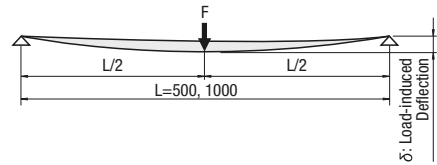


Aluminum Extrusions Load Capacity Guideline

Load Capacity Calculations

1. Calculation Conditions: Calculations are based on centralized loads on both ends supported extrusions.
2. The load capacities (allowable loads) are defined as: Load that generates a deflection amount 1/1000 of the extrusion length.
These loads are the allowed maximum. Use within the given capacities.



Part Number		Height x Width (mm)	Section Modulus $\times 10^3 \text{ (mm}^3\text{)}$	Cross Sectional Moment of Inertia $\times 10^4 \text{ (mm}^4\text{)}$	For 500mm Extrusion Length		For 1000mm Extrusion Length	
Type	Extrusion				Allowable Load (N)	(kgf)	Allowable Load (N)	(kgf)
HFS5 NFS5	2020	(1) 20x 20	0.74	0.74	99	10	24	2
	2040	(2) 20x 40	1.35	1.35	182	18	45	4
		(3) 40x 20	2.55	5.11	687	70	171	17
	2060	(4) 20x 60	1.97	1.97	264	26	66	6
		(5) 60x 20	5.32	15.96	2144	218	536	54
	2080	(6) 20x 80	2.58	2.58	347	35	86	8
		(7) 80x 20	9.02	36.11	4851	494	1212	123
	2525	(8) 25x 25	1.36	1.71	229	23	57	5
	2550	(9) 25x 50	2.37	2.96	398	40	99	10
		(10) 50x 25	5.09	12.74	1711	174	427	43
	4040	(11) 40x 40	4.45	8.9	1196	122	299	30
		(12) 40x 60	6.3	12.62	1695	172	423	43
	4060	(13) 60x 40	9	27	3627	369	906	92
		(14) 40x 80	9.18	18.38	2469	251	617	62
	4080	(15) 80x 40	15.87	63.49	8529	869	2132	217
HFS6 NFS6	3030	(16) 30x 30	1.89	2.83	381	38	95	9
	3060	(17) 30x 60	3.55	5.33	716	73	179	18
		(18) 60x 30	6.84	20.53	2758	281	689	70
	3090	(19) 30x 90	5.62	8.43	1133	115	283	28
		(20) 90x 30	14.71	66.19	8892	906	2223	226
	6060	(21) 60x 60	13.78	41.35	5555	566	1388	141
		(22) 60x 90	17.53	52.59	7065	720	1766	180
	6090	(23) 90x 60	24.77	111.5	14979	1527	3744	381
	30120	(24) 30x 120	7.52	11.29	1516	154	379	38
		(25) 120x 30	25.55	153.3	20595	2100	5148	525
	60120	(26) 60x 120	23.06	69.18	9294	947	2323	236
		(27) 120x 60	41.18	247.1	33196	3385	8299	846
	5050	(28) 50x 50	8.66	21.66	2909	296	727	74
		(29) 50x 100	16.98	42.44	5701	581	1425	145
	50100	(30) 100x 50	30.63	153.2	20581	2098	5145	524
HFS8 NFS8	100100	(31) 100x 100	53.08	265.4	35655	3635	8913	908
	4040	(32) 40x 40	5.24	10.48	1407	143	351	35
		(33) 40x 80	9.95	19.91	2674	272	668	68
	4080	(34) 80x 40	18.07	72.26	9707	989	2426	247
		(35) 40x 160	19.36	38.72	5201	530	1300	132
	40160	(36) 160x 40	61.89	496.3	66676	6799	16669	1699
		(37) 80x 80	32.45	129.8	17438	1778	4359	444
	8080	(38) 80x 160	73.95	295.8	39739	4052	9934	1013
		(39) 160x 80	125.2	1002	134614	13726	33653	3431
	4545	(40) 45x 45	6.77	15.25	2048	208	512	52
	4590	(41) 45x 90	14.44	32.5	4366	445	1091	111
		(42) 90x 45	27.9	125.5	16860	1719	4215	429
	9090	(43) 90x 90	46.78	210.5	28279	2883	7069	720
		(44) 45x 180	27.14	61.05	8201	836	2050	209
	45180	(45) 180x 45	89.87	808.8	108659	11080	27164	2770
HFSL6 NFSL6	90180	(46) 90x 180	133.3	600	80607	8219	20151	2054
		(47) 180x 90	237.9	2141	287635	29330	71908	7332
	5050	(48) 50x 50	10.91	27.28	3665	374	916	93
		(49) 50x 100	20.66	51.67	6942	707	1735	177
	50100	(50) 100x 50	42.23	211.1	28383	2894	7093	723
		(51) 60x 60	17.3	51.91	6973	711	1743	177
	3030	(52) 30x 30	1.78	2.68	360	36	90	9
		(53) 30x 60	3.24	4.87	654	66	163	16
	3060	(54) 60x 30	5.95	17.88	2402	244	600	61
		(55) 50x 50	7.51	18.79	2524	257	631	64
HFSL8 NFSL8	4040	(56) 40x 40	3.77	7.54	1013	103	253	25
	4080	(57) 40x 80	6.71	13.43	1804	183	451	45
		(58) 80x 80	13.25	52.98	7117	725	1779	181
	4545	(59) 45x 45	5.21	11.73	1575	160	393	40
		(60) 45x 90	10.15	22.85	3069	313	767	78
HFSG6	6060	(61) 90x 45	19.26	86.68	11645	1187	2911	296
HFSH8	8080	(62) 60x 60	18.09	54.28	7292	743	1823	185
		(63) 80x 80	45.83	183.3	24625	2511	6156	627

