



120mm TOP HAT LIMIT STATE CAPACITY TABLES

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120mm TOP HAT LIMIT STATE CAPACITY TABLES

120mm TOP HAT DESIGN ASSUMPTIONS

1. Support member is assumed to be G450 steel.
2. Outwards Capacities may be limited by fastener capacity- refer Screw Pull Out capacity columns.
3. Loads are assumed to act uniformly along the top central flange of the sections or, for connections to support members, evenly between each of the lower flanges (feet).
4. Foot traffic loadings, where used, are based on AS 1562.

120mm TOP HAT SINGLE SPAN - OUTWARDS DESIGN CAPACITY (kN/m)

SPAN (mm)	MEMBER DESIGN CAPACITY FOR SECTION SHOWN			SCREW PULLOUT CAPACITY 2 x No.14 ²				2/M12BOLTS
	0.75	1.00	1.20	SUPPORT MEMBER THICKNESS (mm)				
	Strength	Strength	Strength	0.75	0.95	1.15	1.5	
2000	4.48	5.78	6.93	308	4.58	5.54	7.02	7.88
2250	3.44	4.34	5.20	2.74	4.04	4.93	6.24	7.00
2500	2.67	3.38	4.05	2.46	3.66	4.43	5.61	6.30
2750	2.14	2.67	3.20	2.24	3.33	4.03	5.10	5.73
3000	1.75	2.21	2.64	2.05	3.05	3.69	4.68	5.25
3250	1.46	1.82	2.18	1.90	2.82	3.41	4.32	4.85
3500	1.24	1.55	1.86	1.76	2.62	3.17	4.01	4.50
3750	1.06	1.32	1.58	1.64	2.44	2.96	3.74	4.20
4000	0.93	1.14	1.37	1.54	2.29	2.77	3.51	3.94
4250	0.80	1.00	1.19	1.45	2.15	2.61	3.30	3.71
4500	0.71	0.88	1.06	1.37	2.04	2.46	3.12	3.50
4750	0.63	0.78	0.94	1.30	1.93	2.33	2.95	3.32
5000	0.57	0.70	0.84	1.23	1.83	2.22	2.81	3.15
5250	0.51	0.63	0.75	1.17	1.74	2.11	2.67	3.00
5500	0.46	0.57	0.68	1.12	1.67	2.02	2.55	2.86
5750	0.42	0.52	0.63	1.07	1.59	1.93	2.44	2.74
6000	0.38	0.47	0.57	1.03	1.53	1.85	2.34	2.63

120mm TOP HAT SINGLE SPAN - INWARDS DESIGN CAPACITY (kN/m)

SPAN (mm)	MEMBER DESIGN CAPACITY FOR SECTION SHOWN					
	0.75		1.00		1.20	
	L/100	Strength	L/100	Strength	L/100	Strength
2000	8.12	3.67	10.81	4.74	12.96	5.65
2250	5.70	2.81	7.59	3.56	9.10	4.24
2500	4.16	2.19	5.53	2.77	6.64	3.30
2750	3.12	1.75	4.16	2.19	4.99	2.61
3000	2.41	1.43	3.20	1.81	3.84	2.16
3250	1.89	1.20	2.52	1.49	3.02	1.78
3500	1.52	1.01	2.02	1.27	2.42	1.51
3750	1.23	0.87	1.64	1.08	1.97	1.29
4000	1.02	0.76	1.35	0.94	1.62	1.12
4250	0.85	0.66	1.13	0.82	1.35	0.97
4500	0.71	0.58	0.95	0.72	1.14	0.86
4750	0.61	0.52	0.81	0.64	0.97	0.77
5000	0.52	0.46	0.69	0.57	0.83	0.68
5250	0.45	0.42	0.60	0.52	0.72	0.62
5500	0.39	0.37	0.52	0.47	0.62	0.56
5750	0.34	0.34	0.45	0.43	0.55	0.51
6000	0.30	0.31	0.40	0.39	0.48	0.46

NOTE: Deflection limits can be used for both outward and inward loads.

