

DATASHEET DS-DST-15

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 ¹

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

¹ 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

FOR MORE INFO

Call: 01206 322 899

Email: sales@deck-safe.co.uk

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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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U Channels ³

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

³ 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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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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