Steel Bar Grating

Welded Steel Bar Grating is the most popular of all grating types due to its strength, cost-efficient production and ease of installation. Universally used in most general industrial plants as well as commercial buildings, it has wide applications as walkways, platforms, safety barriers, drainage covers and ventilation grates.

It is also ideal for use as mezzanine decking since it supports the same loads as comparable solid flooring. More than that, its cost saving openness maximizes the circulation of air, light, heat, water and sound, while promoting cleanliness. And, where insurance codes permit, additional sprinklers can often be eliminated. Standard panels are available in widths of 2', 3' or 4'.

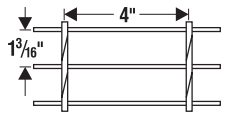
Welded steel bar grating is resistance welded to create a rugged, one-piece constructed panel. The bearing bars are automatically resistance welded at the contact point with the cross bars and, under a combination of high heat and pressure, are fused together to form a permanent joint. The cross bars provide a high degree of rigidity, yet retain a smooth flat surface for free and easy walking.

Press-Locked Steel Bar Grating is often desirable because of its clean, smooth look and excellent lateral support. It exhibits the same strength, long life and openness as welded grating, although it is not recommended for rolling loads. Instead of welding the joints, however, tremendous hydraulic pressure is used to bond the two close-tolerance slotted bars together. Permanent locking is achieved by forcing the deep cross bar into the notched bearing bar.

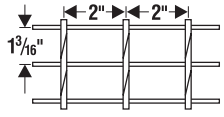
Further fabrication or galvanizing is not recommended after the material leaves AMICO®.

Steel Welded Railroad Grating, in 1-9/16" and 1-11/16" spacings, is AAR (Association of American Railroads) approved and specified for brake steps, running boards, walkways and platforms for railroad cars. Designed and engineered specifically for railroad use, AMICO-Klemp® railroad grating is used by both new car and car repair facilities since it is interchangeable with other AAR approved gratings. The serrated bearing bars provide additional safety and the openness of bar grating minimizes build up of snow, ice and other debris.

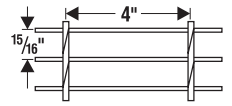
WELDED STEEL BAR GRATING



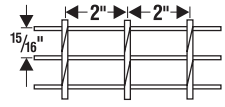
19-W-4



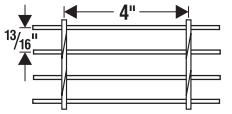
19-W-2



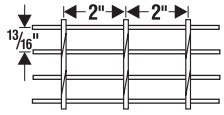
15-W-4



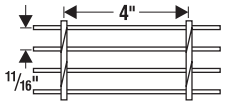
15-W-2



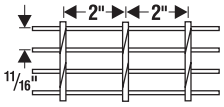
13-W-4



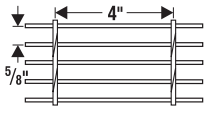
13-W-2



11-W-4



11-W-2



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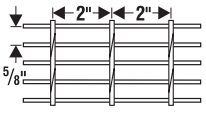

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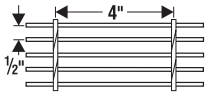
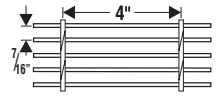


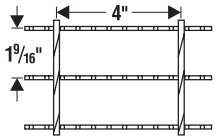
8-W-4



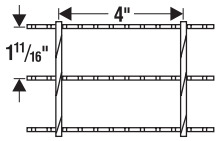
7-W-4

Std. Panel width 2'-0 & 3'-0
4'-0 wide on some styles of
welded and press-locked
(upon request)

STEEL WELDED RAILROAD GRATING (AAR APPROVED)

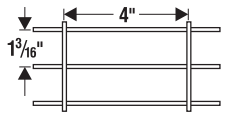


25-W-4

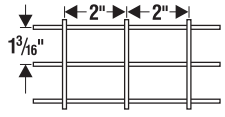


27-W-4

PRESS-LOCKED STEEL BAR GRATING



19-P-4



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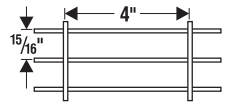
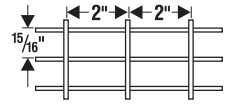


15-P-4



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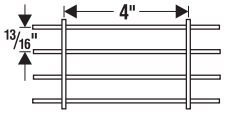

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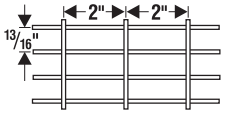

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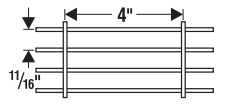

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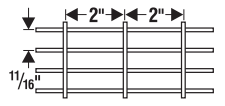

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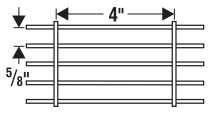
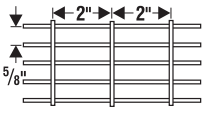
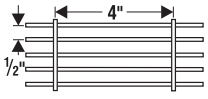


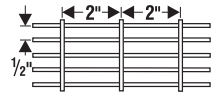
10-P-4



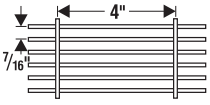
10-P-2



8-P-4



8-P-2



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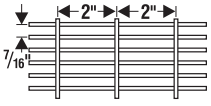


7-P-2

Steel Bar Grating

WELDED (W) 1-3/16" C/C Bearing Bars

19-W-4

Cross Rods 4" C/C

19-W-2

Cross Rods 2" C/C

NON-SERRATED & SERRATED

PRESS-LOCKED (P) 1-3/16" C/C Bearing Bars

19-P-4

Cross Bars 4" C/C

19-P-2

Cross Bars 2" C/C

NON-SERRATED & SERRATED

LOAD & DEFLECTION TABLE

General: Loads and deflections are theoretical and based on static loading.

U = safe uniform load, psf (page 92)
C = safe concentrated load, pfw (page 92)
D = deflection, inches
E = modulus of elasticity, 29,000,000 psi
F = fiber stress, 18,000 psi
Material: ASTM A-1011 standard

Deflection: Spans and loads to the right of the bold line exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. These can be exceeded for other types of loads with engineer's approval.

Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table.

Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width		SPAN (Direction of Bearing Bar) 24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	96"	108"
3/4" x 1/8"	19-W-4	3.9	0.118	U	355	227	158	116	89	70							
				D	0.099	0.155	0.223	0.304	0.397	0.503							
	19-P-4	4.3		C	355	284	237	203	178	158							
	19-P-2	5.2		D	0.079	0.124	0.179	0.243	0.318	0.402							
3/4" x 3/16"	19-W-4	5.6	0.178	U	533	341	237	174	133	105							
				D	0.099	0.155	0.223	0.304	0.397	0.503							
	19-P-4	6.4		C	533	426	355	305	266	237							
	19-P-2	7.8		D	0.079	0.124	0.179	0.243	0.318	0.402							
1" x 1/8"	19-W-4	5.0	0.211	U	632	404	281	206	158	125	101	84					
	19-W-2	5.5		D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563					
	19-P-4	5.4		C	632	505	421	361	316	281	253	230					
	19-P-2	6.3		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451					
1" x 3/16"	19-W-4	7.2	0.316	U	947	606	421	309	237	187	152	125					
	19-W-2	7.8		D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563					
	19-P-4	8.1		C	947	758	632	541	474	421	379	344					
	19-P-2	9.5		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451					
1-1/4" x 1/8"	19-W-4	6.1	0.329	U	987	632	439	322	247	195	158	130	110	93	81		
	19-W-2	6.6		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730		
	19-P-4	6.8		C	987	789	658	564	493	439	395	359	329	304	282		
	19-P-2	8.1		D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584		
1-1/4" x 3/16"	19-W-4	8.9	0.493	U	1480	947	658	483	370	292	237	196	164	140	121		
	19-W-2	9.5		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730		
	19-P-4	10.2		C	1480	1184	987	846	740	658	592	538	493	455	423		
	19-P-2	12.1		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"	19-W-4	7.2	0.474	U	1421	909	632	464	355	281	227	188	158	135	116	89	70
	19-W-2	7.7		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	1.006
	19-P-4	7.9		C	1421	1137	947	812	711	632	568	517	474	437	406	355	316
	19-P-2	9.2		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	0.804
1-1/2" x 3/16"	19-W-4	10.5	0.711	U	2132	1364	947	696	533	421	341	282	237	202	174	133	105
	19-W-2	11.2		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	1.006
	19-P-4	11.8		C	2132	1705	1421	1218	1066	947	853	775	711	656	609	533	474
	19-P-2	13.8		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	0.804
1-3/4" x 3/16"	19-W-4	12.2	0.967	U	2901	1857	1289	947	725	573	464	384	322	275	237	181	143
	19-W-2	12.8		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
	19-P-4	13.5		C	2901	2321	1934	1658	1451	1289	1161	1055	967	893	829	725	645
	19-P-2	15.4		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 3/16"	19-W-4	13.9	1.263	U	3789	2425	1684	1237	947	749	606	501	421	359	309	237	187
	19-W-2	14.5		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
	19-P-4	15.2		C	3789	3032	2526	2165	1895	1684	1516	1378	1263	1166	1083	947	842
	19-P-2	17.1		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"	19-W-4	15.5	1.599	U	4796	3069	2132	1566	1199	947	767	634	533	454	392	300	237
	19-W-2	16.1		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
	19-P-4	16.8		C	4796	3837	3197	2741	2398	2132	1918	1744	1599	1476	1370	1199	1066
	19-P-2	18.7		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"	19-W-4	17.2	1.974	U	5921	3789	2632	1933	1480	1170	947	783	658	561	483	370	292
	19-W-2	17.8		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
	19-P-4	18.5		C	5921	4737	3947	3383	2961	2632	2368	2153	1974	1822	1692	1480	1316
	19-P-2	20.4		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

