

Aluminum Bar Grating

15 Space Load Table

Use this table when evaluating spans and loads for the following types of aluminum grating:
15-ADT-4 and 15-ADT-2, 15-SG-4, 15-SG-2, 15-SGI-4, 15-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	2.4	3'-1"	U	450	288	200	147	113	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 ≤ 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							
			D	0.192	0.300	0.432	0.588	0.768								
			C	450	360	300	257	225								
3/4" I-Bar	2.0		D	0.154	0.240	0.346	0.470	0.614								
1 x 1/8	2.1	3'-6"	U	533	341	237	174	133	105							
			D	0.144	0.225	0.324	0.441	0.576	0.729							
			C	533	427	356	305	267	237							
			D	0.115	0.180	0.259	0.353	0.461	0.583							
1 x 3/16	3.1	3'-10"	U	800	512	356	261	200	158							
			D	0.144	0.225	0.324	0.441	0.576	0.729							
			C	800	640	533	457	400	356							
1" I-Bar	2.5		D	0.115	0.180	0.259	0.353	0.461	0.583							
1-1/4 x 1/8	2.6	4'-1"	U	833	533	370	272	208	165	133						
			D	0.115	0.180	0.259	0.353	0.461	0.583	0.720						
			C	833	667	556	476	417	370	333						
			D	0.092	0.144	0.207	0.282	0.369	0.467	0.576						
1-1/4 x 3/16	3.8	4'-7"	U	1,250	800	556	408	313	247	200	165	139				
			D	0.115	0.180	0.259	0.353	0.461	0.583	0.720	0.871	1.037				
			C	1,250	1,000	833	714	625	556	500	455	417				
1-1/4" I-Bar	2.9		D	0.092	0.144	0.207	0.282	0.369	0.467	0.576	0.697	0.829				
1-1/2 x 1/8	3.1	4'-8"	U	1,200	768	533	392	300	237	192	159	133	114	98	75	
			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	
			C	1,200	960	800	686	600	533	480	436	400	369	343	300	
			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	4.5	5'-3"	U	1,800	1,152	800	588	450	356	288	238	200	170	147	113	
			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	
			C	1,800	1,440	1,200	1,029	900	800	720	655	600	554	514	450	
1-1/2" I-Bar	3.4		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	3.6	5'-4"	U	1,633	1,045	726	533	408	323	261	216	182	155	133	102	
			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	
			C	1,633	1,307	1,089	933	817	726	653	594	544	503	467	408	
			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	5.3	5'-10"	U	2,450	1,568	1,089	800	613	484	392	324	272	232	200	153	
			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	
			C	2,450	1,960	1,633	1,400	1,225	1,089	980	891	817	754	700	613	
1-3/4" I-Bar	3.8		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	4.1	5'-10"	U	2,133	1,365	948	697	533	421	341	282	237	202	174	133	
			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	2,133	1,707	1,422	1,219	1,067	948	853	776	711	656	610	533	
			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	6.0	6'-6"	U	3,200	2,048	1,422	1,045	800	632	512	423	356	303	261	200	
			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	3,200	2,560	2,133	1,829	1,600	1,422	1,280	1,164	1,067	985	914	800	
2" I-Bar	4.3		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	6.7	7'-1"	U	4,050	2,592	1,800	1,322	1,013	800	648	536	450	383	331	253	
			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	
			C	4,050	3,240	2,700	2,314	2,025	1,800	1,620	1,473	1,350	1,246	1,157	1,013	
2-1/4" I-Bar	4.7		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	7.4	7'-8"	U	5,000	3,200	2,222	1,633	1,250	988	800	661	556	473	408	313	
			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	5,000	4,000	3,333	2,857	2,500	2,222	2,000	1,818	1,667	1,539	1,429	1,250	
2-1/2" I-Bar	5.2		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 15-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.

Number of Bearing Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Panel Width	1-1/8"	2-1/16"	3"	3-15/16"	4-7/8"	5-13/16"	6-3/4"	7-11/16"	8-5/8"	9-9/16"	10-1/2"	11-7/16"	12-3/8"	13-5/16"	14-1/4"
Number of Bearing Bars	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Panel Width	15-3/16"	16-1/8"	17-1/16"	18"	18-15/16"	19-7/8"	20-13/16"	21-3/4"	22-11/16"	23-5/8"	24-9/16"	25-1/2"	26-7/16"	27-3/8"	28-5/16"
Number of Bearing Bars	32	33	34	35	36	37	38	39							
Panel Width	29-1/4"	30-3/16"	31-1/8"	32-1/16"	33"	33-15/16"	34-7/8"	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.