

Steel Bar Grating

11 Space Load Table

Use this table when evaluating spans and loads for the following types of steel grating:

11-SL-4 and 11-SL-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"	7'-6"	8'-0"			
3/4 x 3/16	9.1	4'-4"	U D C D	921 0.099 921 0.079	589 0.155 736 0.124	409 0.223 614 0.179	301 0.304 526 0.243	230 0.397 460 0.318	182 0.503 409 0.402	147 0.621 368 0.497	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.				
1 x 1/8	8.1	4'-11"	U D C D	1,091 0.074 1,091 0.060	698 0.116 873 0.093	485 0.168 727 0.134	356 0.228 623 0.182	273 0.298 546 0.238	216 0.377 485 0.302	175 0.466 436 0.372	144 0.563 397 0.451				U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches				
1 x 3/16	11.9	5'-5"	U D C D	1,636 0.074 1,636 0.060	1,047 0.116 1,309 0.093	727 0.168 1,091 0.134	534 0.228 935 0.182	409 0.298 818 0.238	323 0.377 727 0.302	262 0.466 655 0.372	216 0.563 595 0.451	182 0.670 546 0.536							
1-1/4 x 1/8	10.0	5'-9"	U D C D	1,705 0.060 1,705 0.048	1,091 0.134 1,364 0.074	758 0.134 1,136 0.107	557 0.182 974 0.146	426 0.238 852 0.191	337 0.302 758 0.241	273 0.372 682 0.298	225 0.451 620 0.360	189 0.536 568 0.429	161 0.629 525 0.504	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches					
1-1/4 x 3/16	14.7	6'-5"	U D C D	2,557 0.060 2,557 0.048	1,636 0.093 2,046 0.074	1,136 0.134 1,705 0.107	835 0.182 1,461 0.146	639 0.238 1,278 0.191	505 0.302 1,136 0.241	409 0.372 1,023 0.298	338 0.451 930 0.360	284 0.536 852 0.429	242 0.629 787 0.504	209 0.730 731 0.584					
1-1/2 x 1/8	11.9	6'-8"	U D C D	2,455 0.050 2,455 0.040	1,571 0.078 1,954 0.062	1,091 0.112 1,636 0.089	802 0.152 1,403 0.122	614 0.199 1,227 0.159	485 0.251 1,091 0.201	393 0.310 982 0.248	325 0.376 893 0.300	273 0.447 818 0.358	232 0.524 755 0.420	200 0.608 701 0.487	153 0.794 614 0.636	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches			
1-1/2 x 3/16	17.7	7'-4"	U D C D	3,682 0.050 3,382 0.040	2,356 0.078 2,946 0.062	1,636 0.112 2,455 0.089	1,202 0.152 2,104 0.122	921 0.199 1,841 0.159	727 0.251 1,636 0.201	589 0.310 1,473 0.248	487 0.376 1,339 0.300	409 0.447 1,227 0.358	349 0.524 1,133 0.420	301 0.608 1,052 0.487	230 0.794 921 0.636	182 1,006 818 0.804			
1-3/4 x 1/8	13.9	7'-5"	U D C D	3,341 0.043 3,341 0.034	2,138 0.067 2,673 0.053	1,485 0.096 2,227 0.077	1,091 0.130 1,909 0.104	835 0.170 1,671 0.136	660 0.215 1,485 0.172	535 0.266 1,336 0.213	442 0.322 1,215 0.257	371 0.383 1,114 0.306	316 0.450 1,028 0.360	273 0.521 955 0.417	209 0.681 835 0.548	165 0.862 742 0.689	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches		
1-3/4 x 3/16	20.5	8'-3"	U D C D	5,011 0.043 5,011 0.034	3,207 0.067 4,009 0.053	2,227 0.096 3,341 0.077	1,636 0.130 2,864 0.104	1,253 0.170 2,506 0.136	990 0.215 2,506 0.172	802 0.266 2,227 0.213	663 0.322 1,822 0.257	557 0.383 1,671 0.306	474 0.450 1,542 0.360	409 0.521 1,432 0.417	313 0.681 1,253 0.548	248 0.862 1,114 0.689			
2 x 1/8	15.8	8'-3"	U D C D	4,364 0.037 4,364 0.030	2,793 0.058 3,491 0.047	1,939 0.084 2,909 0.067	1,425 0.114 2,494 0.091	1,091 0.149 2,182 0.119	862 0.189 1,939 0.151	698 0.233 1,746 0.186	577 0.282 1,587 0.225	485 0.335 1,455 0.268	413 0.393 1,393 0.315	356 0.466 1,247 0.365	273 0.596 1,091 0.477	216 0.754 970 0.603	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches		
2 x 3/16	23.3	9'-1"	U D C D	6,546 0.037 6,546 0.030	4,189 0.058 5,236 0.047	2,909 0.084 4,364 0.067	2,137 0.114 3,740 0.091	1,636 0.149 3,273 0.119	1,293 0.189 2,909 0.151	1,047 0.233 2,619 0.186	866 0.282 2,380 0.225	727 0.335 2,182 0.268	620 0.393 2,014 0.315	534 0.456 1,870 0.365	409 0.596 1,636 0.477	323 0.754 1,455 0.603			
2-1/4 x 3/16	26.1	10'-0"	U D C D	8,284 0.033 8,284 0.026	5,302 0.052 6,627 0.041	3,682 0.074 5,523 0.060	2,705 0.101 4,734 0.081	2,071 0.132 4,142 0.106	1,636 0.168 3,682 0.134	1,326 0.207 3,314 0.166	1,095 0.250 3,012 0.200	921 0.298 2,761 0.238	784 0.350 2,549 0.280	676 0.406 2,367 0.324	518 0.530 2,071 0.424	409 0.670 1,841 0.536	U = Safe Uniform Load in pounds/sq. ft. C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches		
2-1/2 x 3/16	28.9	10'-9"	U D C D	10,227 0.030 10,227 0.024	6,546 0.047 8,182 0.037	4,546 0.067 6,818 0.054	3,340 0.091 5,844 0.073	2,557 0.119 5,114 0.095	2,020 0.151 4,546 0.121	1,636 0.186 4,091 0.149	1,352 0.225 3,719 0.180	1,136 0.268 3,409 0.215	968 0.315 3,147 0.252	835 0.365 2,922 0.292	639 0.477 2,557 0.381	505 0.603 2,273 0.483			