W/P-19 PANEL WIDTH (inches)

Note: P-Press-Locked cross bars typically extend 1/8" each side. W-Welded cross rods may extend 1/8" each side. Panel widths do not include these extensions.

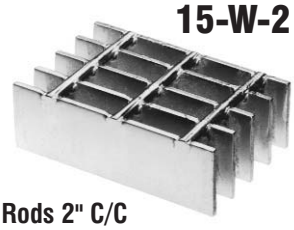
No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1/8" Bar	1 5/16	2 1/2	3 11/16	4 7/8	6 1/16	7 1/4	8 7/16	9 5/8	10 13/16	12	13 3/16	14 3/8	15 9/16	16 3/4	17 15/16
3/16" Bar	1 3/8	2 9/16	3 3/4	4 15/16	6 1/8	7 5/16	8 1/2	9 11/16	10 7/8	12 1/16	13 1/4	14 7/16	15 5/8	16 13/16	18
No. of Bars	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**
1/8" Bar	19 1/8	20 5/16	21 1/2	22 11/16	23 7/8	25 1/16	26 1/4	27 7/16	28 5/8	29 13/16	31	32 3/16	33 3/8	34 9/16	35 3/4
3/16" Bar	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

Steel Bar Grating

WELDED (W) 15/16" C/C Bearing Bars

15-W-4

Cross Rods 4" C/C



15-W-2

Cross Rods 2" C/C

NON-SERRATED & SERRATED

PRESS-LOCKED (P) 15/16" C/C Bearing Bars

15-P-4

Cross Bars 4" C/C

15-P-2

Cross Bars 2" C/C

NON-SERRATED & SERRATED

LOAD & DEFLECTION TABLE

General: Loads and deflections are theoretical and based on static loading.

U = safe uniform load, psf (page 92)
C = safe concentrated load, pfw(page 92)
D = deflection, inches
E = modulus of elasticity, 29,000,000 psi
F = fiber stress, 18,000 psi
Material: ASTM A-1011

Deflection: Spans and loads to the right of the bold line exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. These can be exceeded for other types of loads with engineer's approval.

Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table.

Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width		SPAN (Direction of Bearing Bar) 24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	96"	108"
3/4" x 1/8"	15-W-4	4.7	0.150	U	450	288	200	147	113	89							
				D	0.099	0.155	0.223	0.304	0.397	0.503							
	15-P-4	5.1		C	450	360	300	257	225	200							
	15-P2	6.1		D	0.079	0.124	0.179	0.243	0.318	0.402							
3/4" x 3/16"	15-W-4	6.9	0.225	U	675	432	300	220	169	133	108						
				D	0.099	0.155	0.223	0.304	0.397	0.503	0.621						
	15-P-4	7.7		C	675	540	450	386	338	300	270						
	15-P-2	9.1		D	0.079	0.124	0.179	0.243	0.318	0.402	0.497						
1" x 1/8"	15-W-4	6.1	0.267	U	800	512	356	261	200	158	128	106	89				
	15-W-2	6.7		D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670				
	15-P-4	6.5		C	800	640	533	457	400	356	320	291	267				
	15-P-2	7.5		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536				
1" x 3/16"	15-W-4	8.9	0.400	U	1200	768	533	392	300	237	192	159	133				
	15-W-2	9.6		D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670				
	15-P-4	9.8		C	1200	960	800	686	600	533	480	436	400				
	15-P-2	11.2		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"	15-W-4	7.5	0.417	U	1250	800	556	408	313	247	200	165	139	118	102		
	15-W-2	8.1		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730		
	15-P-4	8.2		C	1250	1000	833	714	625	556	500	455	417	385	357		
	15-P-2	9.5		D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584		
1-1/4" x 3/16"	15-W-4	11.0	0.625	U	1875	1200	833	612	469	370	300	248	208	178	153		
	15-W-2	11.6		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730		
	15-P-4	12.3		C	1875	1500	1250	1071	938	833	750	682	625	577	536		
	15-P-2	14.2		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"	15-W-4	8.9	0.600	U	1800	1152	800	588	450	356	288	238	200	170	147	113	89
	15-W-2	9.4		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	1.006
	15-P-4	9.6		C	1800	1440	1200	1029	900	800	720	655	600	554	514	450	400
	15-P-2	10.9		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	0.804
1-1/2" x 3/16"	15-W-4	13.1	0.900	U	2700	1728	1200	882	675	533	432	357	300	256	220	169	133
	15-W-2	13.7		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	1.006
	15-P-4	14.4		C	2700	2160	1800	1543	1350	1200	1080	982	900	831	771	675	600
	15-P-2	16.3		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	0.804
1-3/4" x 3/16"	15-W-4	15.2	1.225	U	3675	2352	1633	1200	919	726	588	486	408	348	300	230	181
	15-W-2	15.8		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
	15-P-4	16.5		C	3675	2940	2450	2100	1838	1633	1470	1336	1225	1131	1050	919	817
	15-P-2	18.4		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 3/16"	15-W-4	17.3	1.600	U	4800	3072	2133	1567	1200	948	768	635	533	454	392	300	237
	15-W-2	17.9		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
	15-P-4	18.6		C	4800	3840	3200	2743	2400	2133	1920	1745	1600	1477	1371	1200	1067
	15-P-2	20.5		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-W-4	19.4	2.025	U	6075	3888	2700	1984	1519	1200	972	803	675	575	496	380	300
	15-W-2	20.0		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
	15-P-4	20.7		C	6075	4860	4050	3471	3038	2700	2430	2209	2025	1869	1736	1519	1350
	15-P-2	22.6		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"	15-W-4	21.4	2.500	U	7500	4800	3333	2449	1875	1481	1200	992	833	710	612	469	370
	15-W-2	22.0		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
	15-P-4	22.7		C	7500	6000	5000	4286	3750	3333	3000	2727	2500	2308	2143	1875	1667
	15-P-2	24.7		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

W/P-15 PANEL WIDTH (inches)

Note: P-Press Locked cross bars typically extend 1/8" each side. W-Welded cross rods may extend 1/8" each side. Panel widths do not include these extensions.