SPAN (mm)	MEMBER DESIGN CAPACITY FOR SECTION SHOWN			SCREW PULLOUT CAPACITY 4 x No.14 ²				2/M12BOLTS
	0.75	1.00	1.20	SUPPORT MEMBER THICKNESS (mm)				
	Strength	Strength	Strength	0.75	0.95	1.15	> 1.5	
2000	4.18	5.95	7.13	3.08	4.58	5.54	7.02	7.88
2250	3.70	5.24	6.28	2.74	4.07	4.93	6.24	7.00
2500	3.34	4.61	5.52	2.46	3.66	4.43	5.61	6.30
2750	3.02	4.03	4.83	2.24	3.33	4.03	5.10	5.73
3000	2.53	3.48	4.47	2.05	3.05	3.69	4.68	5.25
3250	2.07	3.06	3.67	1.90	2.82	3.41	4.32	4.85
3500	1.67	2.70	3.24	1.76	2.62	3.17	4.01	4.50
3750	1.40	2.36	2.83	1.64	2.44	2.96	3.74	4.20
4000	1.15	2.08	2.49	1.54	2.29	2.77	3.51	3.94
4250	0.98	1.85	2.22	1.45	2.15	2.61	3.30	3.71
4500	0.93	1.65	1.98	1.37	2.04	2.46	3.12	3.50
4750	0.87	1.48	1.77	1.30	1.93	2.33	2.95	3.32
5000	0.84	1.33	1.60	1.23	1.83	2.22	2.81	3.15
5250	0.80	1.20	1.44	1.17	1.74	2.11	2.67	3.00
5500	0.76	1.10	1.32	1.12	1.67	2.02	2.55	2.86
5750	0.72	0.99	1.19	1.07	1.59	1.93	2.44	2.74
6000	0.66	0.91	1.09	1.03	1.53	1.85	2.34	2.63

120mm TOP HAT DOUBLE SPAN LAPPED- INWARDS DESIGN CAPACITY (kN/m)

SPAN (mm)	MEMBER DESIGN CAPACITY FOR SECTION SHOWN					
	0.75		1.00		1.20	
	1/100	11rongth	1/100	11rongth	1/100	nrongrh
2000	10.20	343	13.50	4.56	16.20	5.85
2250	7.13	3.04	9.49	4.02	11.40	5.15
2500	5.20	2.74	6.92	3.53	8.29	4.53
2750	3.91	2.48	5.20	3.09	6.23	3.96
3000	3.01	2.08	4.00	2.67	4.80	3.42
3250	2.37	1.70	3.15	2.34	3.78	3.01
3500	1.89	1.39	2.52	2.07	3.02	2.66
3750	1.54	1.15	2.05	1.81	2.46	2.32
4000	1.27	0.94	1.69	1.59	2.03	2.04
4250	1.06	0.80	1.41	1.42	1.69	1.82
4500	0.89	0.76	1.19	1.27	1.42	1.63
4750	0.76	0.72	1.01	1.13	1.21	1.45
5000	0.65	0.69	0.86	1.02	1.04	1.31
5250	0.56	0.65	0.75	0.92	0.90	1.18
5500	0.49	0.62	0.65	0.84	0.78	1.08
5750	0.43	0.59	0.57	0.76	0.68	0.98
6000	0.38	0.54	0.50	0.70	0.60	0.89

NOTE: Deflection limits can be used for both outward and inward loads.

SPAN (mm)	MEMBER DESIGN CAPACITY FOR SECTION SHOWN			SCREW PULLOUT CAPACITY 4 x No.14 ²				2/M12 BOLTS
	0.75	1.00	1.20	SUPPORT MEMBER THICKNESS (mm)				
	11n>ngh	11Tongth	strongth	0.75	0.95	1.15	1.5	
2000	343	4.88	5.85	3.08	4.58	5.54	7.02	7.88
2250	3.04	430	5.15	2.74	4.07	4.93	6.24	7.00
2500	2.74	3.78	4.52	246	3.66	443	5.61	6.30
2750	248	3.30	3.96	224	333	4.03	5.10	5.73
3000	2.08	2.86	342	2.05	3.05	3.69	4.68	5.25
3250	169	2.51	3.00	190	2.82	341	4.32	4.85
3500	139	222	2.66	176	2.62	3.17	4.01	4.50
3750	115	194	2.32	164	244	2.96	3.74	4.20
4000	0.94	170	2.04	154	229	2.77	3.51	3.94
4250	0.80	152	182	145	215	2.61	3.30	3.71
4500	0.76	136	162	137	2.04	2.46	3.12	3.50
4750	0.72	121	145	130	193	233	2.95	3.32
5000	0.69	109	131	123	183	222	2.81	3.15
5250	0.65	0.99	118	117	174	2.11	2.67	3.00
5500	0.62	0.90	108	112	167	2.02	2.55	2.86
5750	0.59	0.81	0.97	107	159	193	244	2.74
6000	0.54	0.75	0.89	103	153	185	234	2.63

120mm TOP HAT DOUBLE SPAN UNLAPPED- INWARDS DESIGN CAPACITY (kN/m)

