

## LOAD AND DEFLECTION TABLE FOR STRUCTURAL PROFILES

Limiting deflection to span/200 = 0.5%. This is the limit for walkway deflection and sufficiently low stress that we can ignore shear equations used are for simply supported beam.

E modulus is taken at 23000 MPa  
17000 MPa

### U Channels <sup>1</sup>

Uniformly Distributed Load

Profiles	Moment of Inertia	Span (metres)	Uniformly Distributed Load										
			1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
280x70x12	46,963,456	load N	414781	184347	103695	66365	46087	33860	25924	16591	13712	11522	8465
		load kg	42281.5	18791.8	10570.4	6765.0	4697.9	3451.5	2088.0	1691.3	1397.7	1174.5	862.9
200x60x9.5	16,000,000	load N	141312	62805	35328	22610	15701	11536	8832	6978	5652	4671	3925.4
		load kg	14404.9	6402.2	3601.2	2304.8	1600.5	1175.9	900.3	711.4	576.2	476.2	00.1
200x60x8	13,005,000	load N	114860	51049	28715	18378	12762	9376	7179	5672	4594	3797	3191
		load kg	11708.5	5203.8	2927.1	1873.4	1300.9	955.8	731.8	578.2	468.3	387.1	325.2
150x50x6	4,430,000	load N	39126	17389	9781	6260	4347	3194	2445	1932	1565	1293	1087
		load kg	3988.4	1772.6	997.1	638.1	443.2	325.6	249.3	197	159.5	131.8	110.8
100x50x6	1,670,000	load N	14749	6555	3687	2360	1639	1204	922	728	590	488	410
		load kg	1503.5	668.2	375.9	240.6	167.1	122.7	94	74.2	60.1	49.7	41.8
76.2x22.2x6.35	525,000	load N	4637	2061	1159	742	515	379	290	229	185	153	129
		load kg	472.7	210.1	118.2	75.6	52.5	38.6	29.5	23.3	18.9	15.6	13.1

<sup>1</sup> All considered only in the C position - the normal loading position for a beam

### I/H Beam

Profiles	Moment of Inertia	Span (metres)	Uniformly Distributed Load										
			1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
200x200x10 H Beam	40,993,33	load N	362053	160912	90513	57928	40228	29555	22628	17879	14482	11969	10057
		load kg	36906.5	16402.9	9226.6	5905.0	4100.7	3012.8	2306.7	1822.5	1476.3	1220.1	1025.2
200x100x9.5	21,946,537	load N	193832	86147	48458	31013	21537	15823	12114	9572	7753	6408	5384
		load kg	19758.6	8781.6	4939.6	3161.4	2195.4	1612.9	1234.9	975.7	790.3	653.2	548.8
150x80x10	10,125,000	load N	89424	39744	22356	14308	9936	7300	5589	4416	3577	2956	2484
		load kg	9115.6	4051.4	2278.9	1458.5	1012.8	744.1	569.7	450.2	364.6	301.3	253.2

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### Box section

Uniformly Distributed Load

Profiles	Moment of Inertia	Span (metres)	Uniformly Distributed Load										
			1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
51x51x3.2 E mod 17GPa	234,000	load N	1528	679	382	244	170	125	95	75	61	50	42
		load kg	155.7	69.2	38.9	24.9	17.3	12.7	9.7	7.7	6.2	5.1	4.3
51x51x6.35	384,000	load N	3391	1507	848	543	377	277	212	167	136	112	94
		load kg	345.7	153.7	86.4	55.3	38.4	28.2	21.6	17.1	13.8	11.4	9.6
60x60x4.5	516,000	load N	4557	2025	1139	729	506	372	285	225	182	151	127
		load kg	464.6	206.5	116.1	74.3	51.6	37.9	29	22.9	18.6	15.4	12.9

### Angle Section

Profiles	Moment of Inertia	Span (metres)	Uniformly Distributed Load										
			1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
60x60x8	297,000	load N	2623	1166	656	420	291	214	164	130	105	87	73
		load kg	267.4	118.8	66.8	42.8	29.7	21.8	16.7	13.2	10.7	8.8	7.4
100x100x8	1,480,000	load N	13071	5809	3268	2091	1452	1067	817	645	523	432	363
		load kg	1332.5	592.2	333.1	213.2	148.1	108.8	83.3	65.8	53.3	44.0	37.0
75x75x10	747,571	load N	6603	2934	1651	1056	734	539	413	326	264	218	183
		load kg	673.0	299.1	168.3	107.7	74.8	54.9	42.1	33.2	26.9	22.2	18.7