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1/8" Bar	1 1/16	2	2 15/16	3 7/8	4 13/16	5 3/4	6 11/16	7 5/8	8 9/16	9 1/2	10 7/16	11 3/8	12 5/16	13 1/4	14 3/16	15 1/8	16 1/16	17	17 15/16
3/16" Bar	1 1/8	2 1/16	3	3 15/16	4 7/8	5 13/16	6 3/4	7 11/16	8 5/8	9 9/16	10 1/2	11 7/16	12 3/8	13 5/16	14 1/4	15 3/16	16 1/8	17 1/16	18
No. of Bars	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**
1/8" Bar	18 7/8	19 13/16	20 3/4	21 11/16	22 5/8	23 9/16	24 1/2	25 7/16	26 3/8	27 5/16	28 1/4	29 3/16	30 1/8	31 1/16	32	32 15/16	33 7/8	34 13/16	35 3/4
3/16" Bar	18 15/16	19 7/8	20 13/16	21 3/4	22 11/16	23 5/8	24 9/16	25 1/2	26 7/16	27 3/8	28 5/16	29 1/4	30 3/16	31 1/8	32 1/16	33	33 15/16	34 7/8	35 13/16

AMICO®

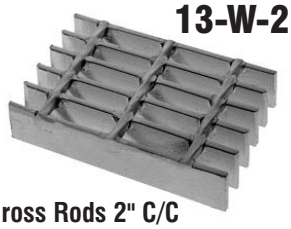
Steel Bar Grating Close-Mesh

WELDED (W) 13/16" C/C Bearing Bars

13-W-4

Cross Rods 4" C/C

13-W-2

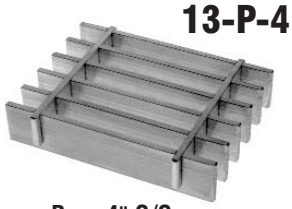


Cross Rods 2" C/C

NON-SERRATED

PRESS-LOCKED (P) 13/16" C/C Bearing Bars

13-P-4



Cross Bars 4" C/C

13-P-2

Cross Bars 2" C/C

NON-SERRATED & SERRATED

LOAD & DEFLECTION TABLE

General: Loads and deflections are theoretical and based on static loading.

U = safe uniform load, psf (page 92)
C = safe concentrated load, pfw (page 92)
D = deflection, inches
E = modulus of elasticity, 29,000,000 psi
F = fiber stress, 18,000 psi
Material: ASTM A-1011

Deflection: Spans and loads to the right of the bold line exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. These can be exceeded for other types of loads with engineer's approval.

Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table.

Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width		SPAN (Direction of Bearing Bar) 24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	96"	108"
3/4" x 1/8"	13-W-4	5.3	0.173	U	519	332	231	170	130	103							
				D	0.099	0.155	0.223	0.304	0.397	0.503							
	13-P-4	5.8		C	519	415	346	297	260	231							
	13-P-2	6.7		D	0.079	0.124	0.179	0.243	0.318	0.402							
3/4" x 3/16"	13-W-4	7.8	0.260	U	779	498	346	254	195	154	125						
				D	0.099	0.155	0.223	0.304	0.397	0.503	0.621						
	13-P-4	8.6		C	779	623	519	445	389	346	312						
	13-P-2	10.1		D	0.079	0.124	0.179	0.243	0.318	0.402	0.497						
1" x 1/8"	13-W-4	6.5	0.308	U	923	591	410	301	231	182	148	122	103				
	13-W-2	7.5		D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670				
	13-P-4	7.4		C	923	738	615	527	462	410	369	336	308				
	13-P-2	8.3		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536				
1" x 3/16"	13-W-4	10.2	0.462	U	1385	886	615	452	346	274	222	183	154				
	13-W-2	10.8		D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670				
	13-P-4	11.0		C	1385	1108	923	791	692	615	554	503	462				
	13-P-2	12.4		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-W-4	8.5	0.481	U	1442	923	641	471	361	285	231	191	160	137	118		
	13-W-2	9.1		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730		
	13-P-4	9.3		C	1442	1154	962	824	721	641	577	524	481	444	412		
	13-P-2	10.5		D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584		
1-1/4" x 3/16"	13-W-4	12.6	0.721	U	2163	1385	962	706	541	427	346	286	240	205	177		
	13-W-2	13.2		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730		
	13-P-4	13.9		C	2163	1731	1442	1236	1082	962	865	787	721	666	618		
	13-P-2	15.8		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"	13-W-4	10.1	0.692	U	2077	1329	923	678	519	410	332	275	231	197	170	130	103
	13-W-2	10.7		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	1.006
	13-P-4	10.9		C	2077	1662	1385	1187	1038	923	831	755	692	639	593	519	462
	13-P-2	12.1		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	0.804
1-1/2" x 3/16"	13-W-4	15.0	1.038	U	3115	1994	1385	1017	779	615	498	412	346	295	254	195	154
	13-W-2	15.6		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	1.006
	13-P-4	16.3		C	3115	2492	2077	1780	1558	1385	1246	1133	1038	959	890	779	692
	13-P-2	18.2		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	0.804
1-3/4" x 3/16"	13-W-4	17.4	1.413	U	4240	2714	1885	1385	1060	838	678	561	471	401	346	265	209
	13-W-2	18.0		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
	13-P-4	18.7		C	4240	3392	2827	2423	2120	1885	1696	1542	1413	1305	1212	1060	942
	13-P-2	20.6		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 3/16"	13-W-4	19.8	1.846	U	5538	3545	2462	1808	1385	1094	886	732	615	524	452	346	274
	13-W-2	20.4		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
	13-P-4	21.1		C	5538	4431	3692	3165	2769	2462	2215	2014	1846	1704	1582	1385	1231
	13-P-2	23.0		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"			2.337	U	7010	4486	3115	2289	1752	1385	1122	927	779	664	572	438	346
				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
	13-P-4	23.5		C	7010	5608	4673	4005	3505	3115	2804	2549	2337	2157	2003	1752	1558
	13-P-2	25.4		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"			2.885	U	8654	5538	3846	2826	2163	1709	1385	1144	962	819	706	541	427
				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
	13-P-4	25.9		C	8654	6923	5769	4945	4327	3846	3462	3147	2885	2663	2473	2163	1923
	13-P-2	27.8		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

W/P-13 PANEL WIDTH (inches)

Note: P-Press-Locked cross bars typically extend 1/8" each side. W-Welded cross rods may extend 1/8" each side. Panel widths do not include these extensions.

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1/8" Bar	15/16	1 3/4	2 9/16	3 3/8	4 3/16	5	5 13/16	6 5/8	7 7/16	8 1/4	9 1/16	9 7/8	10 11/16	11 1/2	12 5/16	13 1/8	13 15/16	14 3/4	15 9/16
3/16" Bar	1	1 13/16	2 5/8	3 7/16	4 1/4	5 1/16	5 7/8	6 11/16	7 1/2	8 5/16	9 1/8	9 15/16	10 3/4	11 9/16	12 3/8	13 3/16	14	14 13/16	15 5/8
No. of Bars	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**
1/8" Bar	16 3/8	17 3/16	18	18 13/16	19 5/8	20 7/16	21 1/4	22 1/16	22 7/8	23 11/16	24 1/2	25 5/16	26 1/8	26 15/16	27 3/4	28 9/16	29 3/8	30 3/16	31
3/16" Bar	16 7/16	17 1/4	18 1/16	18 7/8	19 11/16	20 1/2	21 5/16	22 1/8	22 15/16	23 3/4	24 9/16	25 3/8	26 3/16	27	27 13/16	28 5/8	29 7/16	30 1/4	31 1/16
No. of Bars	**40**	**41**	**42**	**43**	**44**	**45**													
1/8" Bar	31 13/16	32 5/8	33 7/16	34 1/4	35 1/16	35 7/8													
3/16" Bar	31 7/8	32 11/16	33 1/2	34 5/16	35 1/8	35 15/16													

Steel Bar Grating Close-Mesh

WELDED (W) 11/16" C/C Bearing Bars

11-W-4

Cross Rods 4" C/C

11-W-2

Cross Rods 2" C/C

NON-SERRATED & SERRATED

PRESS-LOCKED (P) 11/16" C/C Bearing Bars

11-P-4

Cross Bars 4" C/C

11-P-2

Cross Bars 2" C/C

NON-SERRATED & SERRATED

LOAD & DEFLECTION TABLE

General: Loads and deflections are theoretical and based on static loading.

U = safe uniform load, psf (page 92)
C = safe concentrated load, pfw (page 92)
D = deflection, inches
E = modulus of elasticity, 29,000,000 psi
F = fiber stress, 18,000 psi

Material: ASTM A-1011

Deflection: Spans and loads to the right of the bold line exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. These can be exceeded for other types of loads with engineer'sapproval.

Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table.

Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width		SPAN (Direction of Bearing Bar) 24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	96"	108"
3/4" x 1/8"	11-W-4	6.2	0.205	U	614	393	273	200	153	121	98						
				D	0.099	0.155	0.223	0.304	0.397	0.503	0.621						
	11-P-4	6.6		C	614	491	409	351	307	273	245						
	11-P-2	7.6		D	0.079	0.124	0.179	0.243	0.318	0.402	0.497						
3/4" x 3/16"	11-W-4	9.1	0.307	U	920	589	409	301	230	182	147						
				D	0.099	0.155	0.223	0.304	0.397	0.503	0.621						
	11-P-4	9.9		C	920	736	614	526	460	409	368						
	11-P-2	11.3		D	0.079	0.124	0.179	0.243	0.318	0.402	0.497						
1" x 1/8"	11-W-4	8.1	0.364	U	1091	698	485	356	273	215	175	144	121				
	11-W-2	8.6		D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670				
	11-P-4	8.5		C	1091	873	727	623	545	485	436	397	364				
	11-P-2	9.4		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536				
1" x 3/16"	11-W-4	11.9	0.545	U	1636	1047	727	534	409	323	262	216	182	155			
	11-W-2	12.5		D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670	0.787			
	11-P-4	12.7		C	1636	1309	1091	935	818	727	655	595	545	503			
	11-P-2	14.2		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629			
1-1/4" x 1/8"	11-W-4	10.0	0.568	U	1705	1091	758	557	426	337	273	225	189	161	139		
	11-W-2	10.5		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730		
	11-P-4	10.7		C	1705	1364	1136	974	852	758	682	620	568	524	487		
	11-P-2	12.0		D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584		
1-1/4" x 3/16"	11-W-4	14.7	0.852	U	2557	1636	1136	835	639	505	409	338	284	242	209	160	
	11-W-2	15.3		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730	0.953	
	11-P-4	16.0		C	2557	2045	1705	1461	1278	1136	1023	930	852	787	731	639	
	11-P-2	17.9		D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584	0.763	
1-1/2" x 1/8"	11-W-4	11.9	0.818	U	2455	1571	1091	801	614	485	393	325	273	232	200	153	121
	11-W-2	12.4		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	1.006
	11-P-4	12.6		C	2455	1964	1636	1403	1227	1091	982	893	818	755	701	614	545
	11-P-2	13.9		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	0.804
1-1/2" x 3/16"	11-W-4	17.5	1.227	U	3682	2356	1636	1202	920	727	589	487	409	349	301	230	182
	11-W-2	18.1		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	1.006
	11-P-4	18.8		C	3682	2945	2455	2104	1841	1636	1473	1339	1227	1133	1052	920	818
	11-P-2	20.7		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	0.804
1-3/4" x 3/16"	11-W-4	20.4	1.670	U	5011	3207	2227	1636	1253	990	802	663	557	474	409	313	247
	11-W-2	21.0		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
	11-P-4	21.7		C	5011	4009	3341	2864	2506	2227	2005	1822	1670	1542	1432	1253	1114
	11-P-2	23.6		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 3/16"	11-W-4	23.2	2.182	U	6545	4189	2909	2137	1636	1293	1047	866	727	620	534	409	323
	11-W-2	23.8		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
	11-P-4	24.5		C	6545	5236	4364	3740	3273	2909	2618	2380	2182	2014	1870	1636	1455
	11-P-2	26.4		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"	11-W-4	26.0	2.761	U	8284	5302	3682	2705	2071	1636	1325	1095	920	784	676	518	409
	11-W-2	26.6		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
	11-P-4	27.3		C	8284	6627	5523	4734	4142	3682	3314	3012	2761	2549	2367	2071	1841
	11-P-2	29.2		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"	11-W-4	28.8	3.409	U	10227	6545	4545	3340	2557	2020	1636	1352	1136	968	835	639	505
	11-W-2	29.4		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
	11-P-4	30.1		C	10227	8182	6818	5844	5114	4545	4091	3719	3409	3147	2922	2557	2273
	11-P-2	32.0		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

W/P-11 PANEL WIDTH (inches)

Note: P-Press-Locked cross bars typically extend 1/8" each side. W-Welded cross rods may extend 1/8" each side. Panel widths do not include these extensions.

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

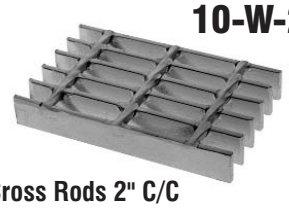
Steel Bar Grating Close-Mesh

WELDED (W) 5/8" C/C of Bearing Bars

10-W-4

Cross Rods 4" C/C

10-W-2

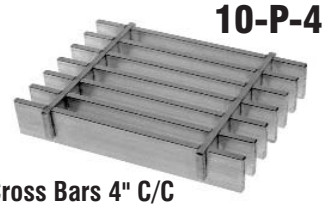


Cross Rods 2" C/C

NON-SERRATED & SERRATED

PRESS-LOCKED (P) 5/8" C/C of Bearing Bars

10-P-4



Cross Bars 4" C/C

10-P-2

Cross Bars 2" C/C

NON-SERRATED & SERRATED

LOAD & DEFLECTION TABLE

General: Loads and deflections are theoretical and based on static loading.

U = safe uniform load, psf (page 92)
C = safe concentrated load, pfw (page 92)
D = deflection, inches
E = modulus of elasticity, 29,000,000 psi
F = fiber stress, 18,000 psi
Material: ASTM A-1011

Deflection: Spans and loads to the right of the bold line exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. These can be exceeded for other types of loads with engineer's approval.

Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table.

Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width		SPAN (Direction of Bearing Bar) 24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	96"	108"
3/4" x 1/8"	10-W-4	6.8	0.225	U	675	432	300	220	169	133	108						
				D	0.099	0.155	0.223	0.304	0.397	0.503	0.621						
	10-P-4	7.2		C	675	540	450	386	338	300	270						
	10-P-2	8.1		D	0.079	0.124	0.179	0.243	0.318	0.402	0.497						
3/4" x 3/16"	10-W-4	9.9	0.338	U	1013	648	450	331	253	200	162	134					
				D	0.099	0.155	0.223	0.304	0.397	0.503	0.621	0.751					
	10-P-4	10.7		C	1013	810	675	579	506	450	405	368					
	10-P-2	12.2		D	0.079	0.124	0.179	0.243	0.318	0.402	0.497	0.601					
1" x 1/8"	10-W-4	8.8	0.400	U	1200	768	533	392	300	237	192	159	133				
	10-W-2	9.4		D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670				
	10-P-4	9.2		C	1200	960	800	686	600	533	480	436	400				
	10-P-2	10.2		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536				
1" x 3/16"	10-W-4	13.0	0.600	U	1800	1152	800	588	450	356	288	238	200	170			
	10-W-2	13.6		D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670	0.787			
	10-P-4	13.8		C	1800	1440	1200	1029	900	800	720	655	600	554			
	10-P-2	15.3		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629			
1-1/4" x 1/8"	10-W-4	10.9	0.625	U	1875	1200	833	612	469	370	300	248	208	178	153		
	10-W-2	11.4		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730		
	10-P-4	11.6		C	1875	1500	1250	1071	938	833	750	682	625	577	536		
	10-P-2	12.9		D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584		
1-1/4" x 3/16"	10-W-4	16.1	0.938	U	2813	1800	1250	918	703	556	450	372	313	266	230	176	
	10-W-2	16.7		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730	0.953	
	10-P-4	17.4		C	2813	2250	1875	1607	1406	1250	1125	1023	938	865	804	703	
	10-P-2	19.3		D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584	0.763	
1-1/2" x 1/8"	10-W-4	13.0	0.900	U	2700	1728	1200	882	675	533	432	357	300	256	220	169	133
	10-W-2	13.5		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	1.006
	10-P-4	13.7		C	2700	2160	1800	1543	1350	1200	1080	982	900	831	771	675	600
	10-P-2	15.0		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	0.804
1-1/2" x 3/16"	10-W-4	19.2	1.350	U	4050	2592	1800	1322	1013	800	648	536	450	383	331	253	200
	10-W-2	19.8		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	1.006
	10-P-4	20.5		C	4050	3240	2700	2314	2025	1800	1620	1473	1350	1246	1157	1013	900
	10-P-2	22.4		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	0.804
1-3/4" x 3/16"	10-W-4	22.3	1.838	U	5513	3528	2450	1800	1378	1089	882	729	613	522	450	345	272
	10-W-2	22.9		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
	10-P-4	23.6		C	5513	4410	3675	3150	2756	2450	2205	2005	1838	1696	1575	1378	1225
	10-P-2	25.5		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 3/16"	10-W-4	25.4	2.400	U	7200	4608	3200	2351	1800	1422	1152	952	800	682	588	450	356
	10-W-2	26.0		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
	10-P-4	26.7		C	7200	5760	4800	4114	3600	3200	2880	2618	2400	2215	2057	1800	1600
	10-P-2	28.6		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"	10-W-4	28.5	3.038	U	9113	5832	4050	2976	2278	1800	1458	1205	1013	863	744	570	450
	10-W-2	29.1		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
	10-P-4	29.8		C	9113	7290	6075	5207	4556	4050	3645	3314	3038	2804	2604	2278	2025
	10-P-2	31.7		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"	10-W-4	31.6	3.750	U	11250	7200	5000	3673	2813	2222	1800	1488	1250	1065	918	703	556
	10-W-2	32.2		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
	10-P-4	32.9		C	11250	9000	7500	6429	5625	5000	4500	4091	3750	3462	3214	2813	2500
	10-P-2	34.8		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

W/P-10 PANEL WIDTH (inches)

Note: P-Press-Locked cross bars typically extend 1/8" each side. W-Welded cross rods may extend 1/8" each side. Panel widths do not include these extensions.

