

Steel Bar Grating

8 Space Load Table

Use this table when evaluating spans and loads for the following types of steel grating:
8-W-4, 8-W-2, 8-DT-4, 8-DT-2, 8-SL-4 and 8-SL-2

Accessibility	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"	9'-0"		
♿	3/4 x 3/16	12.3	4'-9"	U	1.266	810	563	413	316	250	203	167	All loads and deflections are theoretical and based upon the gross sections of the bearing bars, using a fiber stress of 18,000 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.						
				D	0.099	0.155	0.223	0.304	0.397	0.503	0.621	0.751						0.870	
				C	1.266	1.013	844	723	633	563	506	460						418	
				D	0.079	0.124	0.179	0.243	0.318	0.402	0.497	0.601						0.718	
♿	1 x 1/8	11.0	5'-3"	U	1.500	960	667	490	375	296	240	198	167	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load pounds/ft. of grating width D = Deflection in inches					
				D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670						
				C	1.500	1.200	1.000	857	750	667	600	546	500						
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536						
♿	1 x 3/16	16.2	5'-10"	U	2,250	1,440	1,000	735	563	444	360	298	250	213	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load pounds/ft. of grating width D = Deflection in inches				
				D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670						
				C	2,250	1,800	1,500	1,286	1,125	1,000	900	818	750						
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536						
♿	1-1/4 x 1/8	13.6	6'-3"	U	2,344	1,500	1,042	765	586	463	375	310	260	222	191	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load pounds/ft. of grating width D = Deflection in inches			
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536						
				C	2,344	1,875	1,563	1,339	1,172	1,042	938	852	781						
				D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429						
♿	1-1/4 x 3/16	20.0	6'-11"	U	3,516	2,250	1,563	1,148	879	694	563	465	391	333	287	220	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load pounds/ft. of grating width D = Deflection in inches		
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536						
				C	3,516	2,813	2,344	2,009	1,758	1,563	1,406	1,278	1,172						
				D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429						
♿	1-1/2 x 1/8	16.2	7'-2"	U	3,375	2,160	1,500	1,102	844	667	540	446	375	320	276	211	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load pounds/ft. of grating width D = Deflection in inches		
				D	0.050	0.078	0.112	0.152	0.199	0.251	0.310	0.376	0.447						
				C	3,375	2,700	2,250	1,929	1,688	1,500	1,350	1,227	1,125						
				D	0.040	0.062	0.089	0.122	0.159	0.201	0.248	0.300	0.358						
♿	1-1/2 x 3/16	24.0	7'-11"	U	5,063	3,240	2,250	1,653	1,266	1,000	810	669	563	479	413	316	250	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load pounds/ft. of grating width D = Deflection in inches	
				D	0.050	0.078	0.112	0.152	0.199	0.251	0.310	0.376	0.447						
				C	5,063	4,050	3,375	2,893	2,531	2,250	2,025	1,841	1,688						
				D	0.040	0.062	0.089	0.122	0.159	0.201	0.248	0.300	0.358						
♿	1-3/4 x 1/8	18.9	8'-1"	U	4,594	2,940	2,042	1,500	1,148	907	735	607	510	435	375	287	227	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load pounds/ft. of grating width D = Deflection in inches	
				D	0.043	0.067	0.096	0.130	0.170	0.215	0.266	0.322	0.383						
				C	4,594	3,675	3,063	2,625	2,297	2,042	1,838	1,671	1,531						
				D	0.034	0.053	0.077	0.104	0.136	0.172	0.213	0.257	0.306						
♿	1-3/4 x 3/16	27.9	8'-11"	U	6,891	4,410	3,063	2,250	1,723	1,361	1,103	911	766	652	563	431	340	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load pounds/ft. of grating width D = Deflection in inches	
				D	0.043	0.067	0.096	0.130	0.170	0.215	0.266	0.322	0.383						
				C	6,891	5,513	4,594	3,938	3,445	3,063	2,756	2,506	2,297						
				D	0.034	0.053	0.077	0.104	0.136	0.172	0.213	0.257	0.306						
♿	2 x 1/8	21.5	8'-11"	U	6,000	3,840	2,667	1,959	1,500	1,185	960	793	667	568	490	375	296	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load pounds/ft. of grating width D = Deflection in inches	
				D	0.037	0.058	0.084	0.114	0.149	0.189	0.233	0.282	0.335						
				C	6,000	4,800	4,000	3,429	3,000	2,667	2,400	2,182	2,000						
				D	0.030	0.047	0.067	0.091	0.119	0.151	0.186	0.225	0.268						
♿	2 x 3/16	31.8	9'-11"	U	9,000	5,760	4,000	2,939	2,250	1,778	1,440	1,190	1,000	852	735	563	444	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load pounds/ft. of grating width D = Deflection in inches	
				D	0.037	0.058	0.084	0.114	0.149	0.189	0.233	0.282	0.335						
				C	9,000	7,200	6,000	5,143	4,500	4,000	3,600	3,273	3,000						
				D	0.030	0.047	0.067	0.091	0.119	0.151	0.186	0.225	0.268						
♿	2-1/4 x 3/16	35.7	10'-10"	U	11,391	7,290	5,063	3,719	2,848	2,250	1,823	1,506	1,266	1,078	930	712	563	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load pounds/ft. of grating width D = Deflection in inches	
				D	0.033	0.052	0.074	0.101	0.132	0.168	0.207	0.250	0.298						
				C	11,391	9,113	7,594	6,509	5,695	5,063	4,556	4,142	3,797						
				D	0.026	0.041	0.060	0.081	0.106	0.134	0.166	0.200	0.238						
♿	2-1/2 x 3/16	39.6	11'-8"	U	14,063	9,000	6,250	4,592	3,516	2,778	2,250	1,860	1,563	1,331	1,148	879	694	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load pounds/ft. of grating width D = Deflection in inches	
				D	0.030	0.047	0.067	0.091	0.119	0.151	0.186	0.225	0.268						
				C	14,063	11,250	9,375	8,036	7,031	6,250	5,625	5,114	4,688						
				D	0.024	0.037	0.054	0.073	0.095	0.121	0.149	0.180	0.215						

* Weight per square foot based upon 8-W-4 grating. Add .60 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.

Welded grating types 8-W-4 and 8-W-2 are available in bearing bar depths from 3/4" to 2", and panels are available from stock in nominal 24" widths (24" max for type "W").

Panel Widths

Grating panels are available from stock in nominal 24" and 36" widths (24" max for type "W"). 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.

■ Indicates stock panel widths for types "DT" and "SL".

■ Indicates stock panel widths for type "W". (24" max)