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## LOAD AND DEFLECTION TABLE FOR STRUCTURAL PROFILES

### U Channels <sup>3</sup>

Point Load at Centre of Span

Profiles	Moment of Inertia	Span (metres)	Point Load at Centre of Span										
			1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
280x70x12	46,963,456	load N	259238	115217	64810	41478	28804	21162	16202	12802	10370	8570	7201
		load kg	26425.9	11744.9	6606.5	4228.1	2936.2	2157.2	1651.6	1305.0	1057.0	873.6	734.1
200x60x9.5	16,000,000	load N	88320	39253	22080	14131	9813	7210	5520	4361	3533	2920	2453
		load kg	9003.1	4001.4	2250.8	1440.5	1000.3	734.9	562.7	444.6	360.1	297.6	250.1
200x60x8	13,005,000	load N	71788	31906	17947	11486	7976	5860	4487	3545	2872	2373	1994
		load kg	7317.8	3252.4	1829.4	1170.8	813.1	597.4	457.4	361.4	292.7	241.9	203.3
150x50x6	4,430,000	load N	24454	10868	6113	3913	2717	1996	1528	1208	978	808	679
		load kg	2492.7	1107.9	623.2	398.8	277	203.5	155.8	123.1	99.7	82.4	69.2
100x50x6	1,670,000	load N	928	4097	2305	1475	1024	753	576	455	369	305	256
		load kg	939.7	417.6	234.9	150.4	104.4	76.7	58.7	46.4	37.6	31.1	26.1
76.2x22.2x6.35	525,000	load N	2898	1288	725	464	322	237	181	143	116	96	81
		load kg	295.4	131.3	73.9	47.3	32.8	24.1	18.5	14.6	11.8	9.8	8.2

<sup>3</sup> All considered only in the C position - the normal loading position for a beam

### I/H Beam

Profiles	Moment of Inertia	Span (metres)	Point Load at Centre of Span										
			1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
200x200x10 H Beam	40,993,33	load N	226283	100570	56571	36205	25143	18472	14143	11174	9051	7480	6286
		load kg	23066.6	10251.8	5766.6	3690.7	2563	1883	1441.7	1139.1	922.7	762.5	640.7
200x100x9.5	21,946,537	load N	121145	53842	30256	19383	13461	9889	7572	5982	4846	4005	3365
		load kg	12349.1	5488.5	3087.3	1975.9	1372.1	1008.1	771.8	609.8	494	408.2	343
150x80x10	10,125,000	load N	55890	24840	13973	8942	6210	4562	3493	2760	2236	1848	1553
		load kg	5697.2	2532.1	1424.3	911.6	633.0	465.1	356.1	281.3	227.9	188.3	158.3

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## LOAD AND DEFLECTION TABLE FOR STRUCTURAL PROFILES

### Box section

Point Load at Centre of Span

Profiles	Moment of Inertia	Span (metres)	Point Load at Centre of Span										
			1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
51x51x3.2 E mod 17GPa	234,000	load N	1292	574	323	207	144	105	81	64	52	43	36
		load kg	131.7	58.5	32.9	21.1	14.6	10.7	8.2	6.5	5.3	4.4	3.7
51x51x6.35	384,000	load N	2120	942	530	339	236	173	132	105	85	70	59
		load kg	216.1	96	54	34.6	24	17.6	13.5	10.7	8.6	7.1	6
60x60x4.5	516,000	load N	2848	1266	712	456	316	233	178	141	114	94	79
		load kg	290.3	129	72.6	46.5	32.3	23.7	18.1	14.3	11.6	9.6	8.1

### Angle Section

Profiles	Moment of Inertia	Span (metres)	Point Load at Centre of Span										
			1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
60x60x8	297,000	load N	1639	729	410	262	182	134	102	81	66	54	46
		load kg	167.1	74.3	41.8	26.7	18.6	13.6	10.4	8.3	6.7	5.5	4.6
100x100x8	1,480,000	load N	8170	3631	2042	1307	908	667	511	403	327	270	227
		load kg	832.8	370.1	208.2	133.2	92.5	68.0	52.0	41.1	33.3	27.5	23.1
75x75x10	747,571	load N	4127	1834	1032	660	459	337	258	204	165	136	115
		load kg	420.7	187.0	105.2	67.3	46.7	34.3	26.3	20.8	16.8	13.9	11.7

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