

19-4 / 19-2 Aluminum Grating Load Table

Bearing Bar Size		Clear Span												Weight Per Sq. Ft. (lbs) [I-Bar]																			
		2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"	9'-0"	19-4	19-2	15-4	15-2	11-4	11-2													
1 x 1/8	U	.421	.269	.187	.137	.105	.83	Loads and deflections are theoretical values based on 12,000 PSI unit stress. For pedestrian comfort deflections in excess of 1/4" are not recommended												1.8	2.2	2.2	2.6	2.9	3.3								
	D	.144	.225	.441	.441	.576	.729																										
	C	.421	.337	.241	.241	.211	.187																										
	D	.115	.180	.353	.353	.461	.583																										
1 x 3/16 or 1" I-bar	U	.632	.404	.281	.206	.158	.125	U = Uniform Load, lbs. per sq.ft. C = Concentrated Mid-Span Load, lbs. per ft. of grating width D = Deflection in Inches												2.6 [1.8]	2.9 [2.1]	3.2 [2.3]	3.5 [2.6]	4.2 [3.0]	4.5 [3.3]								
	D	.144	.225	.324	.441	.576	.729																										
	C	.632	.505	.421	.361	.316	.281																										
	D	.115	.180	.259	.353	.461	.583																										
1 1/4 x 1/8	U	.658	.424	.292	.215	.164	.130	.105	.87	.73	U = Uniform Load, lbs. per sq.ft. C = Concentrated Mid-Span Load, lbs. per ft. of grating width D = Deflection in Inches												2.2	2.5	2.7	3.0	3.6	3.9					
	D	.115	.180	.259	.353	.461	.583	.720	.871	1.037																							
	C	.658	.526	.439	.376	.329	.292	.263	.239	.249																							
	D	.092	.144	.207	.282	.369	.467	.576	.697	.829																							
1 1/4 x 3/16 or 1 1/4" I-bar	U	.987	.632	.439	.322	.247	.195	.158	.130	.110	.93	.81	U = Uniform Load, lbs. per sq.ft. C = Concentrated Mid-Span Load, lbs. per ft. of grating width D = Deflection in Inches												3.1 [2.2]	3.5 [2.5]	3.9 [2.7]	4.2 [3.0]	5.2 [3.7]	5.5 [4.0]			
	D	.115	.180	.259	.353	.461	.583	.720	.871	1.037	1.217	1.411																					
	C	.987	.789	.658	.564	.493	.439	.395	.359	.329	.304	.282																					
	D	.092	.144	.207	.282	.369	.467	.576	.697	.829	.973	1.129																					
1 1/2 x 1/8	U	.947	.606	.424	.309	.237	.187	.152	.125	.105	.90	.77	.59	.47	U = Uniform Load, lbs. per sq.ft. C = Concentrated Mid-Span Load, lbs. per ft. of grating width D = Deflection in Inches												2.6	2.9	3.2	3.5	4.2	4.5	
	D	.096	.150	.216	.294	.384	.486	.600	.726	.864	1.014	1.176	1.536	1.944																			
	C	.947	.758	.632	.541	.474	.421	.379	.344	.346	.346	.291	.271	.237																			.211
	D	.077	.120	.173	.235	.307	.389	.480	.581	.691	.811	.941	1.229	1.555																			
1 1/2 x 3/16 or 1 1/2" I-bar	U	1.421	.909	.632	.464	.355	.281	.227	.188	.158	.135	.116	.89	.70	U = Uniform Load, lbs. per sq.ft. C = Concentrated Mid-Span Load, lbs. per ft. of grating width D = Deflection in Inches												3.7 [2.6]	4.0 [2.9]	4.6 [3.2]	4.9 [3.5]	6.1 [4.3]	6.5 [4.6]	
	D	.096	.150	.216	.294	.384	.486	.600	.726	.864	1.014	1.176	1.536	1.944																			
	C	1.421	1.137	.947	.812	.711	.632	.568	.517	.474	.437	.406	.355	.316																			
	D	.077	.120	.173	.235	.307	.389	.480	.581	.691	.811	.941	1.229	1.555																			
1 3/4 x 3/16 or 1 3/4" I-bar	U	1.934	1.238	.860	.632	.484	.382	.309	.256	.215	.183	.158	.121	.96	U = Uniform Load, lbs. per sq.ft. C = Concentrated Mid-Span Load, lbs. per ft. of grating width D = Deflection in Inches												4.2 [2.9]	4.6 [3.2]	5.3 [3.6]	5.6 [3.9]	7.1 [5.0]	7.4 [5.3]	
	D	.082	.129	.185	.252	.329	.417	.514	.622	.741	.869	1.008	1.317	1.666																			
	C	1.934	1.547	1.289	1.105	.967	.860	.774	.703	.645	.595	.553	.484	.430																			
	D	.066	.103	.148	.202	.263	.333	.411	.498	.592	.695	.806	1.053	1.333																			
2 x 3/16 or 2" I-bar	U	2.526	1.617	1.123	.825	.632	.499	.404	.334	.281	.239	.206	.158	.125	U = Uniform Load, lbs. per sq.ft. C = Concentrated Mid-Span Load, lbs. per ft. of grating width D = Deflection in Inches												4.8 [3.3]	5.1 [3.6]	6.0 [4.0]	6.3 [4.3]	8.0 [5.6]	8.4 [5.9]	
	D	.072	.113	.162	.221	.288	.365	.450	.545	.648	.761	.882	1.152	1.458																			
	C	2.526	2.021	1.684	1.444	1.263	1.123	1.011	.919	.842	.777	.722	.632	.561																			
	D	.058	.090	.130	.176	.230	.292	.360	.436	.518	.608	.706	.822	1.166																			
2 1/4 x 3/16 or 2 1/4" I-bar	U	3.197	2.046	1.421	1.044	.799	.632	.512	.423	.355	.303	.261	.200	.158	U = Uniform Load, lbs. per sq.ft. C = Concentrated Mid-Span Load, lbs. per ft. of grating width D = Deflection in Inches												5.4 [3.6]	5.7 [3.9]	6.7 [4.5]	7.0 [4.8]	9.0 [6.2]	9.3 [6.5]	
	D	.064	.100	.144	.196	.256	.324	.400	.484	.576	.676	.784	1.024	1.296																			
	C	3.197	2.558	2.132	1.827	1.599	1.421	1.279	1.163	1.066	.984	.914	.799	.711																			
	D	.051	.080	.115	.157	.205	.259	.320	.387	.461	.541	.627	.819	1.037																			
2 1/2 x 3/16 or 2 1/2" I-bar	U	3.947	2.526	1.754	1.289	.987	.780	.632	.522	.439	.374	.322	.247	.195	U = Uniform Load, lbs. per sq.ft. C = Concentrated Mid-Span Load, lbs. per ft. of grating width D = Deflection in Inches												5.9 [4.0]	6.3 [4.3]	7.4 [5.0]	7.7 [5.3]	10.0 [6.9]	10.3 [7.2]	
	D	.058	.090	.130	.176	.230	.292	.360	.436	.518	.608	.706	.822	1.166																			
	C	3.947	3.158	2.632	2.256	1.974	1.754	1.579	1.435	1.316	1.215	1.128	.987	.877																			
	D	.046	.072	.104	.141	.184	.233	.288	.348	.415	.487	.564	.737	.933																			

