

# Aluminum Bar Grating

## 19 Space Load Table

Use this table when evaluating spans and loads for the following types of aluminum grating:  
**19-ADT-4, 19-ADT-2, 19-SG-4, 19-SG-2, 19-SGI-4, 19-SGI-2**

Bearing Bar Size	Approx. Weight psf *	Maximum Pedestrian Span**		Unsupported Span											
				2'-0	2'-6	3'-0	3'-6	4'-0	4'-6	5'-0	5'-6	6'-0	6'-6	7'-0	8'-0
3/4x3/16	1.9	2'-11"	U	355	227	158	116								
			D	0.192	0.300	0.432	0.588								
3/4" I-Bar	1.7	2'-11"	C	355	284	237	203								
			D	0.154	0.240	0.346	0.470								
1 x 1/8	1.7	3'-3"	U	421	270	187	138	105							
			D	0.144	0.225	0.324	0.441	0.576							
1 x 3/16	2.5	3'-3"	C	421	337	281	241	211							
			D	0.115	0.180	0.259	0.353	0.461							
1" I-Bar	2.0	3'-8"	U	632	404	281	206	158	125						
			D	0.144	0.225	0.324	0.441	0.576	0.729						
1-1/4 x 1/8	2.1	3'-11"	C	632	505	421	361	316	281						
			D	0.115	0.180	0.259	0.353	0.461	0.583						
1-1/4 x 3/16	3.1	4'-4"	U	658	421	292	215	165	130						
			D	0.115	0.180	0.259	0.353	0.461	0.583						
1-1/4" I-Bar	2.4	4'-4"	C	658	526	439	376	329	292						
			D	0.092	0.144	0.207	0.282	0.369	0.467						
1-1/2 x 1/8	2.5	4'-5"	U	987	632	439	322	247	195	158	131	110			
			D	0.115	0.180	0.259	0.353	0.461	0.583	0.720	0.871	1.037			
1-1/2" I-Bar	2.7	4'-5"	C	987	790	658	564	493	439	395	359	329			
			D	0.092	0.144	0.207	0.282	0.369	0.467	0.576	0.697	0.829			
1-1/2 x 3/16	3.7	4'-11"	U	947	606	421	309	237	187	152	125	105	90	77	59
			D	0.096	0.150	0.216	0.294	0.384	0.486	0.600	0.726	0.864	1.014	1.176	1.536
1-1/2" I-Bar	2.7	4'-11"	C	947	758	632	541	474	421	379	345	316	292	271	237
			D	0.077	0.120	0.173	0.235	0.307	0.389	0.480	0.581	0.691	0.811	0.941	1.229
1-3/4 x 1/8	2.9	5'-0"	U	1,421	910	632	464	355	281	227	188	158	135	116	89
			D	0.086	0.150	0.216	0.294	0.384	0.486	0.600	0.726	0.864	1.014	1.176	1.536
1-3/4" I-Bar	3.1	5'-0"	C	1,421	1,137	947	812	711	632	568	517	474	437	406	355
			D	0.077	0.120	0.173	0.235	0.307	0.389	0.480	0.581	0.691	0.811	0.941	1.229
1-3/4 x 3/16	4.2	5'-6"	U	1,290	825	573	421	322	255	206	171	143	122	105	81
			D	0.082	0.129	0.185	0.252	0.329	0.417	0.514	0.622	0.741	0.869	1.008	1.317
1-3/4" I-Bar	3.1	5'-6"	C	1,290	1,032	860	737	645	573	516	469	430	397	368	322
			D	0.066	0.103	0.148	0.202	0.263	0.333	0.411	0.498	0.592	0.695	0.806	1.053
2 x 1/8	3.3	5'-6"	U	1,934	1,238	860	632	484	382	310	256	215	183	158	121
			D	0.082	0.129	0.185	0.252	0.329	0.417	0.514	0.622	0.741	0.869	1.008	1.317
2" I-Bar	3.5	5'-6"	C	1,934	1,547	1,290	1,105	967	860	774	703	645	595	553	484
			D	0.066	0.103	0.148	0.202	0.263	0.333	0.411	0.498	0.592	0.695	0.806	1.053
2 x 3/16	4.8	6'-1"	U	1,684	1,078	749	550	421	333	270	223	187	160	138	105
			D	0.072	0.113	0.162	0.221	0.288	0.365	0.450	0.545	0.648	0.761	0.882	1.152
2" I-Bar	3.5	6'-1"	C	1,684	1,347	1,123	962	842	749	674	612	561	518	481	421
			D	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608	0.706	0.922
2-1/4 x 3/16	5.4	6'-8"	U	2,526	1,617	1,123	825	632	499	404	334	281	239	206	158
			D	0.072	0.113	0.162	0.221	0.288	0.365	0.450	0.545	0.648	0.761	0.882	1.152
2-1/4" I-Bar	3.8	6'-8"	C	2,526	2,021	1,684	1,444	1,263	1,123	1,011	919	842	777	722	632
			D	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608	0.706	0.922
2-1/2 x 3/16	5.9	7'-3"	U	3,197	2,046	1,421	1,044	799	632	512	423	355	303	261	200
			D	0.064	0.100	0.144	0.196	0.256	0.324	0.400	0.484	0.576	0.676	0.784	1.024
2-1/2" I-Bar	4.2	7'-3"	C	3,197	2,558	2,132	1,827	1,599	1,421	1,279	1,163	1,066	984	914	799
			D	0.051	0.080	0.115	0.157	0.205	0.259	0.320	0.387	0.461	0.541	0.627	0.819
2-1/2" I-Bar	4.2	7'-3"	U	3,947	2,526	1,754	1,289	987	780	632	522	439	374	322	247
			D	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608	0.706	0.922
2-1/2" I-Bar	4.2	7'-3"	C	3,947	3,158	2,632	2,256	1,974	1,754	1,579	1,435	1,316	1,215	1,128	987
			D	0.046	0.072	0.104	0.141	0.184	0.233	0.288	0.348	0.415	0.487	0.564	0.737