Part Number			Height x Width (mm)	Section Modulus x 10 ³ (mm ³)	Cross Sectional Moment of Inertia x 10 ⁴ (mm ⁴)	For 500mm Extrusion Length		For 1000mm Extrusion Length	
Type	Extrusion					Allowable Load		Allowable Load	
						(N)	(kgf)	(N)	(kgf)
GFS6	3030	(64)	30x 30	2.32	3.47	466	48	117	12
	3060	(65)	30x 60	3.96	5.9	792	81	199	20
		(66)	60x 30	7.95	23.78	3194	326	798	81
GFS8	4040	(67)	40x 40	6.83	13.76	1848	188	462	47
	4080	(68)	40x 80	12.56	25.21	3384	345	846	86
		(69)	80x 40	22.47	90.87	12208	1245	3052	311
	4545	(70)	45x 45	10.42	23.64	3172	323	793	81
	4590	(71)	45x 90	18.87	42.99	5772	589	1443	147
		(72)	90x 45	35.67	163.4	21792	2222	5448	556
	5050	(73)	50x 50	15.23	38.16	5124	523	1281	131
	50100	(74)	50x 100	27.23	68.08	9147	932	2286	223
		(75)	100x 50	54.62	273.1	36706	3742	9173	935
	6060	(76)	60x 60	26.58	79.86	10728	1094	2682	273
	9090	(77)	90x 90	71.17	320.2	43016	4386	10754	1097
	100100	(78)	100x 100	93.48	465.8	62576	6381	15644	1595
	100200	(79)	100x 200	174.8	874.3	117507	11982	29365	2994
		(80)	200x 100	317.7	3179	427334	43576	106791	10890
EFS6 NEFS6	3030	(81)	30x 30	1.89	2.85	382	39	95	9
	3060	(82)	30x 60	3.66	5.48	736	75	184	19
		(83)	60x 30	6.86	20.46	2758	281	689	70
	3090	(84)	30x 90	5.86	8.8	1181	120	295	30
		(85)	90x 30	15.19	69	9185	2296	936	234
	30120	(86)	30x 120	7.65	11.48	1583	161	395	40
		(87)	120x 30	26.29	157.62	20628	2103	5157	525
	30300	(88)	30x 300	9.57	13.50	2079	272	519	53
		(89)	300x 30	35.4	375.5	51487	5259	12896	1317
EFS8 NEFS8	4040	(90)	40x 40	5.24	10.49	1409	144	352	35
	4080	(91)	40x 80	9.96	19.93	2677	273	669	68
		(92)	80x 40	18.13	72.55	9745	994	2436	248
	40120	(93)	40x 120	14.5	29	3940	401	985	100
		(94)	120x 40	37.03	223.51	29958	3054	7489	763
	40160	(95)	40x 160	19.47	38.8	5203	530	1300	132
		(96)	160x 40	63.17	506	67114	6843	16778	1710
	8080	(97)	80x 80	32.55	130	17494	1783	4373	445
	80160	(98)	80x 160	75.85	304.4	40708	4151	10177	1037
		(99)	160x 80	125.86	1007	134584	13723	33646	3430
	4545	(100)	45x 45	6.85	15.42	2071	211	517	53
	4590	(101)	45x 90	14.52	32.67	4389	448	1097	112
		(102)	90x 45	27.84	125.3	16860	1719	4215	430
	5050	(103)	50x 50	10.79	26.98	3665	374	916	93
	50100	(104)	50x 100	21.2	53	7120	726	1780	182
		(105)	100x 50	42.24	211.2	28385	2894	7094	723

