

Aluminum Bar Grating

11 Space Load Table

Use this table when evaluating spans and loads for the following types of aluminum grating:
11-SG-4, 11-SG-2, 11-SGI-4, 11-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"		
3/4 x 3/16	3.2	3'-4"	U	614	393	273	200	153	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/ft. of grating width D = Deflection in inches								
3/4" I-Bar	2.7		D	0.192	0.300	0.432	0.568	0.788									
			C	614	491	409	351	307									
		D	0.154	0.240	0.346	0.470	0.614										
1 x 1/8	2.8	3'-9"	U	727	466	323	238	182								144	
			D	0.144	0.225	0.324	0.441	0.576								0.729	
			C	727	582	485	416	364								323	
1" I-Bar	3.2	4'-2"	D	0.115	0.180	0.259	0.353	0.461								0.583	0.720
			U	1,091	698	485	356	273								216	175
			D	0.144	0.225	0.324	0.441	0.576								0.729	0.900
1-1/4 x 1/8	3.5	4'-5"	C	1,091	873	727	623	546								485	436
			D	0.115	0.180	0.259	0.353	0.461								0.583	0.720
			U	1,136	727	505	371	284	225	182							
1-1/4 x 3/16	5.1	4'-11"	D	1,136	909	758	649	568	505	455							
			C	1,136	909	758	649	568	505	455							
			D	0.092	0.144	0.207	0.282	0.369	0.467	0.576							
1-1/4" I-Bar	3.8	4'-11"	U	1,705	1,091	758	557	426	337	273	225	189					
			D	0.115	0.180	0.259	0.353	0.461	0.583	0.720	0.871	1,037					
			C	1,705	1,364	1,136	974	852	758	692	620	568					
1-1/2 x 1/8	4.1	5'-1"	D	0.092	0.144	0.207	0.282	0.369	0.467	0.576	0.697	0.829	102				
			U	1,636	1,047	727	534	409	323	262	216	182	155				
			D	0.096	0.150	0.216	0.294	0.384	0.486	0.600	0.726	0.864	1,014				
1-1/2 x 3/16	6.1	5'-8"	C	1,636	1,309	1,091	935	818	727	655	595	546	504	468	409		
			D	0.077	0.120	0.173	0.235	0.307	0.389	0.480	0.581	0.691	0.811	0.941	1,029		
			U	2,455	1,571	1,091	802	614	485	393	325	273	232	200	153		
1-1/2" I-Bar	4.4	5'-8"	D	0.096	0.150	0.216	0.294	0.384	0.486	0.600	0.726	0.864	1,014	1,176	1,336		
			C	2,455	1,964	1,636	1,403	1,227	1,091	982	893	818	755	701	614		
			D	0.077	0.120	0.173	0.235	0.307	0.389	0.480	0.581	0.691	0.811	0.941	1,029		
1-3/4 x 1/8	4.8	5'-9"	U	2,227	1,426	990	727	557	440	356	295	248	211	182	139		
			D	0.082	0.129	0.185	0.252	0.329	0.417	0.514	0.622	0.741	0.869	1,008	1,137		
			C	2,227	1,782	1,485	1,273	1,114	990	891	810	742	685	636	557		
1-3/4 x 3/16	7.1	6'-4"	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		
			U	3,341	2,138	1,485	1,091	835	660	535	442	371	316	273	209		
			D	0.082	0.129	0.185	0.252	0.329	0.417	0.514	0.622	0.741	0.869	1,008	1,137		
1-3/4" I-Bar	5.1	6'-4"	C	3,341	2,673	2,227	1,909	1,671	1,485	1,336	1,215	1,114	1,028	955	835		
			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		
			U	2,909	1,862	1,293	950	727	575	466	385	323	275	238	182		
2 x 1/8	5.4	6'-4"	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		
			C	2,909	2,327	1,939	1,662	1,455	1,283	1,164	1,058	970	895	831	727		
			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 x 3/16	8.0	7'-0"	U	4,364	2,793	1,939	1,425	1,091	862	698	577	485	413	356	273		
			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		
			C	4,364	3,491	2,909	2,494	2,182	1,939	1,746	1,587	1,455	1,343	1,247	1,091		
2" I-Bar	5.7	7'-0"	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		
			U	5,523	3,535	2,455	1,803	1,381	1,091	884	730	614	523	451	345		
			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		
2-1/4 x 3/16	9.0	7'-8"	C	5,523	4,418	3,682	3,156	2,761	2,455	2,209	2,008	1,841	1,699	1,578	1,381		
			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		
			U	6,818	4,364	3,030	2,226	1,705	1,347	1,091	902	758	646	557	426		
2-1/2 x 3/16	10.0	8'-4"	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		
			C	6,818	5,455	4,546	3,896	3,409	3,030	2,727	2,479	2,273	2,098	1,948	1,705		
			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		

* Weight per square foot based upon 11-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	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Panel Width	7/8"	1-9/16"	2-1/4"	2-15/16"	3-5/8"	4-5/16"	5"	5-11/16"	6-3/8"	7-1/16"	7-3/4"	8-7/16"	9-1/8"	9-13/16"	10-1/2"
No. of Bearing Bars	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Panel Width	11-3/16"	11-7/8"	12-9/16"	13-1/4"	13-15/16"	14-5/8"	15-5/16"	16"	16-11/16"	17-3/8"	18-1/16"	18-3/4"	19-7/16"	20-1/8"	20-13/16"
No. of Bearing Bars	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
Panel Width	21-1/2"	22-3/16"	22-7/8"	23-9/16"	24-1/4"	24-5/16"	25-5/8"	26-5/16"	27"	27-11/16"	28-3/8"	29-1/16"	29-3/4"	30-7/16"	31-1/8"
No. of Bearing Bars	47	48	49	50	51	52	53								
Panel Width	31-13/16"	32-1/2"	33-3/16"	33-7/8"	34-9/16"	35-1/4"	35-15/16"								

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.