

Aluminum Bar Grating

8 Space Load Table

Use this table when evaluating spans and loads for the following types of aluminum grating:
8-ADT-4, 8-ADT-2, 8-SG-4, 8-SG-2, 8-SGI-4, 8-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	4.3	3'-7"	U	844	540	375	276	211	167	All loads and deflections are theoretical and based upon the gross sections of the bearing bars, using a fiber stress of 12,000 psi.							
			D	0.192	0.300	0.432	0.588	0.768	0.972								
			C	844	675	563	482	422	375								
3/4" I-Bar	3.4	3'-7"	D	0.154	0.240	0.346	0.470	0.614	0.778	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.							
			U	1,000	640	444	327	250	198							160	
			D	0.144	0.225	0.324	0.441	0.576	0.729							0.900	
1 x 1/8	3.8	4'-1"	D	1,000	800	667	571	500	444	400	Grating for spans to the left of the heavy line have a deflection ≤ 1/4" for uniform loads of 100 psf.						
			U	1,500	960	667	490	375	296	240							198
			D	0.115	0.180	0.259	0.353	0.461	0.583	0.720							0.871
1" I-Bar	4.3	4'-6"	D	1,500	1,200	1,000	857	750	667	600	546	U = Safe Uniform Load in pounds/sq. foot C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches					
			U	1,563	1,000	694	510	391	309	250	207						
			D	0.115	0.180	0.259	0.353	0.461	0.583	0.720	0.871						
1-1/4 x 1/8	4.7	4'-10"	D	1,563	1,250	1,042	893	781	694	625	568	U = Safe Uniform Load in pounds/sq. foot C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches					
			U	2,344	1,500	1,042	765	586	463	375	310						
			D	0.092	0.144	0.207	0.282	0.369	0.467	0.576	0.697						
1-1/4 x 3/16	7.0	5'-4"	D	0.115	0.180	0.259	0.353	0.461	0.583	0.720	0.871	1,037	260	222			
			U	2,344	1,875	1,563	1,339	1,172	1,042	938	852	781	721				
			D	0.092	0.144	0.207	0.282	0.369	0.467	0.576	0.697	0.829	0.973				
1-1/2 x 1/8	5.6	5'-6"	D	2,250	1,440	1,000	735	563	444	360	298	250	213	184	141		
			U	0.098	0.150	0.216	0.294	0.384	0.486	0.600	0.726	0.864	1,014	1,176	1,536		
			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		
1-1/2 x 3/16	8.3	6'-1"	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		
			U	3,375	2,160	1,500	1,102	844	667	540	446	375	320	276	211		
			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	6.5	6'-2"	D	3,063	1,960	1,361	1,000	766	605	490	405	340	290	250	191		
			U	0.082	0.129	0.185	0.252	0.329	0.417	0.514	0.622	0.741	0.869	1,008	1,317		
			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		
1-3/4 x 3/16	9.6	6'-10"	D	4,594	2,940	2,042	1,500	1,148	907	735	607	510	435	375	287		
			U	0.082	0.129	0.185	0.252	0.329	0.417	0.514	0.622	0.741	0.869	1,008	1,317		
			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	7.4	6'-10"	D	4,000	2,560	1,778	1,306	1,000	790	640	529	444	379	327	250		
			U	0.072	0.113	0.162	0.221	0.288	0.365	0.450	0.545	0.648	0.761	0.882	1,152		
			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	11.0	7'-7"	D	6,000	3,840	2,667	1,959	1,500	1,185	960	793	667	568	490	375		
			U	0.072	0.113	0.162	0.221	0.288	0.365	0.450	0.545	0.648	0.761	0.882	1,152		
			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	12.3	8'-4"	D	7,594	4,860	3,375	2,480	1,898	1,500	1,215	1,004	844	719	620	475		
			U	0.084	0.100	0.144	0.196	0.256	0.324	0.400	0.484	0.576	0.676	0.784	1,024		
			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 x 3/16	13.7	9'-0"	D	9,375	6,000	4,167	3,061	2,344	1,852	1,500	1,240	1,042	888	765	586		
			U	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608	0.706	0.922		
			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 8-SG-4 grating. Add .30 psf for 2" on center cross bars.

** Maximum pedestrian load is defined as a 100# Uniform Load with deflection ≤ 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 11/16"	3 1-3/16"	4 1-11/16"	5 2-3/16"	6 2-11/16"	7 3-3/16"	8 3-11/16"	9 4-3/16"	10 4-11/16"	11 5-3/16"	12 5-11/16"	13 6-3/16"	14 6-11/16"	15 7-3/16"	16 7-11/16"
No. of Bearing Bars Panel Width	17 8-3/16"	18 8-11/16"	19 9-3/16"	20 9-11/16"	21 10-3/16"	22 10-11/16"	23 11-3/16"	24 11-11/16"	25 12-3/16"	26 12-11/16"	27 13-3/16"	28 13-11/16"	29 14-3/16"	30 14-11/16"	31 15-3/16"
No. of Bearing Bars Panel Width	32 15-11/16"	33 16-3/16"	34 16-11/16"	35 17-3/16"	36 17-11/16"	37 18-3/16"	38 18-11/16"	39 19-3/16"	40 19-11/16"	41 20-3/16"	42 20-11/16"	43 21-3/16"	44 21-11/16"	45 22-3/16"	46 22-11/16"
No. of Bearing Bars Panel Width	47 23-3/16"	48 23-11/16"	49 24-3/16"	50 24-11/16"	51 25-3/16"	52 25-11/16"	53 26-3/16"	54 26-11/16"	55 27-3/16"	56 27-11/16"	57 28-3/16"	58 28-11/16"	59 29-3/16"	60 29-11/16"	61 30-3/16"
No. of Bearing Bars Panel Width	62 30-11/16"	63 31-3/16"	64 31-11/16"	65 32-3/16"	66 32-11/16"	67 33-3/16"	68 33-11/16"	69 34-3/16"	70 34-11/16"	71 35-3/16"	72 35-11/16"				

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.