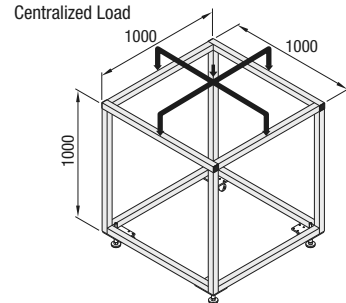
Aluminum Extrusions Load Capacity Guideline

Load Capacity Guideline for Extrusion Frame Units

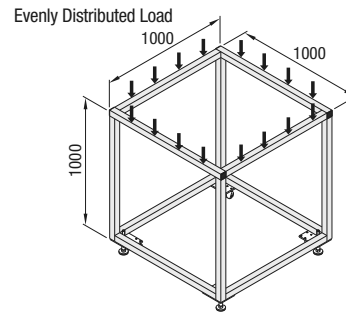
Condition: Calculated as: Loads causing 1mm deflection at the center of each extrusion of a 1000mm x 1000mm square frame.

Part Number		Height x Width (mm)	Allowable Load				
Type	Extrusion		Centralized Load		Evenly Distributed Load		
			(N)	(kgf)	(N)	(kgf)	
HFS5 NFS5	2020	20x 20	99	10	199	20	
	2040	20x 40	182	18	364	37	
		40x 20	687	70	1375	140	
	2060	20x 60	264	26	529	53	
		60x 20	2144	218	4288	437	
	2080	20x 80	347	35	694	70	
		80x 20	4851	494	9702	989	
	2525	25x 25	229	23	459	46	
	2550	25x 50	398	40	797	81	
		50x 25	1711	174	3423	349	
	4040	40x 40	1196	121	2393	244	
	4060	40x 60	1695	172	3390	345	
60x 40		3627	369	7254	739		
40x 80		2469	251	4938	503		
4080	80x 40	8529	869	17059	1739		
	3030	30x 30	380	38	762	77	
		30x 60	716	73	1433	146	
60x 30		2758	281	5516	562		
3060	30x 90	1133	115	2266	231		
	90x 30	8892	906	17784	1813		
	6060	60x 60	5555	566	11110	1132	
6090	60x 90	7065	720	14130	1440		
	90x 60	14979	1527	29959	3054		
	30120	30x 120	1516	154	3033	309	
120x 30		20594	2100	41190	4200		
60120	60x 120	9293	947	18588	1895		
	120x 60	33196	3385	66393	6770		
	5050	50x 50	2909	296	5819	593	
50100	50x 100	5701	581	11403	1162		
	100x 50	20581	2098	41163	4197		
	100100	100x 100	35654	3635	71310	7271	
HFS8 NFS8	4040	40x 40	1407	143	2815	287	
	4080	40x 80	2674	272	5349	545	
		80x 40	9707	989	19415	1979	
	40160	40x 160	5201	530	10403	1060	
		160x 40	66674	6798	133352	13598	
	8080	80x 80	17437	1778	34876	3556	
	80160	80x 160	39738	4052	79479	8104	
		160x 80	134611	13726	269229	27453	
	4545	45x 45	2048	208	4097	417	
	4590	45x 90	4366	445	8732	890	
		90x 45	16859	1719	33720	3438	
	9090	90x 90	28279	2883	56559	5767	
	45180	45x 180	8201	836	16403	1672	
		180x 45	108656	11079	217318	22160	
		90180	90x 180	80605	8219	161215	16439
		180x 90	287627	29329	575270	58661	
5050	50x 50	3665	374	7330	747		
50100	50x 100	6942	707	13883	1415		
	100x 50	28383	2894	56721	5783		
	6060	60x 60	6973	711	13947	1422	
HFSL6 NFSL6	3030	30x 30	360	36	720	73	
	3060	30x 60	654	66	1309	133	
		60x 30	2402	244	4804	489	
	5050	50x 50	2524	257	5048	514	
HFSL8 NFSL8	4040	40x 40	1013	103	2027	206	
	4080	40x 80	1804	183	3608	367	
		80x 40	7124	726	14235	1451	
	4545	45x 45	1575	160	3151	321	
	4590	45x 90	3071	313	6139	626	
		90x 45	11648	1187	23290	2374	
HFSG6	6060	60x 60	7292	743	14584	1487	
HFSH8	8080	80x 80	24622	2510	49251	5022	

