

Steel Bar Grating

7 Space Load Table

Use this table when evaluating spans and loads for the following types of steel grating:
7-W-4, 7-W-2, 7-DT-4, 7-DT-2, 7-SL-4 and 7-SL-2

Wheelchair Access	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	13.9	4'-10"	U	1,446	926	643	472	362	286	231	191	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.	286	243	219	251				
				D	0.099	0.155	0.223	0.304	0.397	0.503	0.621	0.751						0.670	0.787	0.828	
				C	1,446	1,157	964	827	723	643	579	526						486	451	428	405
				D	0.079	0.124	0.179	0.243	0.318	0.402	0.497	0.601						0.719	0.847	0.984	1.131
☐	1 x 1/8	12.4	5'-6"	U	1,714	1,097	762	560	429	339	274	227	191	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches	286	243	219	251			
				D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670						0.787	0.914	
				C	1,714	1,371	1,143	980	857	762	686	623	571						526	486	451
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536						0.629	0.730	0.837
☐	1 x 3/16	18.3	6'-1"	U	2,571	1,646	1,143	840	643	508	411	340	286	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches	286	243	219	251			
				D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670						0.787	0.914	
				C	2,571	2,057	1,714	1,469	1,286	1,143	1,029	935	857						791	730	676
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536						0.629	0.730	0.837
☐	1-1/4 x 1/8	15.3	6'-6"	U	2,679	1,714	1,191	875	670	529	429	354	298	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches	286	243	219	251			
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536						0.629	0.730	
				C	2,679	2,143	1,786	1,531	1,339	1,191	1,071	974	893						824	765	706
				D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429						0.504	0.584	0.673
☐	1-1/4 x 3/16	22.7	7'-2"	U	4,018	2,571	1,786	1,312	1,005	794	643	531	446	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches	286	243	219	251			
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536						0.629	0.730	
				C	4,018	3,214	2,679	2,296	2,009	1,786	1,607	1,461	1,339						1,236	1,148	1,065
				D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429						0.504	0.584	0.673
☐	1-1/2 x 1/8	18.3	7'-5"	U	3,857	2,469	1,714	1,260	964	762	617	510	429	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches	286	243	219	251			
				D	0.050	0.078	0.112	0.152	0.199	0.251	0.310	0.376	0.447						0.524	0.608	
				C	3,857	3,086	2,571	2,204	1,929	1,714	1,543	1,403	1,286						1,187	1,102	1,026
				D	0.040	0.062	0.089	0.122	0.159	0.201	0.248	0.300	0.358						0.420	0.487	0.563
☐	1-1/2 x 3/16	27.2	8'-3"	U	5,786	3,703	2,571	1,889	1,446	1,143	926	765	643	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches	286	243	219	251			
				D	0.050	0.078	0.112	0.152	0.199	0.251	0.310	0.376	0.447						0.524	0.608	
				C	5,786	4,629	3,857	3,306	2,893	2,571	2,314	2,104	1,929						1,780	1,653	1,546
				D	0.040	0.062	0.089	0.122	0.159	0.201	0.248	0.300	0.358						0.420	0.487	0.563
☐	1-3/4 x 1/8	21.3	8'-4"	U	5,250	3,360	2,333	1,714	1,313	1,037	840	694	583	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches	286	243	219	251			
				D	0.043	0.067	0.096	0.130	0.170	0.215	0.266	0.322	0.383						0.450	0.521	
				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	0.034	0.053	0.077	0.104	0.136	0.172	0.213	0.257	0.306						0.360	0.417	0.485
☐	1-3/4 x 3/16	31.6	9'-3"	U	7,875	5,040	3,500	2,571	1,969	1,556	1,260	1,041	875	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches	286	243	219	251			
				D	0.043	0.067	0.096	0.130	0.170	0.215	0.266	0.322	0.383						0.450	0.521	
				C	7,875	6,300	5,250	4,500	3,938	3,500	3,150	2,864	2,625						2,423	2,250	1,969
				D	0.034	0.053	0.077	0.104	0.136	0.172	0.213	0.257	0.306						0.360	0.417	0.485
☐	2 x 1/8	24.3	9'-3"	U	6,857	4,389	3,048	2,239	1,714	1,355	1,097	907	762	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches	286	243	219	251			
				D	0.037	0.058	0.084	0.114	0.149	0.189	0.233	0.282	0.335						0.393	0.456	
				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	0.030	0.047	0.067	0.091	0.119	0.151	0.186	0.225	0.268						0.315	0.365	0.422
☐	2 x 3/16	36.0	10'-3"	U	10,286	6,583	4,571	3,359	2,571	2,032	1,646	1,360	1,143	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches	286	243	219	251			
				D	0.037	0.058	0.084	0.114	0.149	0.189	0.233	0.282	0.335						0.393	0.456	
				C	10,286	8,229	6,857	5,878	5,143	4,571	4,114	3,740	3,429						3,165	2,939	2,571
				D	0.030	0.047	0.067	0.091	0.119	0.151	0.186	0.225	0.268						0.315	0.365	0.422
☐	2-1/4 x 3/16	40.5	11'-2"	U	13,018	8,331	5,786	4,251	3,255	2,571	2,083	1,721	1,446	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches	286	243	219	251			
				D	0.033	0.052	0.074	0.101	0.132	0.168	0.207	0.250	0.298						0.350	0.406	
				C	13,018	10,414	8,679	7,439	6,509	5,786	5,207	4,734	4,339						4,006	3,719	3,255
				D	0.026	0.041	0.060	0.081	0.106	0.134	0.166	0.200	0.238						0.280	0.324	0.373
☐	2-1/2 x 3/16	44.9	12'-1"	U	16,071	10,286	7,143	5,248	4,018	3,175	2,571	2,125	1,786	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches	286	243	219	251			
				D	0.030	0.047	0.067	0.091	0.119	0.151	0.186	0.225	0.268						0.315	0.365	
				C	16,071	12,857	10,714	9,184	8,036	7,143	6,429	5,844	5,357						4,945	4,592	4,018
				D	0.024	0.037	0.054	0.073	0.095	0.121	0.149	0.180	0.215						0.252	0.292	0.341

* Weight per square foot based upon 7-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 7-W-4 and 7-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") (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. (24" max for type "W")

Number 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"
Number 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"
Number 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"
Number 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"
Number 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"
Number 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.

☐ Indicates stock panel widths for types "DT" and "SL". ■ Indicates stock panel widths for type "W". (24" max)