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1/8" Bar	3/4	1 3/8	2	2 5/8	3 1/4	3 7/8	4 1/2	5 1/8	5 3/4	6 3/8	7	7 5/8	8 1/4	8 7/8	9 1/2	10 1/8	10 3/4	11 3/8	12
3/16" Bar	13/16	1 7/16	2 1/16	2 11/16	3 5/16	3 15/16	4 9/16	5 3/16	5 13/16	6 7/16	7 1/16	7 11/16	8 5/16	8 15/16	9 9/16	10 3/16	10 13/16	11 7/16	12 1/16
No. of Bars	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**
1/8" Bar	12 5/8	13 1/4	13 7/8	14 1/2	15 1/8	15 3/4	16 3/8	17	17 5/8	18 1/4	18 7/8	19 1/2	20 1/8	20 3/4	21 3/8	22	22 5/8	23 1/4	23 7/8
3/16" Bar	12 11/16	13 5/16	13 15/16	14 9/16	15 3/16	15 13/16	16 7/16	17 1/16	17 11/16	18 5/16	18 15/16	19 9/16	20 3/16	20 13/16	21 7/16	22 1/16	22 11/16	23 5/16	23 15/16
No. of Bars	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**
1/8" Bar	24 1/2	25 1/8	25 3/4	26 3/8	27	27 5/8	28 1/4	28 7/8	29 1/2	30 1/8	30 3/4	31 3/8	32	32 5/8	33 1/4	33 7/8	34 1/2	35 1/8	35 3/4
3/16" Bar	24 9/16	25 3/16	25 13/16	26 7/16	27 1/16	27 11/16	28 5/16	28 15/16	29 9/16	30 3/16	30 13/16	31 7/16	32 1/16	32 11/16	33 5/16	33 15/16	34 9/16	35 3/16	35 13/16

Steel Bar Grating Close-Mesh

WELDED (W) 1/2" C/C Bearing Bars

8-W-4

Welded Panels
Max 2'-0 Width

Cross Rods 4" C/C

NON-SERRATED ONLY

PRESS-LOCKED (P) 1/2" C/C Bearing Bars

8-P-4

Cross Bars 4" C/C

8-P-2

Cross Bars 2" C/C

NON-SERRATED & SERRATED

LOAD & DEFLECTION TABLE

General: Loads and deflections are theoretical and based on static loading.

U = safe uniform load, psf (page 92)
C = safe concentrated load, pfw (page 92)
D = deflection, inches
E = modulus of elasticity, 29,000,000 psi
F = fiber stress, 18,000 psi
Material: ASTM A-1011

Deflection: Spans and loads to the right of the bold line exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. These can be exceeded for other types of loads with engineer's approval.

Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table.

Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width		SPAN (Direction of Bearing Bar) 24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	96"	108"
3/4" x 1/8"	8-W-4	8.3	0.281	U	844	540	375	276	211	167	135						
				D	0.099	0.155	0.223	0.304	0.397	0.503	0.621						
	8-P-4	8.7		C	844	675	563	482	422	375	338						
	8-P-2	9.6		D	0.079	0.124	0.179	0.243	0.318	0.402	0.497						
3/4" x 3/16"	8-W-4	10.9	0.422	U	1266	810	563	413	316	250	203	167					
				D	0.099	0.155	0.223	0.304	0.397	0.503	0.621	0.751					
	8-P-4	13.0		C	1266	1013	844	723	633	563	506	460					
	8-P-2	14.4		D	0.079	0.124	0.179	0.243	0.318	0.402	0.497	0.601					
1" x 1/8"	8-W-4	10.9	0.500	U	1500	960	667	490	375	296	240	198	167				
				D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670				
	8-P-4	11.3		C	1500	1200	1000	857	750	667	600	545	500				
	8-P-2	12.2		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536				
1" x 3/16"	8-W-4	16.0	0.750	U	2250	1440	1000	735	563	444	360	298	250	213			
				D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670	0.787			
	8-P-4	16.9		C	2250	1800	1500	1286	1125	1000	900	818	750	692			
	8-P-2	18.3		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629			
1-1/4" x 1/8"	8-W-4	13.4	0.781	U	2344	1500	1042	765	586	463	375	310	260	222	191		
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730		
	8-P-4	14.2		C	2344	1875	1563	1339	1172	1042	938	852	781	721	670		
	8-P-2	15.4		D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584		
1-1/4" x 3/16"	8-W-4	19.9	1.172	U	3516	2250	1563	1148	879	694	563	465	391	333	287	220	174
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730	0.953	1.207
	8-P-4	21.2		C	3516	2813	2344	2009	1758	1563	1406	1278	1172	1082	1004	879	781
	8-P-2	23.1		D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584	0.763	0.965
1-1/2" x 1/8"	8-W-4	16.0	1.125	U	3375	2160	1500	1102	844	667	540	446	375	320	276	211	167
				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	1.006
	8-P-4	16.7		C	3375	2700	2250	1929	1688	1500	1350	1227	1125	1038	964	844	750
	8-P-2	18.2		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	0.804
1-1/2" x 3/16"	8-W-4	23.8	1.688	U	5063	3240	2250	1653	1266	1000	810	669	563	479	413	316	250
				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	1.006
	8-P-4	25.1		C	5063	4050	3375	2893	2531	2250	2025	1841	1688	1558	1446	1266	1125
	8-P-2	27.0		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	0.804
1-3/4" x 3/16"			2.297	U	6891	4410	3063	2250	1723	1361	1103	911	766	652	563	431	340
				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
	8-P-4	28.9		C	6891	5513	4594	3938	3445	3063	2756	2506	2297	2120	1969	1723	1531
	8-P-2	30.8		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 3/16"			3.000	U	9000	5760	4000	2939	2250	1778	1440	1190	1000	852	735	563	444
				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
	8-P-4	32.8		C	9000	7200	6000	5143	4500	4000	3600	3273	3000	2769	2571	2250	2000
	8-P-2	34.7		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"			3.797	U	11391	7290	5063	3719	2848	2250	1823	1506	1266	1078	930	712	563
				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
	8-P-4	36.6		C	11391	9113	7594	6509	5695	5063	4556	4142	3797	3505	3254	2848	2531
	8-P-2	38.5		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"			4.688	U	14063	9000	6250	4592	3516	2778	2250	1860	1563	1331	1148	879	694
				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
	8-P-4	40.5		C	14063	11250	9375	8036	7031	6250	5625	5114	4688	4327	4018	3516	3125
	8-P-2	42.4		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

W/P-8 PANEL WIDTH (inches)

Note: P-Press-Locked cross bars typically extend 1/8" each side. W-Welded cross rods may extend 1/8" each side. Panel widths do not include these extensions.

