

June - 2015



ACCURATE
SCREEN + GRATING

Bar Grating Catalogue



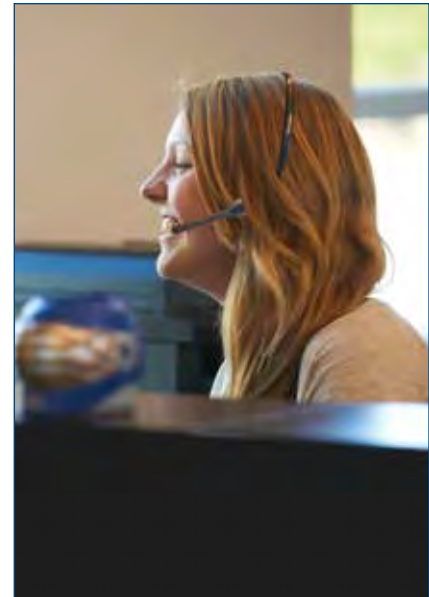


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Welcome to Accurate Screen and Grating.



SALES & TECHNICAL SUPPORT

In just over two decades of history, Accurate Screen and Grating has developed a solid reputation for being a leader in supplying Grating Products, Perforated Metal, Expanded Metal, Woven and Welded Screen, Stainless Strapping and Tie Wire for Industrial and Architectural projects. Our commitment is to continually evolve the company based on the needs of our customers.

Our customers want to interact with a sales team that is both thorough in their knowledge of our products and have a solid understanding of how they are used. To that end we have, and will continue, to invest substantially in customer service and product application training for our salespeople. We want every customer to feel assured that they have received the support they need.

In order to respond quickly to our customers product needs we stock all our warehouses with the industry's largest inventory of standard mill length grating product and pre-fab grating stair treads. When custom fabrication is not required we will fulfill customer orders very quickly.



A Company Committed to 100%...



When custom fabrication is required we have the equipment and skill in place to deliver the most detailed job.

A custom fabrication order begins with a complete set of engineering specification drawings and 3-D renderings if required. They are created internally by our trained drafting department using the latest hardware technology and software applications. When completed the drawings are delivered to the customer for the review and revision process. Once the drawings are approved by a customer the fab order goes into production.

Each of our facilities is fully equipped with all the machinery and tools necessary to fabricate to the most exacting specifications. Our tradespeople are highly skilled and certified in their classifications and we invest regularly in upgrading every piece of equipment they use, and in ensuring they are well trained so they can use the equipment safely and efficiently.

From planning through to finishing, every custom fab order is monitored by our customer service staff to ensure we deliver a product that meets every expectation of the client.

DRAFTING & FABRICATION



MILL & PRE-FAB INVENTORY

Accurate Screen and Grating opened for business in the fall of 2001 so our history has been short but eventful. From a 4,000 square foot facility in Calgary, my partner Todd Bigelow and I have built Accurate Screen to be a recognized leader in the fabrication and sale of Grating Products, Perforated Metal, Expanded Metal, Woven and Welded Screen, Stainless Strapping, Tie Wire and Architectural Sheet Metal.

We now have over 50 employees who work out of 4 distribution and fabrication warehouses situated in Mississauga ON., Calgary and Edmonton AB. and Surrey BC. We also offer service in both English and French.

Our goal from day one was to bring quality products, competitive pricing and exceptional customer service to the industrial and commercial marketplace. Every day our employees coordinate internally and between branches to keep this goal, and our tag line of "products with holes, backed by solid service" alive.

If you are a new customer, we look forward to the challenge of understanding your business and product requirements, and the opportunity to demonstrate the advantages of working with Accurate Screen and Grating.

If you are an existing customer, we hope that you were fully satisfied with the product and service provided by our team, and will allow Accurate Screen and Grating to again service your requirements in the future.

You can be assured that we will continue to support your business with the quality products shown in this catalogue, competitive pricing and trained responsive customer service.

Thank you for your support of Accurate Screen and Grating. It is truly appreciated.