SPAN (mm)	MEMBER DESIGN CAPACITY FOR SECTION SHOWN					
	0.75		1.00		1.20	
	1/100	11Tongth	1/100	11Tongth	1/100	nrongrh
2000	8.12	2.81	1080	4.00	13.00	4.80
2250	5.70	249	7.59	3.53	9.10	4.22
2500	4.16	224	5.53	3.10	6.64	3.71
2750	3.12	2.03	4.16	2.71	4.99	3.24
3000	241	170	3.20	234	3.84	2.81
3250	189	139	2.52	2.06	3.02	246
3500	152	114	2.02	182	242	2.18
3750	123	0.94	164	159	197	190
4000	102	0.77	135	140	162	167
4250	0.85	0.66	113	125	135	149
4500	0.71	0.63	0.95	111	114	133
4750	0.61	0.59	0.81	0.99	0.97	119
5000	0.52	0.57	0.69	0.90	0.83	108
5250	0.45	0.53	0.60	0.81	0.72	0.97
5500	0.39	0.51	0.52	0.74	0.62	0.88
5750	0.34	0.48	0.45	0.67	0.55	0.80
6000	0.30	0.44	0.40	0.61	0.48	0.73

NOTE: Deflection limits can be used for both outward and inward loads.



120mm TOP HAT FLOOR JOIST SPAN TABLE

BMT(mm)	450mmCRS					
	SINGLE SPAN			DOUBLE LAPPED SPAN		
	1.5kPa	3.0kPa	5.0kPa	1.5kPa	3.0kPa	5.0kPa
0.75	2150	1400	900	2450	1450	900
0.95	2350	1950	1650	2650	2200	1650
I.IS	2450	2050	1700	2750	2300	1900

DESIGN ASSUMPTIONS

- All spans are equal.
- Support member material is G450 steel.
- Minimum edges distance= 3 times nominal screw diameter.
- Minimum screw head diameter is in accordance with AS 3566.1