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1/8" Bar	5/8	1 1/8	1 5/8	2 1/8	2 5/8	3 1/8	3 5/8	4 1/8	4 5/8	5 1/8	5 5/8	6 1/8	6 5/8	7 1/8	7 5/8	8 1/8	8 5/8	9 1/8	9 5/8	10 1/8	10 5/8	11 1/8	11 5/8	12 1/8	12 5/8	13 1/8	13 5/8	14 1/8
3/16" Bar	11/16	1 3/16	1 11/16	2 3/16	2 11/16	3 3/16	3 11/16	4 3/16	4 11/16	5 3/16	5 11/16	6 3/16	6 11/16	7 3/16	7 11/16	8 3/16	8 11/16	9 3/16	9 11/16	10 3/16	10 11/16	11 3/16	11 11/16	12 3/16	12 11/16	13 3/16	13 11/16	14 3/16
No. of Bars	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**
1/8" Bar	14 5/8	15 1/8	15 5/8	16 1/8	16 5/8	17 1/8	17 5/8	18 1/8	18 5/8	19 1/8	19 5/8	20 1/8	20 5/8	21 1/8	21 5/8	22 1/8	22 5/8	23 1/8	23 5/8	24 1/8	24 5/8	25 1/8	25 5/8	26 1/8	26 5/8	27 1/8	27 5/8	28 1/8
3/16" Bar	14 11/16	15 3/16	15 11/16	16 3/16	16 11/16	17 3/16	17 11/16	18 3/16	18 11/16	19 3/16	19 11/16	20 3/16	20 11/16	21 3/16	21 11/16	22 3/16	22 11/16	23 3/16	23 11/16	24 3/16	24 11/16	25 3/16	25 11/16	26 3/16	26 11/16	27 3/16	27 11/16	28 3/16
No. of Bars	**58**	**59**	**60**	**61**	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**	**71**	**72**	**73**												
1/8" Bar	28 5/8	29 1/8	29 5/8	30 1/8	30 5/8	31 1/8	31 5/8	32 1/8	32 5/8	33 1/8	33 5/8	34 1/8	34 5/8	35 1/8	35 5/8	36 1/8												
3/16" Bar	28 11/16	29 3/16	29 11/16	30 3/16	30 11/16	31 3/16	31 11/16	32 3/16	32 11/16	33 3/16	33 11/16	34 3/16	34 11/16	35 3/16	35 11/16	36 3/16												

Steel Bar Grating Close-Mesh

WELDED (W) 7/16" C/C Bearing Bars

7-W-4

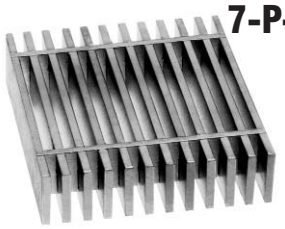
Cross Rods 4" C/C

Welded Panels
Max 2'-0 Width

NON-SERRATED ONLY

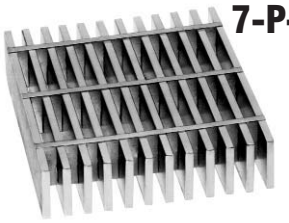
PRESS-LOCKED (P) 7/16" C/C Bearing Bars

7-P-4



Cross Bars 4" C/C

7-P-2



Cross Bars 2" C/C

NON-SERRATED & SERRATED

LOAD & DEFLECTION TABLE

General: Loads and deflections are theoretical and based on static loading.

U = safe uniform load, psf (page 92)
C = safe concentrated load, pfw (page 92)
D = deflection, inches
E = modulus of elasticity, 29,000,000 psi
F = fiber stress, 18,000 psi

Material: ASTM A-1011

Deflection: Spans and loads to the right of the bold line exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. These can be exceeded for other types of loads with engineer's approval.

Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table.

Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width		SPAN (Direction of Bearing Bar) 24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	96"	108"
3/4" x 1/8"	7-W-4	9.3	0.321	U	964	617	429	315	241	190	154						
				D	0.099	0.155	0.223	0.304	0.397	0.503	0.621						
	7-P-4	9.8		C	964	771	643	551	482	429	386						
	7-P-2	10.7		D	0.079	0.124	0.179	0.243	0.318	0.402	0.497						
3/4" x 3/16"	7-W-4	13.7	0.482	U	1446	926	643	472	362	286	231	191					
				D	0.099	0.155	0.223	0.304	0.397	0.503	0.621	0.751					
	7-P-4	14.6		C	1446	1157	964	827	723	643	579	526					
	7-P-2	16.1		D	0.079	0.124	0.179	0.243	0.318	0.402	0.497	0.601					
1" x 1/8"	7-W-4	12.3	0.571	U	1714	1097	762	560	429	339	274	227	190	162			
				D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670	0.787			
	7-P-4	12.7		C	1714	1371	1143	980	857	762	686	623	571	527			
	7-P-2	13.7		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629			
1" x 3/16"	7-W-4	18.1	0.857	U	2571	1646	1143	840	643	508	411	340	286	243	210		
				D	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670	0.787	0.912		
	7-P-4	19.0		C	2571	2057	1714	1469	1286	1143	1029	935	857	791	735		
	7-P-2	20.5		D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730		
1-1/4" x 1/8"	7-W-4	15.3	0.893	U	2679	1714	1190	875	670	529	429	354	298	254	219	167	
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730	0.953	
	7-P-4	16.0		C	2679	2143	1786	1531	1339	1190	1071	974	893	824	765	670	
	7-P-2	17.3		D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584	0.763	
1-1/4" x 3/16"	7-W-4	22.5	1.339	U	4018	2571	1786	1312	1004	794	643	531	446	380	328	251	198
				D	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730	0.953	1.207
	7-P-4	23.9		C	4018	3214	2679	2296	2009	1786	1607	1461	1339	1236	1148	1004	893
	7-P-2	25.8		D	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584	0.763	0.965
1-1/2" x 1/8"	7-W-4	18.1	1.286	U	3857	2469	1714	1259	964	762	617	510	429	365	315	241	190
				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	1.006
	7-P-4	18.9		C	3857	3086	2571	2204	1929	1714	1543	1403	1286	1187	1102	964	857
	7-P-2	20.2		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	0.804
1-1/2" x 3/16"	7-W-4	26.9	1.929	U	5786	3703	2571	1889	1446	1143	926	765	643	548	472	362	286
				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	1.006
	7-P-4	28.3		C	5786	4629	3857	3306	2893	2571	2314	2104	1929	1780	1653	1446	1286
	7-P-2	30.2		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	0.804
1-3/4" x 3/16"			2.625	U	7875	5040	3500	2571	1969	1556	1260	1041	875	746	643	492	389
				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
	7-P-4	32.7		C	7875	6300	5250	4500	3938	3500	3150	2864	2625	2423	2250	1969	1750
	7-P-2	34.6		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 3/16"			3.429	U	10286	6583	4571	3359	2571	2032	1646	1360	1143	974	840	643	508
				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
	7-P-4	37.1		C	10286	8229	6857	5878	5143	4571	4114	3740	3429	3165	2939	2571	2286
	7-P-2	39.0		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"			4.339	U	13018	8331	5786	4251	3254	2571	2083	1721	1446	1232	1063	814	643
				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
	7-P-4	41.5		C	13018	10414	8679	7439	6509	5786	5207	4734	4339	4005	3719	3254	2893
	7-P-2	43.4		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"			5.357	U	16071	10286	7143	5248	4018	3175	2571	2125	1786	1522	1312	1004	794
				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
	7-P-4	45.9		C	16071	12857	10714	9184	8036	7143	6429	5844	5357	4945	4592	4018	3571
	7-P-2	47.8		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

P-7 PANEL WIDTH (inches)

Note: P-Press-Locked cross bars typically extend 1/8" each side. Panel widths do not include these extensions.

No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1/8" Bar	9/16	1	1 7/16	1 7/8	2 5/16	2 3/4	3 3/16	3 5/8	4 1/16	4 1/2	4 15/16	5 3/8	5 13/16	6 1/4	6 11/16	7 1/8	7 9/16	8	8 7/16	8 7/8	9 5/16	9 3/4	10 3/16	10 5/8	11 1/16	11 1/2	11 15/16	12 3/8
3/16" Bar	5/8	1 1/16	1 1/2	1 15/16	2 3/8	2 13/16	3 1/4	3 11/16	4 1/8	4 9/16	5	5 7/16	5 7/8	6 5/16	6 3/4	7 3/16	7 5/8	8 1/16	8 1/2	8 15/16	9 3/8	9 13/16	10 1/4	10 11/16	11 1/8	11 9/16	12	12 7/16
No. of Bars	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**
1/8" Bar	12 13/16	13 1/4	13 11/16	14 1/8	14 9/16	15	15 7/16	15 7/8	16 5/16	16 3/4	17 3/16	17 5/8	18 1/16	18 1/2	18 15/16	19 3/8	19 13/16	20 1/4	20 11/16	21 1/8	21 9/16	22	22 7/16	22 7/8	23 5/16	23 3/4	24 3/16	24 5/8
3/16" Bar	12 7/8	13 5/16	13 3/4	14 3/16	14 5/8	15 1/16	15 1/2	15 15/16	16 3/8	16 13/16	17 1/4	17 11/16	18 1/8	18 9/16	19	19 7/16	19 7/8	20 5/16	20 3/4	21 3/16	21 5/8	22 1/16	22 1/2	22 15/16	23 3/8	23 13/16	24 1/4	24 11/16
No. of Bars	**58**	**59**	**60**	**61**	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**	**71**	**72**	**73**	**74**	**75**	**76**	**77**	**78**	**79**	**80**	**81**	**82**	**83**		
1/8" Bar	25 1/16	25 1/2	25 15/16	26 3/8	26 13/16	27 1/4	27 11/16	28 1/8	28 9/16	29	29 7/16	29 7/8	30 5/16	30 3/4	31 3/16	31 5/8	32 1/16	32 1/2	32 15/16	33 3/8	33 13/16	34 1/4	34 11/16	35 1/8	35 9/16	36		
3/16" Bar	25 1/8	25 9/16	26	26 7/16	26 7/8	27 5/16	27 3/4	28 3/16	28 5/8	29 1/16	29 1/2	29 15/16	30 3/8	30 13/16	31 1/4	31 11/16	32 1/8	32 9/16	33	33 7/16	33 7/8	34 5/16	34 3/4	35 3/16	35 5/8	36 1/16		

STAINLESS STEEL GRATING

When caustic atmospheres are encountered, or when corrosion resistance and/or minimum carbide precipitation are essential considerations, AMICO-Klemp® stainless steel grating is the answer. The longer lasting capabilities of stainless steel under these special conditions make it an economical selection over the long term.

