

Aluminum Bar Grating

7 Space Load Table

Use this table when evaluating spans and loads for the following types of aluminum grating:
7-SG-4, 7-SG-2, 7-SGI-4, 7-SGI-2, 7-ADT-4 and 7-ADT-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	4.8	3'-9"	U	964	617	429	315	241	191	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								
3/4" I-Bar	3.8	3'-9"	C	964	771	643	551	482	429	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.							
			D	0.154	0.240	0.346	0.470	0.614	0.778								
1 x 1/8	4.3	4'-2"	U	1,143	731	508	373	286	226	183	Grating for spans to the left of the heavy line have a deflection ≤ 1/4" for uniform loads of 100 psf.						
			D	0.144	0.225	0.324	0.441	0.576	0.729	0.900							
1 x 3/16	6.3	4'-8"	C	1,143	914	762	653	571	508	U = Safe Uniform Load in pounds/sq. foot C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches							
			D	0.115	0.180	0.259	0.353	0.461	0.583							0.720	
1" I-Bar	4.8	4'-8"	C	1,714	1,371	1,143	980	857	762	U = Safe Uniform Load in pounds/sq. foot C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches							
			D	0.115	0.180	0.259	0.353	0.461	0.583							0.720	
1-1/4 x 1/8	5.3	4'-11"	U	1,786	1,143	794	583	446	353	286	236	U = Safe Uniform Load in pounds/sq. foot C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches					
			D	0.115	0.180	0.259	0.353	0.461	0.583	0.720	0.871						
1-1/4 x 3/16	7.9	5'-6"	C	1,786	1,429	1,191	1,020	893	794	714	U = Safe Uniform Load in pounds/sq. foot C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches						
			D	0.092	0.144	0.207	0.282	0.369	0.467	0.576							0.697
1-1/4" I-Bar	5.8	5'-6"	C	2,679	2,143	1,786	1,531	1,339	1,191	1,071	974	298	254	210	161		
			D	0.092	0.144	0.207	0.282	0.369	0.467	0.576	0.697	0.829	0.973	1.176	1.536		
1-1/2 x 1/8	6.3	5'-8"	U	2,571	1,646	1,143	840	643	508	411	340	286	243	210	161		
			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 x 3/16	9.4	6'-4"	C	2,571	2,057	1,714	1,469	1,286	1,143	1,029	935	857	791	735	643		
			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" I-Bar	6.8	6'-4"	C	3,857	2,469	1,714	1,260	964	762	617	510	429	365	315	241		
			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		
1-3/4 x 1/8	7.4	6'-5"	C	3,857	3,086	2,571	2,204	1,929	1,714	1,543	1,403	1,286	1,187	1,102	964		
			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	10.9	7'-1"	U	3,500	2,240	1,566	1,143	875	691	560	463	389	331	286	219		
			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	7.7	7'-1"	C	3,500	2,800	2,333	2,000	1,750	1,556	1,400	1,273	1,167	1,077	1,000	875		
			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	8.4	7'-1"	U	4,571	2,926	2,032	1,493	1,143	903	731	605	508	433	373	286		
			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 x 3/16	12.5	7'-10"	C	4,571	3,657	3,048	2,612	2,286	2,032	1,829	1,662	1,524	1,407	1,306	1,143		
			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" I-Bar	8.7	7'-10"	C	6,857	5,486	4,571	3,918	3,429	3,048	2,743	2,494	2,286	2,110	1,959	1,714		
			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	14.0	8'-7"	U	8,679	5,554	3,857	2,834	2,170	1,714	1,389	1,148	964	822	709	542		
			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" I-Bar	9.6	8'-7"	C	8,679	6,943	5,786	4,959	4,339	3,857	3,471	3,156	2,893	2,670	2,480	2,170		
			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	15.5	9'-3"	U	10,714	6,857	4,762	3,499	2,679	2,116	1,714	1,417	1,191	1,014	875	670		
			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	10.7	9'-3"	C	10,714	8,571	7,143	6,122	5,357	4,762	4,286	3,896	3,571	3,297	3,061	2,679		
			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 7-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	5/8"	1-1/16"	1-1/2"	1-15/16"	2-3/8"	2-13/16"	3-1/4"	3-11/16"	4-1/8"	4-9/16"	5"	5-7/16"	5-7/8"	6-5/16"	6-3/4"
Number of Bearing Bars	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Panel Width	7-3/16"	7-5/8"	8-1/16"	8-1/2"	8-15/16"	9-3/8"	9-13/16"	10-1/4"	10-11/16"	11-1/8"	11-9/16"	12"	12-7/16"	12-7/8"	13-5/16"
Number of Bearing Bars	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
Panel Width	13-3/4"	14-3/16"	14-5/8"	15-1/16"	15-1/2"	15-15/16"	16-3/8"	16-13/16"	17-1/4"	17-11/16"	18-1/8"	18-9/16"	19"	19-7/16"	19-7/8"
Number of Bearing Bars	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
Panel Width	20-5/16"	20-3/4"	21-3/16"	21-5/8"	22-1/16"	22-1/2"	22-15/16"	23-3/8"	23-13/16"	24-1/4"	24-11/16"	25-1/8"	25-9/16"	26"	26-7/16"
Number of Bearing Bars	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76
Panel Width	26-7/8"	27-5/16"	27-3/4"	28-3/16"	28-5/8"	29-1/16"	29-1/2"	29-15/16"	30-3/8"	30-13/16"	31-1/4"	31-11/16"	32-1/8"	32-9/16"	33"
Number of Bearing Bars	77	78	79	80	81	82	83								
Panel Width	33-7/16"	33-7/8"	34-5/16"	34-3/4"	35-3/16"	35-5/8"	36-1/16"								

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.