Murray McDonald
President

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BAR GRATING





BAR GRATING - STEEL

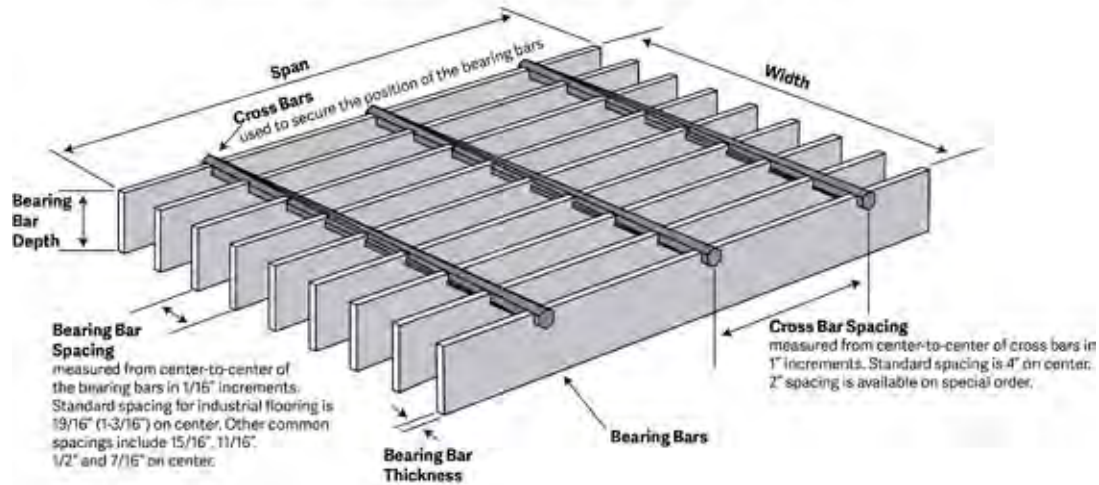
IMPERIAL - Type 19-4 Spacing

19-4

19/16"

BAR SPACING TABLE

Commonly used Terminology for Bar Grating Assembly (Imperial Measurements)



BAR SPACING 19-4/19-2

NUMBER OF BEARING BARS	BAR WIDTH				
	0.125	0.1875	0.250	0.3125	0.375
	OUTSIDE WIDTH MEASURE	OUTSIDE WIDTH MEASURE	OUTSIDE WIDTH MEASURE	OUTSIDE WIDTH MEASURE	OUTSIDE WIDTH MEASURE
1	--	--	--	--	--
2	1.3125	1.375	1.4375	1.5	1.5625
3	2.5	2.5625	2.625	2.6875	2.75
4	3.6875	3.75	3.8125	3.875	3.9375
5	4.875	4.9375	5	5.0625	5.125
6	6.0625	6.125	6.1875	6.25	6.3125
7	7.25	7.3125	7.375	7.4375	7.5
8	8.4375	8.5	8.5625	8.625	8.6875
9	9.625	9.6875	9.75	9.8125	9.875
10	10.8125	10.875	10.9375	11	11.0625
11	12	12.0625	12.125	12.1875	12.25
12	13.1875	13.25	13.3125	13.375	13.4375
13	14.375	14.4375	14.5	14.5625	14.625
14	15.5625	15.625	15.6875	15.75	15.8125
15	16.75	16.8125	16.875	16.9375	17
16	17.9375	18	18.0625	18.125	18.1875
17	19.125	19.1875	19.25	19.3125	19.375
18	20.3125	20.375	20.4375	20.5	20.5625
19	21.5	21.5625	21.625	21.6875	21.75
20	22.6875	22.75	22.8125	22.875	22.9375
21	23.875	23.9375	24	24.0625	24.125
22	25.0625	25.125	25.1875		
23	26.25	26.3125	26.375		
24	27.4375	27.5	27.5625		
25	28.625	28.6875	28.75		
26	29.8125	29.875	29.9375		
27	31	31.0625	31.125		
28	32.1875	32.25	32.3125		
29	33.375	33.4375	33.5		
30	34.5625	34.625	34.6875		
31	35.75	35.8125	35.875		





BAR GRATING - STEEL

METRIC - Type 30-102 Spacing

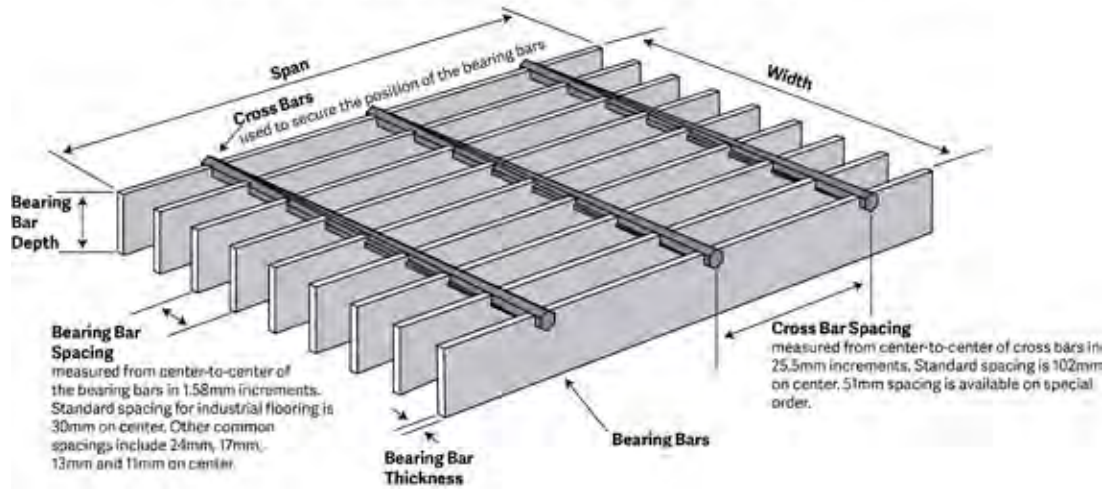
30-102

30mm

1
BAR
GRATING

BAR SPACING TABLE

Commonly used Terminology for Bar Grating Assembly (Metric Measurements)