It is ideal for use in food processing areas, breweries, bottling plants, dairies and meat packing plants. Stainless steel can also be used in power plants, sewage treatment plants, pumping stations and hydrocarbon processing facilities where various caustic environments are normal. It also has application in shipboard and building industries where saline solutions or atmospheres are present.

Stainless Steel Bar Grating is available in welded bar grating, riveted bar grating, swage-locked and press-locked bar grating. Specify S, RS, SR/SI and SP. Heavy-duty welded bar gratings and Riv-Dexteel® can also be manufactured from stainless steel. Specify HS, RSL and RSH.

The alloys below are available as standard products. Each conforms with ASTM A 167. In addition, special alloys are available upon request.

CHEMICAL COMPOSITION

Alloy	Carbon (max. %)	Manganese (max. %)	Silicon (max. %)	Chromium (% range)	Phosphorus (max. %)	Sulfur (max. %)	Nickel (% range)	Nitrogen (max. %)	Other Elements	General Description
304	0.08	2.0	.75	18-20	0.045	0.030	8-10.5	0.10	—	Type 304 alloys resist most oxidizing acids and can withstand all ordinary rusting. They are immune to foodstuffs, sterilizing solutions, most of the organic chemicals and dyestuffs, and a wide variety of inorganic chemicals. This grade should be considered for use unless some special mechanical, physical or fabricating characteristic is required.
304L	0.03	2.0	.75	18-20	0.045	0.030	8-12	0.10	—	Type 304L is the low carbon modification of Type 304. This minimizes the problem of carbide precipitation during welding.
316	0.08	2.0	.75	16-18	0.045	0.030	10-14	0.10	2-3% Mo	Type 316 alloys have superior corrosion resistance especially to sulfurous acid compounds and many chemicals used by the chemical process industries. It is more resistant to pitting corrosion than typical 18-8 alloys (Chromium-Nickel), such as Type 304.
316L	0.03	2.0	.75	16-18	0.045	0.030	10-14	0.10	2-3% Mo	Type 316L is the low carbon modification of Type 316. This minimizes the problem of carbide precipitation during welding.

Note: The above alloys conform with ASTM A167.

FINISH

Unless otherwise specified, stainless steel grating shall have a mill finish as fabricated. "As fabricated" means as fabricated in AMICO-Klemp®'s shop without a subsequent finishing operation. Stainless steel will show some discoloration around the joints due to welding. Finishes available to remove discoloration include sand blasting and electro-polishing, the latter being used where bright finish is desired. Shot blasting or wire brushing should be avoided since these operations can cause iron contamination which, if not removed, will cause rusting and discoloration of the surface. Such contamination can be removed by passivation.
Electro-polishing leaves a passive surface. The swage-locked and press-locked processes will not show discoloration due to welding.

LOADS AND DEFLECTIONS

A Load and Deflection Table for S-19 and SP-19 is on the next page. All of the carbon steel bar grating products are available in stainless steel. In addition, AMICO-Klemp®'s rectangular bar swage-locked (SR) can be produced in stainless steel.

For loads and deflections for other products such as riveted (RS), heavy-duty (HS), Riv-Dexteel (RSL and RSH) and swage-locked (RSP), adjustments must be made to the carbon steel and aluminum tables found in this catalog. These adjustments will account for the differences in modulus of elasticity and fiber stress between stainless steel, carbon steel and aluminum.

	Multiply U, C and D in the standard carbon tables by:		Multiply U, C and D in the heavy-duty carbon tables by:		Multiply U, C and D in the KRP aluminum tables by:	
When using:	**D**	**U, C**	**D**	**U, C**	**D**	**U, C**
Stainless Steel Alloy 304	1.151	1.111	1.036	1.000	.595	1.667
Stainless Steel Alloy 304L	.949	.917	.854	.825	.491	1.375
Stainless Steel Alloy 316	1.151	1.111	1.036	1.000	.595	1.667
Stainless Steel Alloy 316L	.949	.917	.854	.825	.491	1.375

Note: Modulus of Elasticity for Stainless Steel Alloys is 28,000,000 psi; Standard carbon steel (ASTM A1011) is 29,000,000 psi; Heavy-duty carbon steel (ASTM A36) is 29,000,000 psi; and Aluminum (ASTM B221) is 10,000,000.
Fiber Stress for Stainless Steel Alloys 304 and 316 is 20,000 psi; Stainless Steel Alloys 304L and 316L is 16,500 psi; Standard carbon steel (ASTM A1011) is 18,000 psi; Heavy-duty carbon steel (ASTM A36) is 20,000 psi; and Aluminum (ASTM B221, 6061-T6) is 12,000 psi.

Steel Bar Grating

STAINLESS WELDED 1-3/16" C/C Bearing Bars

19-S-4

Cross Bars 4" C/C

19-S-2

Cross Bars 2" C/C

NON-SERRATED &SERRATED

STAINLESS PRESS-LOCKED 1-3/16" C/C Bearing Bars

19-SP-4

Cross Bars 4" C/C

19-SP-2

Cross Bars 2" C/C

NON-SERRATED & SERRATED

LOAD & DEFLECTION TABLE

General: Loads and deflections are theoretical and based on static loading.

U = safe uniform load, psf (page 92)
C = safe concentrated load, pfw (page 92)
D = deflection, inches
E = modulus of elasticity, 28,000,000 psi
F = fiber stress, 20,000 psi

Material: ASTM A-167

Deflection: Spans and loads to the right of the bold line exceed 1/4" deflection for uniform load of 100 psf which provides safe pedestrian comfort. These can be exceeded for other types of loads with engineer's approval.

Serrated Bars: For serrated grating, the depth of grating required for a specified load is 1/4" deeper than that shown in the table.