NOTE: When gratings with serrated bearing bars are selected, the depth of grating required to service a specified load will be 1/4" greater than shown in the table above

Conversion Table

The loads shown above are for type 19-4 and 19-2 gratings. To determine the load carrying capacities for alternative bar spacings, multiply the loads given by the following conversion factors (Deflection remains constant): For types 15-4 and 15-2: 1.26 For types 11-4 and 11-2: 1.71 For types 10-4 and 10-2: 1.87 For types 8-4 and 8-2: 2.32 For types 7-4 and 7-2: 2.68 For types 6-4 and 6-2: 3.10 Other spacings available

Selection Guide: 19-4 Plain Surface Grating

For deflection of not more than 1/4" when subjected to the severest of the following: (1) the uniform loads below, (2) under concentrated mid-span loads of 300 lbs. up to 6'-0" span, or (3) 400 lbs. for spans 6'-0" and over.

Safe Uniform Load lbs./Sq.Ft.	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"
50	1 x 1/8	1 x 1/8	1 x 3/16	1 x 3/16	1 x 3/16	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x 3/16	2 1/2 x 3/16
75	1 x 1/8	1 x 1/8	1 x 3/16	1 x 3/16	1 1/4 x 3/16	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x 3/16	2 1/2 x 3/16
100	1 x 1/8	1 x 1/8	1 x 3/16	1 x 3/16	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x 3/16	2 1/2 x 3/16
125	1 x 1/8	1 x 1/8	1 x 3/16	1 1/4 x 3/16	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x 3/16	2 1/2 x 3/16	
150	1 x 1/8	1 x 1/8	1 x 3/16	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x 3/16	2 1/2 x 3/16	
200	1 x 1/8	1 x 1/8	1 x 3/16	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x 3/16	2 1/2 x 3/16		
300	1 x 1/8	1 x 3/16	1 1/4 x 3/16	1 1/2 x 3/16	1 3/4 x 3/16	2 x 3/16	2 1/4 x 3/16	2 1/2 x 3/16			