

Steel Bar Grating

19 Space

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

Load Table

19-W-4, 19-W-2, 19-DT-4, 19-DT-2, 19-SL-4 and 19-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	8'-0	9'-0						
3/4 x 1/8	3.9	3'-5"	U	355	227	158	116	89	70	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 $\leq 1/4"$ for uniform loads of 100 psf. U = Safe Uniform Load in pounds/sq. foot C = Concentrated Load in pounds/ft. of grating width D = Deflection in inches												
			D	0.099	0.155	0.223	0.304	0.397	0.503													
			C	355	284	237	203	178	158													
			D	0.079	0.124	0.179	0.243	0.318	0.402													
3/4 x 3/16	5.6	3'-10"	U	533	341	237	174	133	105	85												
			D	0.099	0.155	0.223	0.304	0.397	0.503	0.621												
			C	533	426	355	305	266	237	213												
			D	0.079	0.124	0.179	0.243	0.318	0.402	0.497												
1 x 1/8	5.0	4'-3"	U	632	404	281	206	158	125	101	84											
			D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563											
			C	632	505	421	361	316	281	253	230											
			D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451											
1 x 3/16	7.2	4'-9"	U	947	606	421	309	237	187	152	125	105										
			D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670										
			C	947	758	632	541	474	421	379	345	316										
			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	6.1	5'-1"	U	987	632	439	322	247	195	158	131	110	93									
			D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629									
			C	987	790	658	564	493	439	395	359	329	304									
			D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504									
1-1/4 x 3/16	8.9	5'-7"	U	1,480	947	658	483	370	292	237	196	165	140	121								
			D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730								
			C	1,480	1,184	987	846	740	658	592	538	493	456	423								
			D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584								
1-1/2 x 1/8	7.2	5'-10"	U	1,421	910	632	464	355	281	227	188	158	135	116								
			D	0.050	0.078	0.112	0.152	0.199	0.251	0.310	0.376	0.447	0.524	0.608								
			C	1,421	1,137	947	812	711	632	568	517	474	437	406								
			D	0.040	0.062	0.089	0.122	0.159	0.201	0.248	0.300	0.358	0.420	0.487								
1-1/2 x 3/16	10.7	6'-5"	U	2,132	1,364	947	696	533	421	341	282	237	202	174	133							
			D	0.050	0.078	0.112	0.152	0.199	0.251	0.310	0.376	0.447	0.524	0.608	0.794							
			C	2,132	1,705	1,421	1,218	1,066	947	853	775	711	656	609	533							
			D	0.040	0.062	0.089	0.122	0.159	0.201	0.248	0.300	0.358	0.420	0.487	0.636							
1-3/4 x 1/8	8.5	6'-6"	U	1,934	1,238	860	632	484	382	310	256	215	183	158	121	96						
			D	0.043	0.067	0.096	0.130	0.170	0.215	0.266	0.322	0.383	0.450	0.521	0.681	0.862						
			C	1,934	1,547	1,290	1,105	967	860	774	703	645	595	553	484	430						
			D	0.034	0.053	0.077	0.104	0.136	0.172	0.213	0.257	0.306	0.360	0.417	0.545	0.689						
1-3/4 x 3/16	12.3	7'-3"	U	2,901	1,857	1,290	947	725	573	464	384	322	275	237	181	143						
			D	0.043	0.067	0.096	0.130	0.170	0.215	0.266	0.322	0.383	0.450	0.521	0.681	0.862						
			C	2,901	2,321	1,934	1,658	1,451	1,290	1,161	1,055	967	893	829	725	645						
			D	0.034	0.053	0.077	0.104	0.136	0.172	0.213	0.257	0.306	0.360	0.417	0.545	0.689						
2 x 1/8	9.6	7'-4"	U	2,526	1,617	1,123	825	632	499	404	334	281	239	206	158	125						
			D	0.037	0.058	0.084	0.114	0.149	0.189	0.233	0.282	0.335	0.393	0.456	0.596	0.754						
			C	2,526	2,021	1,684	1,444	1,263	1,123	1,011	919	842	777	722	632	561						
			D	0.030	0.047	0.067	0.091	0.119	0.151	0.186	0.225	0.268	0.315	0.365	0.477	0.603						
2 x 3/16	13.9	8'-0"	U	3,790	2,425	1,684	1,237	947	749	606	501	421	359	309	237	187						
			D	0.037	0.058	0.084	0.114	0.149	0.189	0.233	0.282	0.335	0.393	0.456	0.596	0.754						
			C	3,790	3,032	2,526	2,165	1,895	1,684	1,516	1,378	1,263	1,166	1,083	947	842						
			D	0.030	0.047	0.067	0.091	0.119	0.151	0.186	0.225	0.268	0.315	0.365	0.477	0.603						
2-1/4 x 3/16	15.6	8'-9"	U	4,796	3,070	2,132	1,566	1,199	947	767	634	533	454	392	300	237						
			D	0.033	0.052	0.074	0.101	0.132	0.168	0.207	0.250	0.298	0.350	0.406	0.530	0.670						
			C	4,796	3,837	3,197	2,741	2,398	2,132	1,918	1,744	1,599	1,476	1,370	1,199	1,066						
			D	0.026	0.041	0.060	0.081	0.106	0.134	0.166	0.200	0.238	0.280	0.324	0.424	0.536						
2-1/2 x 3/16	17.2	9'-5"	U	5,921	3,790	2,632	1,933	1,480	1,170	947	783	658	561	483	370	292						
			D	0.030	0.047	0.067	0.091	0.119	0.151	0.186	0.225	0.268	0.315	0.365	0.477	0.603						
			C	5,921	4,737	3,947	3,384	2,961	2,632	2,368	2,153	1,974	1,822	1,692	1,480	1,316						
			D	0.024	0.037	0.054	0.073	0.095	0.121	0.149	0.180	0.215	0.252	0.292	0.381	0.483						

* Weight per square foot based upon 19-W-4 grating. Add .60 psf for 2" on center cross bars.

** Maximum pedestrian load is defined as a 100# Uniform Load with deflection $\leq 1/4$ 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", 36" and 48" 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	1-3/8"	2-9/16"	3-3/4"	4-15/16"	6-1/8"	7-5/16"	8-1/2"	9-11/16"	10-7/8"	12-1/16"	13-1/4"	14-7/16"	15-5/8"	16-13/16"	18"
Number of Bearing Bars	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Panel Width	19-3/16"	20-3/8"	21-9/16"	22-3/4"	23-15/16"	25-1/8"	26-5/16"	27-1/2"	28-11/16"	29-7/8"	31-1/16"	32-1/4"	33-7/16"	34-5/8"	35-13/16"
Number of Bearing Bars	32	33	34	35	36	37	38	39	40	41					
Panel Width	37	38.1875	39.375	40.5625	41.75	42.9375	44.125	45.3125	46.5	47.6875					

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.