Bar Size	Symbol	Approx. Weight psf	Sec. Mod Per Ft. Of Width		SPAN (Direction of Bearing Bar) 24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	96"	108"
3/4" x 1/8"	19-S-4	3.9	0.118	U	395	253	175	129	99	78							
	19-S-2	4.4		D	0.114	0.179	0.257	0.350	0.457	0.579							
	19-SP-4	4.3		C	395	316	263	226	197	175							
	19-SP2	5.2		D	0.091	0.143	0.206	0.280	0.366	0.463							
3/4" x 3/16"	19-S-4	5.6	0.178	U	592	379	263	193	148	117							
	19-S-2	6.2		D	0.114	0.179	0.257	0.350	0.457	0.579							
	19-SP-4	6.4		C	592	474	395	338	296	263							
	19-SP2	7.8		D	0.091	0.143	0.206	0.280	0.366	0.463							
1" x 1/8"	19-S-4	5.0	0.211	U	702	449	312	229	175	139	112	93					
	19-S-2	5.5		D	0.086	0.134	0.193	0.263	0.343	0.434	0.536	0.648					
	19-SP-4	5.4		C	702	561	468	401	351	312	281	255					
	19-SP2	6.3		D	0.069	0.107	0.154	0.210	0.274	0.347	0.429	0.519					
1" x 3/16"	19-S-4	7.2	0.316	U	1053	674	468	344	263	208	168	139					
	19-S-2	7.8		D	0.086	0.134	0.193	0.263	0.343	0.434	0.536	0.648					
	19-SP-4	8.1		C	1053	842	702	602	526	468	421	383					
	19-SP2	9.5		D	0.069	0.107	0.154	0.210	0.274	0.347	0.429	0.519					
1-1/4" x 1/8"	19-S-4	6.1	0.329	U	1096	702	487	358	274	217	175	145	122	104	90		
	19-S-2	6.6		D	0.069	0.107	0.154	0.210	0.274	0.347	0.429	0.519	0.617	0.724	0.840		
	19-SP-4	6.8		C	1096	877	731	627	548	487	439	399	365	337	313		
	19-SP2	8.1		D	0.055	0.086	0.123	0.168	0.219	0.278	0.343	0.415	0.494	0.579	0.672		
1-1/4" x 3/16"	19-S-4	8.9	0.493	U	1645	1053	731	537	411	325	263	217	183	156	134		
	19-S-2	9.5		D	0.069	0.107	0.154	0.210	0.274	0.347	0.429	0.519	0.617	0.724	0.840		
	19-SP-4	10.2		C	1645	1316	1096	940	822	731	658	598	548	506	470		
	19-SP2	12.1		D	0.055	0.086	0.123	0.168	0.219	0.278	0.343	0.415	0.494	0.579	0.672		
1-1/2" x 1/8"	19-S-4	7.2	0.474	U	1579	1011	702	516	395	312	253	209	175	149	129	99	78
	19-S-2	7.7		D	0.057	0.089	0.129	0.175	0.229	0.289	0.357	0.432	0.514	0.604	0.700	0.914	1.157
	19-SP-4	7.9		C	1579	1263	1053	902	789	702	632	574	526	486	451	395	351
	19-SP2	9.2		D	0.046	0.071	0.103	0.140	0.183	0.231	0.286	0.346	0.411	0.483	0.560	0.731	0.926
1-1/2" x 3/16"	19-S-4	10.5	0.711	U	2368	1516	1053	773	592	468	379	313	263	224	193	148	117
	19-S-2	11.2		D	0.057	0.089	0.129	0.175	0.229	0.289	0.357	0.432	0.514	0.604	0.700	0.914	1.157
	19-SP-4	11.8		C	2368	1895	1579	1353	1184	1053	947	861	789	729	677	592	526
	19-SP2	13.8		D	0.046	0.071	0.103	0.140	0.183	0.231	0.286	0.346	0.411	0.483	0.560	0.731	0.926
1-3/4" x 3/16"	19-S-4	12.2	0.967	U	3224	2063	1433	1053	806	637	516	426	358	305	263	201	159
	19-S-2	12.8		D	0.049	0.077	0.110	0.150	0.196	0.248	0.306	0.370	0.441	0.517	0.600	0.784	0.992
	19-SP-4	13.5		C	3224	2579	2149	1842	1612	1433	1289	1172	1075	992	921	806	716
	19-SP2	15.4		D	0.039	0.061	0.088	0.120	0.157	0.198	0.245	0.296	0.353	0.414	0.480	0.627	0.793
2" x 3/16"	19-S-4	13.9	1.263	U	4211	2695	1871	1375	1053	832	674	557	468	399	344	263	208
	19-S-2	14.5		D	0.043	0.067	0.096	0.131	0.171	0.217	0.268	0.324	0.386	0.453	0.525	0.686	0.868
	19-SP-4	15.2		C	4211	3368	2807	2406	2105	1871	1684	1531	1404	1296	1203	1053	936
	19-SP2	17.1		D	0.034	0.054	0.077	0.105	0.137	0.174	0.214	0.259	0.309	0.362	0.420	0.549	0.694
2-1/4" x 3/16"	19-S-4	15.5	1.599	U	5329	3411	2368	1740	1332	1053	853	705	592	505	435	333	263
	19-S-2	16.1		D	0.038	0.060	0.086	0.117	0.152	0.193	0.238	0.288	0.343	0.402	0.467	0.610	0.771
	19-SP-4	16.8		C	5329	4263	3553	3045	2664	2368	2132	1938	1776	1640	1523	1332	1184
	19-SP2	18.7		D	0.030	0.048	0.069	0.093	0.122	0.154	0.190	0.230	0.274	0.322	0.373	0.488	0.617
2-1/2" x 3/16"	19-S-4	17.2	1.974	U	6579	4211	2924	2148	1645	1300	1053	870	731	623	537	411	325
	19-S-2	17.8		D	0.034	0.054	0.077	0.105	0.137	0.174	0.214	0.259	0.309	0.362	0.420	0.549	0.694
	19-SP-4	18.5		C	6579	5263	4386	3759	3289	2924	2632	2392	2193	2024	1880	1645	1462
	19-SP2	20.4		D	0.027	0.043	0.062	0.084	0.110	0.139	0.171	0.207	0.247	0.290	0.336	0.439	0.555

Note: For gratings with other than 1-3/16" bearing bar spacing, proportionate conversion factors apply.
This table is for Alloys 304 and 316. For Alloys 304L and 316L, F=16,500 psi and values for U, C and D should be muliplied by .825.

S/SP-19 PANEL WIDTH (inches)

Note: SP-Stainless Press-Locked cross bars typically extend 1/8" each side. S-Stainless Welded cross rods may extend 1/8" each side. Panel widths do not include these extensions.

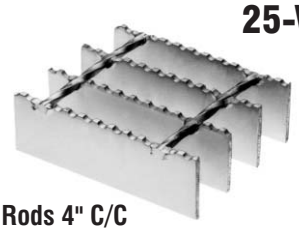
No. of Bars	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1/8" Bar	1 5/16	2 1/2	3 11/16	4 7/8	6 1/16	7 1/4	8 7/16	9 5/8	10 13/16	12	13 3/16	14 3/8	15 9/16	16 3/4	17 15/16
3/16" Bar	1 3/8	2 9/16	3 3/4	4 15/16	6 1/8	7 5/16	8 1/2	9 11/16	10 7/8	12 1/16	13 1/4	14 7/16	15 5/8	16 13/16	18
No. of Bars	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**
1/8" Bar	19 1/8	20 5/16	21 1/2	22 11/16	23 7/8	25 1/16	26 1/4	27 7/16	28 5/8	29 13/16	31	32 3/16	33 3/8	34 9/16	35 3/4
3/16" Bar	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

Steel Bar Grating

RAILROAD GRATING (AAR APPROVED)

1-9/16" C/C of Bearing Bars

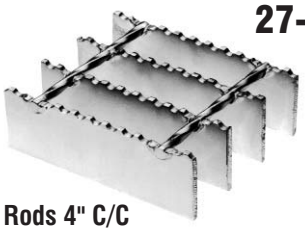
25-W-4



Cross Rods 4" C/C

1-11/16" C/C of Bearing Bars

27-W-4



Cross Rods 4" C/C

AMICO-Klemp® bar grating is approved for conformity to Association of American Railroads (AAR) Specifications, Rule 53 in the Field Manual of the AAR Interchange Rules.

AMICO-Klemp® bar grating is designed and engineered to meet AAR specifications for running boards, dome platforms, brake steps and crossover platform applications.

AMICO-Klemp® conforms to the requirements for Group No. 1, Group No. 2 and Group No. 3. Unsupported length for each of these Groups is 4', 7' and 10', respectively.

AAR Group Number	Bar Size	Symbol	Approx. Weight (psf)	Unsupported Length
1	1" x 1/8"	25-W-4	3.85	4'
1	1" x 3/16"	25-W-4	5.67	4'
1	1" x 3/16"	27-W-4	5.47	4'
2	1-1/2" x 3/16"	27-W-4	7.88	7'
3	2" x 3/16"	27-W-4	10.29	10'

W-25/W-27 PANEL WIDTH (inches)

Note: W-Welded cross rods may extend 1/8" each side. Panel widths do not include these extensions.

No. of Bars		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
25-W-4	1/8" Bar	7 15/16	9 1/2	11 1/16	12 5/8	14 3/16	15 3/4	17 5/16	18 7/8	20 7/16	22	23 9/16	25 1/8	26 11/16	28 1/4	29 13/16	31 3/8	32 15/16	34 1/2	36 1/16
	3/16" Bar	8	9 9/16	11 1/8	12 11/16	14 1/4	15 13/16	17 3/8	18 15/16	20 1/2	22 1/16	23 5/8	25 3/16	26 3/4	28 5/16	29 7/8	31 7/16	33	34 9/16	36 1/8
27-W-4	3/16" Bar	8 5/8	10 5/16	12	13 11/16	15 3/8	17 1/16	18 3/4	20 7/16	22 1/8	23 13/16	25 1/2	27 3/16	28 7/8	30 9/16	32 1/4	33 15/16	35 5/8	37 5/16	39