

# Aluminum Grating

## 19-4 / 19-2 LOAD TABLE

BEARING BAR SIZE	UNSUPPORTED SPAN													WEIGHT PER SQ. FT.(LBS.)																
	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"	19-4	19-2	15-4	15-2	7-4	7-2											
1 X 1/8	U	421	269	187	137	105	83	CONVERSION TABLE: The loads shown above are for type 19-4 and 19-2 gratings. To determine the load capacity for alternative bar spacings, multiply the loads given by the following conversion factors (DEFLECTION REMAINS CONSTANT):													1.8	2.2	2.2	2.6	4.4	4.7				
	D	0.144	0.225	0.324	0.441	0.576	0.729																							
	C	421	337	281	241	211	187																							
	D	0.115	0.180	0.259	0.353	0.461	0.583																							
1 X 3/16 OR 1" I-BAR	U	632	404	281	206	158	125	FOR TYPES 15-4 AND 15-2: 1.26			FOR TYPES 11-4 AND 11-2: 1.72			FOR TYPES 7-4 AND 7-2: 2.71			2.6	2.9	3.2	3.5	6.4	6.7								
	D	0.144	0.225	0.324	0.441	0.576	0.729																							
	C	632	505	421	361	316	281																							
	D	0.115	0.180	0.259	0.353	0.461	0.583																							
1-1/4 X 1/8	U	658	421	292	215	164	130	105	87	73											2.2	2.5	2.7	3	5.4	5.7				
	D	0.115	0.180	0.259	0.353	0.461	0.583	0.720	0.871	1.037																				
	C	658	526	439	376	329	292	263	239	219																				
	D	0.092	0.144	0.207	0.282	0.369	0.467	0.576	0.697	0.829																				
1-1/4 X 3/16 OR 1-1/4" I-BAR	U	987	632	439	322	247	195	158	130	110	93	81											3.1	3.5	3.9	4.2	7.9	8.3		
	D	0.115	0.180	0.259	0.353	0.461	0.583	0.720	0.871	1.037	1.217	1.411																		
	C	987	789	658	564	493	439	395	359	329	304	282																		
	D	0.092	0.144	0.207	0.282	0.369	0.467	0.576	0.697	0.829	0.973	1.129																		
1-1/2 X 1/8	U	947	606	421	309	237	187	152	125	105	90	77	67	59											2.6	2.9	3.2	3.5	6.4	6.7
	D	0.096	0.150	0.216	0.294	0.384	0.486	0.600	0.726	0.864	1.014	1.176	1.350	1.536																
	C	947	758	632	541	474	421	379	344	316	291	271	253	237																
	D	0.077	0.120	0.173	0.235	0.307	0.389	0.480	0.581	0.691	0.811	0.941	1.080	1.229																
1-1/2 X 3/16 OR 1-1/2" I-BAR	U	1421	909	632	464	355	281	227	188	158	135	116	101	89											3.7	4	4.6	4.9	9.4	9.8
	D	0.096	0.150	0.216	0.294	0.384	0.486	0.600	0.726	0.864	1.014	1.176	1.350	1.536																
	C	1421	1137	947	812	711	632	568	517	474	437	406	379	355																
	D	0.077	0.120	0.173	0.235	0.307	0.389	0.480	0.581	0.691	0.811	0.941	1.080	1.229																
1-3/4X3/16 OR 1-3/4" I-BAR	U	1934	1238	860	632	484	382	309	256	215	183	158	138	121											4.2	4.6	5.3	5.6	10.9	11.3
	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	1.317																
	C	1934	1547	1289	1105	967	860	774	703	645	595	553	516	484																
	D	0.066	0.103	0.148	0.202	0.263	0.333	0.411	0.498	0.592	0.695	0.806	0.926	1.053																
2X3/16 OR 2" I-BAR	U	2526	1617	1123	825	632	499	404	334	281	239	206	180	158											4.8	5.1	6	6.3	12.4	12.8
	D	0.072	0.113	0.162	0.221	0.288	0.365	0.450	0.545	0.648	0.761	0.882	1.013	1.152																
	C	2526	2021	1684	1444	1263	1123	1011	919	842	777	722	674	632																
	D	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608	0.706	0.810	0.922																
2-1/4 X 3/16 OR 2-1/4" I-BAR	U	3197	2046	1421	1044	799	632	512	423	355	303	261	227	200											5.4	5.7	6.7	7	14	14.3
	D	0.064	0.100	0.144	0.196	0.256	0.324	0.400	0.484	0.576	0.676	0.784	0.900	1.024																
	C	3197	2558	2132	1827	1599	1421	1279	1163	1066	984	914	853	799																
	D	0.051	0.080	0.115	0.157	0.205	0.259	0.320	0.387	0.461	0.541	0.627	0.720	0.819																
2-1/2 X 3/16 OR 2-1/2" I-BAR	U	3947	2526	1754	1289	987	780	632	522	439	374	322	281	247											5.9	6.3	7.4	7.7	15.5	15.8
	D	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608	0.706	0.810	0.922																
	C	3947	3158	2632	2256	1974	1754	1579	1435	1316	1215	1128	1053	987																
	D	0.046	0.072	0.104	0.141	0.184	0.233	0.288	0.348	0.415	0.487	0.564	0.648	0.737																

Loads and deflections are theoretical values based on 12,000 psi unit stress. For pedestrian comfort deflections in excess of 1/4" are not recommended.

U= safe uniform load, lbs.Per sq.Ft. of grating width C= safe concentrated mid-span load, lbs. Per ft. of grating width

D= deflections

**Note:** when gratings with serrated bearing bars are selected, the depth of grating required to service a specified load will be 1/4" greater than that shown in the tables above.

### SELECTION GUIDE: 19-4 PLAIN SURFACE GRATING

For deflection of not more than 1/4" when subjected to the severest of the following: (1) the uniform loads below; (2) under concentrated mid-span loads of 300 lbs. up to 6'-0" span; or (3) 400 lbs. for spans 6'-0" and over.

SAFE UNIFORM LOAD LBS./ SQ.FT.																				
50	1 x 1/8	1 x 1/8	1 x 3/16	1 x 3/16	1 x 3/16	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16									
75	1 x 1/8	1 x 1/8	1 x 3/16	1 x 3/16	1-1/4 x 3/16	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16									
100	1 x 1/8	1 x 1/8	1 x 3/16	1 x 3/16	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16									
125	1 x 1/8	1 x 1/8	1 x 3/16	1-1/4 x 3/16	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16									
150	1 x 1/8	1 x 1/8	1 x 3/16	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16										
200	1 x 1/8	1 x 1/8	1 x 3/16	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16											
300	1 x 1/8	1 x 3/16	1-1/4 x 3/16	1-1/2 x 3/16	1-3/4 x 3/16	2 x 3/16	2-1/4 x 3/16	2-1/2 x 3/16												

The sizes shown above are listed as minimums, twisted and round cross bars are typically interchangeable and, unless otherwise specified, may be substituted at the discretion of the manufacturer. In substitution, the cross sectional area of the alternative cross bar shall equal or exceed that of the minimum size listed above.

