

Aluminum Bar Grating

7 Space Load Table

Use this table when evaluating spans and loads for the following types of aluminum grating:
7-ADT-4, 7-ADT-2, 7-SG-4, 7-SG-2

Wheelchair	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"					
Wheelchair	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.									
	3/4" I-Bar	3.8		D	0.192	0.300	0.432	0.588	0.768	0.972											
Wheelchair	1 x 1/8	4.3	4'-2"	U	1,143	731	508	373	286	226	183	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	0.144	0.225	0.324	0.441	0.576	0.729	0.900										
Wheelchair	1 x 3/16	6.3	4'-8"	U	1,714	1,097	762	560	429	339	274	227	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										
Wheelchair	1" I-Bar	4.8	4'-8"	C	1,143	1,371	1,143	980	857	762	686	1,089	623	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									
Wheelchair	1-1/4 x 1/8	5.3	4'-11"	U	1,786	1,143	794	583	446	353	286	236									
				D	0.115	0.180	0.259	0.353	0.461	0.583	0.720	0.871									
Wheelchair	1-1/4 x 3/16	7.9	5'-6"	U	2,679	1,714	1,191	875	670	529	429	354	298	254							
				D	0.115	0.180	0.259	0.353	0.461	0.583	0.720	0.871									
Wheelchair	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	893	824	735	643					
				D	0.092	0.144	0.207	0.282	0.369	0.467	0.576	0.697	0.829	0.973							
Wheelchair	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	1.356					
Wheelchair	1-1/2 x 3/16	9.4	6'-4"	U	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	1.356					
Wheelchair	1-1/2" I-Bar	6.8	6'-4"	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	1.094					
Wheelchair	1-3/4 x 1/8	7.4	6'-5"	U	3,500	2,240	1,556	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	1.157					
Wheelchair	1-3/4 x 3/16	10.9	7'-1"	U	5,250	3,360	2,333	1,714	1,313	1,037	840	694	583	497	429	328					
				D	0.082	0.129	0.185	0.252	0.329	0.417	0.514	0.622	0.741	0.869	1.008	1.157					
Wheelchair	1-3/4" I-Bar	7.7	7'-1"	C	5,250	4,200	3,500	3,000	2,625	2,333	2,100	1,909	1,750	1,615	1,500	1,313					
				D	0.066	0.103	0.148	0.202	0.263	0.333	0.411	0.498	0.592	0.695	0.806	0.922					
Wheelchair	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	1.014					
Wheelchair	2 x 3/16	12.5	7'-10"	U	6,857	4,389	3,048	2,239	1,714	1,355	1,097	907	762	649	560	429					
				D	0.072	0.113	0.162	0.221	0.288	0.365	0.450	0.545	0.648	0.761	0.882	1.014					
Wheelchair	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	0.811					
Wheelchair	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	0.904					
Wheelchair	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	0.719					
Wheelchair	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	0.811					
Wheelchair	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	0.643					

* 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.

No. of Bearing Bars Panel Width	2 5/8"	3 1-1/16"	4 1-1/2"	5 1-15/16"	6 2-3/8"	7 2-13/16"	8 3-1/4"	9 3-11/16"	10 4-1/8"	11 4-9/16"	12 5"	13 5-7/16"	14 5-7/8"	15 6-5/16"	16 6-3/4"
No. of Bearing Bars Panel Width	17 7-3/16"	18 7-5/8"	19 8-1/16"	20 8-1/2"	21 8-15/16"	22 9-3/8"	23 9-13/16"	24 10-1/4"	25 10-11/16"	26 11-1/8"	27 11-9/16"	28 12"	29 12-7/16"	30 12-7/8"	31 13-5/16"
No. of Bearing Bars Panel Width	32 13-3/4"	33 14-3/16"	34 14-5/8"	35 15-1/16"	36 15-1/2"	37 15-15/16"	38 16-3/8"	39 16-13/16"	40 17-1/4"	41 17-11/16"	42 18-1/8"	43 18-9/16"	44 19"	45 19-7/16"	46 19-7/8"
No. of Bearing Bars Panel Width	47 20-5/16"	48 20-3/4"	49 21-3/16"	50 21-5/8"	51 22-1/16"	52 22-1/2"	53 22-15/16"	54 23-3/8"	55 23-13/16"	56 24-1/4"	57 24-11/16"	58 25-1/8"	59 25-9/16"	60 26"	61 26-7/16"
No. of Bearing Bars Panel Width	62 26-7/8"	63 27-5/16"	64 27-3/4"	65 28-3/16"	66 28-5/8"	67 29-1/16"	68 29-1/2"	69 29-15/16"	70 30-3/8"	71 30-13/16"	72 31-1/4"	73 31-11/16"	74 32-1/8"	75 32-9/16"	76 33"
No. of Bearing Bars Panel Width	77 33-7/16"	78 33-7/8"	79 34-5/16"	80 34-3/4"	81 35-3/16"	82 35-5/8"	83 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.