9.61	W 5 × 16	4.70	20.8	2.13	1.26	28.8	169	40.0	235
9.19	**M 10 × 9**	2.65	63.7	3.83	0.480	27.6	* 95.4	—	—
8.47	S 6 × 12.5	3.67	25.9	2.45	0.705	25.4	132	35.3	184
8.23	W 6 × 12	3.54	26.1	2.48	0.918	24.7	127	—	—
7.85	M 4 × 16.3	4.80	13.5	1.71	0.962	23.6	173	32.7	240
7.42	S 5 × 14.75	4.34	10.1	1.87	0.620	22.3	156	30.9	217
6.31	M 4 × 13.8	4.06	12.8	1.63	0.939	18.9	146	26.3	203
6.27	W 4 × 13	3.82	14.9	1.72	0.991	18.8 *	138	26.1	191
6.06	M 4 × 13	3.81	15.7	1.66	0.939	18.2	137	25.3	191
5.67	S 5 × 10	2.94	23.4	2.05	0.643	17.0	106	23.6	147
5.42	**M 8 × 6.5**	1.92	59.3	3.10	*0.423	16.3	* 69.1	—	—
4.04	S 4 × 9.5	2.79	12.3	1.56	0.569	12.1	100	16.8	140
4.03	**M 7 × 5.5**	1.62	54.7	2.73	0.392	12.1	* 58.3	16.8	* 81.0
3.51	S 4 × 7.7	2.26	20.7	1.64	0.581	10.5	81.4	14.6	113
2.80	**M 6 × 4.4**	1.29	52.6	2.36	0.358	8.40	* 46.4	11.7	* 64.5
2.36	S 3 × 7.5	2.21	8.6	1.15	0.516	7.08	79.6	9.83	111
* 95	S 3 × 5.7	1.67	17.6	1.23	0.522	5.85	60.1	8.13	83.5

* Check shape for compliance with Formulas (2.7-1a) or (2.7-1b), Section 2.7, AISC Specification, as applicable, when subjected to combined axial force and bending moment at ultimate loading.

ENGINEERING CONVERSION FACTORS

Multiply	by	to obtain
acres	.404687	hectares
"	4.04687×10^{-3}	square kilometers
ares	1076.39	square feet
board feet	144 sq. in × 1 in.	cubic inches
" "	.0833	cubic feet
centimeters	3.28083×10^{-2}	feet
"	.3937	inches
cubic centimeters	3.53145×10^{-5}	cubic feet
" "	6.102×10^{-2}	cubic inches
cubic feet	2.8317×10^{-4}	cubic centimeters
" "	2.8317×10^{-2}	cubic meters
" "	6.22905	gallons, British Imperial
" "	28.3170	liters
" "	2.38095×10^{-2}	tons, British Shipping
" "	.025	tons U.S. Shipping
cubic inches	16.38716	cubic centimeters
cubic meters	35.3145	cubic feet
" "	1.30794	cubic yards
cubic yards	.764559	cubic meters
degrees, angular	.0174533	radians
degrees, Fahrenheit (less 32 F.)	.5556	degrees, Centigrade
" Centigrade	1.8	degrees, Fahrenheit (less 32 F.)
foot pounds	.13826	kilogram meters
feet	30.4801	centimeters
"	.304801	meters
"	304.801	millimeters
"	1.64468×10^{-4}	miles, nautical
gallons, British Imperial	.160538	cubic feet
" " "	1.20091	gallons, U.S.
" " "	4.54596	liters
gallons, U.S.	.832702	gallons, British Imperial
" "	.13368	cubic feet
" "	231.	cubic inches
" "	3.78543	liters
grams, metric	2.20462×10^{-3}	pounds, avoirdupois
hectares	2.47104	acres
"	1.076387×10^{-5}	square feet
"	3.86101×10^{-3}	square miles
horse-power, metric	.98632	horse-power, U.S.
horse-power, U.S.	1.01387	horse-power, metric
inches	2.54001	centimeters
"	2.54001×10^{-2}	meters
"	25.4001	millimeters
kilograms	2.20462	pounds
"	9.84206×10^{-4}	long tons
"	1.10231×10^{-3}	short tons
kilogram meters	7.233	foot pounds
kilograms per meter	.671972	pounds per foot
kilograms per square centimeter	14.2234	pounds per square inch
kilograms per square meter	.204817	pounds per square foot
" " " "	9.14362×10^{-5}	long tons per square foot
kilograms per square millimeter	1422.34	pounds per square inch
" " " "	.634973	long tons per square inch
kilograms per cubic meter	6.24283×10^{-2}	pounds per cubic foot
kilometers	.62137	miles, statute
"	.53959	miles, nautical

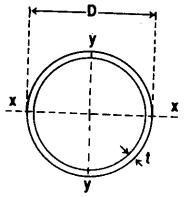
AMERICAN INSTITUTE OF STEEL CONSTRUCTION