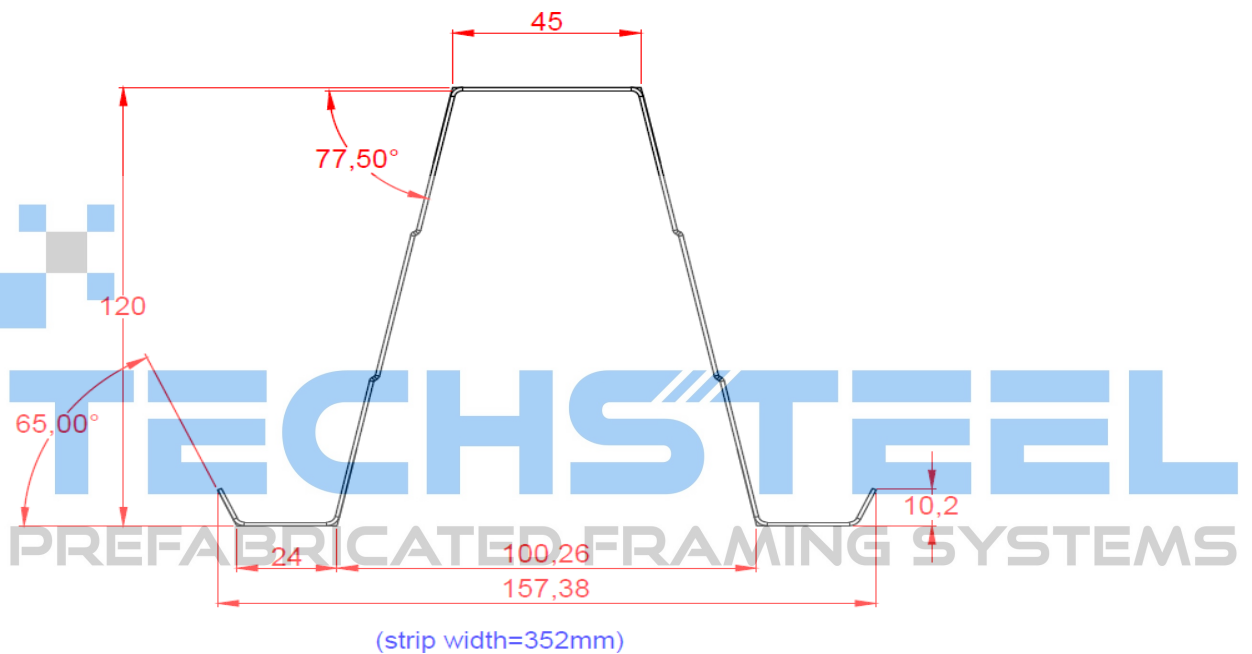
2 x 14G SCREWS PER SUPPORT

SPAN (mm)	SINGLE SPAN				DOUBLE SPAN'				TRIPLE SPAN'			
	SUPPORT MEMBER THICKNESS (mm)'											
	0.75	0.95	1.15	1.5	0.75	0.95	1.15	1.5	0.75	0.95	1.15	1.5
1200	225	4.07	4.93	6.43	0.90	163	197	2.57	102	185	2.24	2.92
1500	180	326	3.94	5.14	0.72	130	158	2.06	0.82	148	179	2.34
1800	150	2.71	328	428	0.60	109	131	171	0.68	123	149	195
2100	129	2.33	2.82	3.67	0.51	0.93	113	147	0.58	106	128	167
2400	113	204	2.46	321	0.45	0.81	0.99	129	0.51	0.93	112	146
2700	100	181	2.19	2.86	0.40	0.72	0.88	114	0.45	0.82	100	130
3000	0.90	163	197	2.57	0.36	0.65	0.79	103	0.41	0.74	0.90	117
3300	0.82	148	179	2.34	0.33	0.59	0.72	0.94	0.37	0.67	0.81	106
3600	0.75	136	164	2.14	0.30	0.54	0.66	0.86	0.34	0.62	0.75	0.97
3900	0.69	125	152	198	0.28	0.50	0.61	0.79	0.32	0.57	0.69	0.90
4200	0.64	116	141	184	0.26	0.47	0.56	0.73	0.29	0.53	0.64	0.84
4500	0.60	109	131	171	0.24	0.43	0.53	0.69	0.27	0.49	0.60	0.78
4800	0.56	102	123	161	0.23	0.41	0.49	0.64	0.26	0.46	0.56	0.73
5100	0.53	0.96	116	151	0.21	0.38	0.46	0.61	0.24	0.44	0.53	0.69
5400	0.50	0.90	110	143	0.20	0.36	0.44	0.57	0.23	0.41	0.50	0.65
5700	0.47	0.86	104	135	0.19	0.34	0.42	0.54	0.22	0.39	0.47	0.62
6000	0.45	0.81	0.99	129	0.18	0.33	0.39	0.51	0.20	0.37	0.45	0.58

4 x 14G SCREWS PER SUPPORT

SPAN (mm)	SINGLE SPAN				DOUBLE SPAN'				TRIPLE SPAN'			
	SUPPORT MEMBER THICKNESS (mm)'											
	0.75	0.95	1.15	1.5	0.75	0.95	1.15	1.5	0.75	0.95	1.15	1.5
1200	4.50	8.14	9.85	12.85	180	326	3.94	5.14	2.05	370	4.48	5.84
1500	3.60	6.51	7.88	10.28	144	2.61	3.15	4.11	164	2.96	3.58	4.67
1800	3.00	5.43	6.57	8.57	120	2.17	2.63	3.43	136	2.47	2.99	3.90
2100	2.57	4.65	5.63	7.34	103	1.86	2.25	2.94	117	2.11	2.56	3.34
2400	2.25	4.07	4.93	6.43	0.90	163	197	2.57	102	185	2.24	2.92
2700	2.00	3.62	4.38	5.71	0.80	145	175	2.29	0.91	164	199	2.60
3000	180	326	3.94	5.14	0.72	130	158	2.06	0.82	148	179	2.34
3300	164	2.96	3.58	4.67	0.65	118	143	187	0.74	1.35	163	2.12
3600	150	2.71	328	428	0.60	109	131	171	0.68	123	149	195
3900	1.38	2.50	303	3.95	0.55	100	121	158	0.63	114	138	180
4200	129	2.33	2.82	3.67	0.51	0.93	113	147	0.58	106	128	167
4500	120	2.17	2.63	3.43	0.48	0.87	105	1.37	0.55	0.99	119	156
4800	113	2.04	2.46	321	0.45	0.81	0.99	129	0.51	0.93	112	146
5100	106	192	2.32	3.02	0.42	0.77	0.93	121	0.48	0.87	105	138
5400	100	181	2.19	2.86	0.40	0.72	0.88	114	0.45	0.82	100	130
5700	0.95	171	2.07	2.71	0.38	0.69	0.83	108	0.43	0.78	0.94	123
6000	0.90	163	197	2.57	0.36	0.65	0.79	103	0.41	0.74	0.90	117

PROFILE



Weight per/m: 2.67 kg

Uses: Sheds, shelving, flooring, mezzanine floors, shed walls etc.

Made from G550 0.95mm aluzinc steel, our 120 Top Hat is ideal for use on rural, agricultural and industrial structures. Also known as a rural purlin, 120 Top hat can be used in place of Cee and Zee purlins.

120 Top Hat also features two stiffeners either side which enhance the strength of the product.

120 Top Hat can be easily lapped with a very close fit that will not affect the straightness of the length.