All loads and deflections are theoretical and based upon the gross sections of the bearing bars, using a fiber stress of 12,000 psi.

The values are not intended to be absolute since the actual load capacity will be affected by the slight variations in mill and manufacturing tolerances.

Grating for spans to the left of the heavy line have a deflection  $\leq 1/4"$  for uniform loads of 100 psf.

U = Safe Uniform Load in pounds/sq. foot  
 C = Concentrated Load in pounds/foot of grating width  
 D = Deflection in inches

\* Weight per square foot based upon 19-SG-4 grating. Add .30 psf for 2" on center cross bars.

\*\* Maximum pedestrian load is defined as a 100# Uniform Load with deflection  $\leq 1/4"$  inch.

The 1/4" maximum deflection criteria is considered consistent with pedestrian comfort, but may be exceeded for other loading conditions at the discretion of the specifying authority.

Note: When gratings with serrated surface are specified, the depth of the grating required for a specific load will be 1/4" greater than that shown in these tables.

### Panel Widths

Grating panels are available from stock in nominal 24" and 36" widths. When considering alternative widths, consult this table to select widths that will maintain uniform "out-to-out" spacing of the bearing bars. Specified widths deviating from this table will be fabricated to size with side banding and the bar spacing on one side of the finished panel will deviate from the spacing throughout the remainder of the panel.

No. of Bearing Bars Panel Width	2 1-3/8"	3 2-9/16"	4 3-3/4"	5 4-15/16"	6 6-1/8"	7 7-5/16"	8 8-1/2"	9 9-11/16"	10 10-7/8"	11 12-1/16"	12 13-1/4"	13 14-7/16"	14 15-5/8"	15 16-13/16"	16 18"
No. of Bearing Bars Panel Width	17 19-3/16"	18 20-3/8"	19 21-9/16"	20 22-3/4"	21 23-15/16"	22 25-1/8"	23 26-5/16"	24 27-1/2"	25 28-11/16"	26 29-7/8"	27 31-1/16"	28 32-1/4"	29 33-7/16"	30 34-5/8"	31 35-13/16"

Panel widths indicated are for gratings with 3/16" thick bearing bars. For 1/8" thick bearing bars deduct 1/16" from the stated values. For 1/4" I-bar add 1/16" to stated values. Add 1/4" to all dimensions for extended cross bars on all aluminum products.

■ Indicates stock panel widths.