ENGINEERING CONVERSION FACTORS

Multiply	by	to obtain
liters	.219975	gallons, British Imperial
"	.26417	gallons, U. S.
"	3.53145×10^{-2}	cubic feet
meters	3.28083	feet
"	39.37	inches
"	1.09361	yards
miles, statute	1.60935	kilometers
" "	.8684	miles, nautical
miles, nautical	6080.204	feet
" "	1.85325	kilometers
" "	1.1516	miles, statute
millimeters	3.28083×10^{-3}	feet
"	3.937×10^{-2}	inches
pounds, avoirdupois	453.592	grams, metric
" "	.453592	kilograms
" "	4.464×10^{-4}	tons, long
" "	4.53592×10^{-4}	tons, metric
pounds per foot	1.48816	kilograms per meter
pounds per square foot	4.88241	kilograms per square meter
pounds per square inch	7.031×10^{-2}	kilograms per square centimeter
" " " "	7.031×10^{-4}	kilograms per square milimeter
pounds per cubic foot	16.0184	kilograms per cubic meter
radians	57.29578	degrees, angular
square centimeters	.1550	square inches
square feet	9.29034×10^{-4}	ares
" "	9.29034×10^{-6}	hectares
" "	.0929034	square meters
square inches	6.45163	square centimeters
" "	645.163	square millimeters
square kilometers	247.104	acres
" "	.3861	square miles
square meters	10.7639	square feet
" "	1.19599	square yards
square miles	259.0	hectares
" "	2.590	square kilometers
square millimeters	1.550×10^{-3}	square inches
square yards	.83613	square meters
tons, long	1016.05	kilograms
" "	2240.	pounds
" "	1.01605	tons, metric
" "	1.120	tons, short
tons, long, per square foot	1.09366×10^{-4}	kilograms per square meter
tons, long, per square inch	1.57494	kilograms per square millimeter
tons, metric	2204.62	pounds
" "	.98421	tons, long
" "	1.10231	tons, short
tons, short	907.185	kilograms
" "	.892857	tons, long
" "	.907185	tons, metric
tons, British Shipping	42.00	cubic feet
" " "	.952381	tons, U.S. Shipping
tons U.S. Shipping	40.00	cubic feet
" "	1.050	tons, British Shipping
yards	.914402	meters

AMERICAN INSTITUTE OF STEEL CONSTRUCTION

CIRCULAR HOLLOW SECTIONS



DIMENSIONS, WEIGHTS AND SECTIONAL PROPERTIES OF CARBON STEEL TUBES FOR GENERAL STRUCTURAL PURPOSES

Outside diameter (mm)	Wall thickness (mm)	Weight (kg/m)	Sectional area (cm^2)	Moment of inertia (cm^4)	Section modulus (cm^3)	Radius of gyration (cm)
21.7	2.0	0.972	1.238	0.607	0.560	0.700
27.2	2.0	1.24	1.583	1.26	0.930	0.890
	2.3	1.41	1.799	1.41	1.03	0.880
34.0	2.3	1.80	2.291	2.89	1.70	1.12
42.7	2.3	2.29	2.919	5.97	2.80	1.43
	2.8	2.76	3.510	7.02	3.29	1.41
48.6	2.3	2.63	3.345	8.99	3.70	1.64
	2.8	3.16	4.029	10.6	4.36	1.62
	3.2	3.58	4.564	11.8	4.86	1.61
60.5	2.3	3.30	4.205	17.8	5.90	2.06
	3.2	4.52	5.760	23.7	7.84	2.03
	4.0	5.57	7.100	28.5	9.41	2.00
76.3	2.8	5.08	6.465	43.7	11.5	2.60
	3.2	5.77	7.349	49.2	12.9	2.59
	4.0	7.13	9.085	59.5	15.6	2.56
89.1	2.8	5.96	7.591	70.7	15.9	3.05
	3.2	6.78	8.636	79.8	17.9	3.04
	4.0	8.39	10.69	97.0	21.8	3.01
101.6	3.2	7.76	9.892	120	23.6	3.48
	4.0	9.63	12.26	146	28.8	3.45
	5.0	11.9	15.17	177	34.9	3.42
114.3	3.2	8.77	11.17	172	30.2	3.93
	3.6	9.83	12.52	192	33.6	3.92
	4.5	12.2	15.52	234	41.0	3.89
	5.6	15.0	19.12	283	49.6	3.85
139.8	3.6	12.1	15.40	357	51.1	4.82
	4.0	13.4	17.07	394	56.3	4.80
	4.5	15.0	19.13	438	62.7	4.79
	6.0	19.8	25.22	566	80.9	4.74
165.2	4.5	17.8	22.72	734	88.9	5.68
	5.0	19.8	25.16	808	97.8	5.67
	6.0	23.6	30.01	952	115	5.63
	7.0	27.3	34.79	109x10	132	5.60
190.7	4.5	20.7	26.32	114x10	120	6.59
	5.0	22.9	29.17	126x10	132	6.57
	6.0	27.3	34.82	149x10	156	6.53
	7.0	31.7	40.40	171x10	179	6.50
216.3	4.5	23.5	29.94	168x10	155	7.49
	6.0	31.1	39.64	219x10	203	7.44
	7.0	36.1	46.03	252x10	233	7.40
	8.0	41.1	52.35	284x10	263	7.37
267.4	6.0	38.7	49.27	421x10	315	9.24
	7.0	45.0	57.27	486x10	363	9.21
	8.0	51.2	65.19	549x10	411	9.18
	9.0	57.4	73.06	611x10	457	9.14
318.5	6.0	46.2	58.90	719x10	452	11.1
	7.0	53.8	68.50	831x10	522	11.0
	8.0	61.3	78.04	941x10	591	11.0
	9.0	68.7	87.51	$105x10^2$	659	10.9