Centralized Load: Concentrated load is applied at the center.

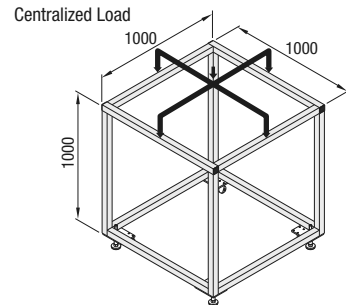


Evenly Distributed Load: When the load is evenly distributed over the extrusion.



Part Number		Height x Width (mm)	Allowable Load			
Type	Extrusion		Centralized Load		Evenly Distributed Load	
			(N)	(kgf)	(N)	(kgf)
GFS6	3030	30x 30	466	48	932	95
	3060	30x 60	792	81	1585	162
		60x 30	3194	326	6389	651
GFS8	4040	40x 40	1848	188	3696	377
	4080	40x 80	3384	345	6768	690
		80x 40	12208	1245	24416	2490
	4545	45x 45	3172	323	6344	647
	4590	45x 90	5772	589	11544	1177
		90x 45	21792	2222	43584	4444
	5050	50x 50	5124	523	10248	1045
	50100	50x 100	9147	932	18292	1865
		100x 50	36706	3742	73380	7482
	6060	60x 60	10728	1094	21456	2188
	9090	90x 90	43016	4386	86032	8773
	100100	100x 100	62576	6381	125152	12762
	100200	100x 200	117507	11982	234918	23955
200x 100		427334	43576	854170	87101	
EFS6 NEFS6	3030	30x 30	382	39	765	78
	3060	30x 60	736	75	1472	150
		60x 30	2758	281	5516	562
	3090	30x 90	1181	120	2362	240
		90x 30	9185	2296	18371	1873
	30120	30x 120	1583	161	3166	322
		120x 30	20628	2103	41257	4207
	30300	30x 300	2079	272	4158	548
EFS8 NEFS8		300x 30	51487	5259	102974	10318
	4040	40x 40	1409	144	2818	287
	4080	40x 80	2677	273	5355	546
		80x 40	9745	994	19493	1988
	40120	40x 120	3940	401	7881	803
		120x 40	29958	3054	59916	6109
	40160	40x 160	5203	530	10407	1061
		160x 40	67114	6843	134228	13687
	8080	80x 80	17494	1783	34988	3567
	80160	80x 160	40708	4151	81417	8302
		160x 80	134584	13723	269168	27447
	4545	45x 45	2071	211	4143	422
	4590	45x 90	4389	448	8778	895
		90x 45	16860	1719	33720	3438
	5050	50x 50	3665	374	7330	747
	50100	50x 100	7120	726	14240	1452
		100x 50	28385	2894	56748	5787

Centralized Load: Concentrated load is applied at the center.



Evenly Distributed Load: When the load is evenly distributed over the extrusion.