* Weight per square foot based upon 11-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.

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 7/8"	3 1-9/16"	4 2-1/4"	5 2-15/16"	6 3-5/8"	7 4-5/16"	8 5"	9 5-11/16"	10 6-3/8"	11 7-1/16"	12 7-3/4"	13 8-7/16"	14 9-1/8"	15 9-13/16"	16 10-1/2"
No. of Bearing Bars Panel Width	17 11-3/16"	18 11-7/8"	19 12-9/16"	20 13-1/4"	21 13-15/16"	22 14-5/8"	23 15-5/16"	24 16"	25 16-11/16"	26 17-3/8"	27 18-1/16"	28 18-3/4"	29 19-7/16"	30 20-1/8"	31 20-13/16"
No. of Bearing Bars Panel Width	32 21-1/2"	33 22-3/16"	34 22-7/8"	35 23-9/16"	36 24-1/4"	37 24-15/16"	38 25-5/8"	39 26-5/16"	40 27"	41 27-11/16"	42 28-3/8"	43 29-1/16"	44 29-3/4"	45 30-7/16"	46 31-1/8"
No. of Bearing Bars Panel Width	47 31-13/16"	48 32-1/2"	49 33-3/16"	50 33-7/8"	51 34-9/16"	52 35-1/4"	53 35-15/16"								

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.

Yellow indicates stock panel widths.