BAR SPACING 30-102/30-51

NUMBER OF BEARING BARS	BAR WIDTH				
	3.2	4.8	6.4	7.9	9.5
	OUTSIDE WIDTH MEASURE	OUTSIDE WIDTH MEASURE	OUTSIDE WIDTH MEASURE	OUTSIDE WIDTH MEASURE	OUTSIDE WIDTH MEASURE
1	--	--	--	--	--
2	33	35	37	38	40
3	64	65	67	68	70
4	94	95	97	98	100
5	124	125	127	129	130
6	154	156	157	159	160
7	184	186	187	189	191
8	214	216	217	219	221
9	244	246	248	249	251
10	275	276	278	279	281
11	305	306	308	310	311
12	335	337	338	340	341
13	365	367	368	370	371
14	395	397	398	400	402
15	425	427	429	430	432
16	456	457	459	460	462
17	486	487	489	491	492
18	516	518	519	521	522
19	546	548	549	551	552
20	576	578	579	581	583
21	606	608	610	611	613
22	637	638	640		
23	667	668	670		
24	697	699	700		
25	727	729	730		
26	757	759	760		
27	787	789	791		
28	818	819	821		
29	848	849	851		
30	878	879	881		
31	908	910	911		





BAR GRATING - STEEL

METRIC - Type 30-102 Spacing

30-102

30mm

1
BAR
GRATING

TABLE OF SAFE LOADS

U - Safe Uniform Load, in kPa

C - Safe Concentrated Load, in kN per meter

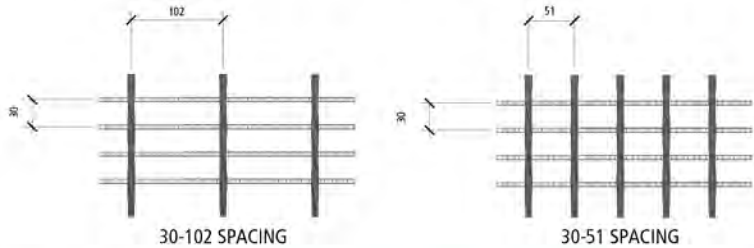
D - Deflection in millimeters

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.

For serrated surface, increase depth by 7mm for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



For bar spacing information refer to chart at www.accuratescreen.ca

SIZE OF BEARING BAR		APPROX. WT/KG/M2		SPAN IN MILLIMETER																SEC MOD. PER 305mm WIDTH	OF	
				TYPE 30-102	TYPE 30-51	305	458	610	762	915	1067	1219	1372	1524	1676	1829	1981	2133	2438			2743
19 x 3.2	19.19			U	1420	631	355	227	158	116	89	70								2.00		
				D	0.023	0.055	0.099	0.155	0.223	0.304	0.397	0.503										
				C	710	473	355	284	237	203	178	158										
				D	0.019	0.044	0.079	0.124	0.179	0.243	0.318	0.402										
19 x 4.8	27.24			U	2132	948	533	341	237	174	133	105								3.00		
				D	0.023	0.055	0.099	0.155	0.223	0.304	0.397	0.503										
				C	1066	711	533	426	355	305	266	237										
				D	0.019	0.044	0.079	0.124	0.179	0.243	0.318	0.402										
25 x 3.2	24.56	26.85		U	2528	1124	632	404	281	206	158	125	101	84						3.54		
				D	0.020	0.042	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563								
				C	1264	843	632	505	421	361	316	281	253	230								
				D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451								
25 x 4.8	35.30	38.42		U	3788	1684	947	606	421	309	237	187	152	125						5.33		
				D	0.020	0.042	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563								
				C	1894	1263	947	758	632	541	474	421	379	344								
				D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451								
32 x 3.2	29.88	33.01		U	3948	1755	987	632	439	322	247	195	158	130	110	93	81			5.56		
				D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730					
				C	1974	1316	987	789	658	564	493	439	395	359	329	304	282					
				D	0.017	0.029	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584					
32 x 4.8	43.31	46.43		U	5920	2631	1480	947	658	483	370	292	237	196	164	140	121			8.31		
				D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730					
				C	2960	1973	1480	1184	987	846	740	658	592	538	493	455	423					
				D	0.017	0.029	0.048	0.074	0.107	0.146	0.191	0.241	0.298	0.360	0.429	0.504	0.584					
38 x 3.2	35.30	38.42		U	5684	2526	1421	909	632	464	355	281	227	188	158	135	116	89	70	8.00		
				D	0.012	0.028	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			
				C	2842	1895	1421	1137	947	812	711	632	568	517	474	437	406	355	316			
				D	0.011	0.023	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			
38 x 4.8	51.31	54.44		U	8528	3790	2132	1364	947	696	533	421	341	282	237	202	174	133	105	11.97		
				D	0.012	0.028	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			
				C	4264	2843	2132	1705	1421	1218	1066	947	853	775	711	656	609	533	474			
				D	0.011	0.023	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			
45 x 4.8	59.42	62.54		U	11604	5157	2901	1857	1289	947	725	573	464	384	322	275	237	181	143	16.30		
				D	0.010	0.024	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	5802	3868	2901	2321	1934	1658	1451	1289	1161	1055	967	893	829	725	645			
				D	0.011	0.020	0.034	0.051	0.077	0.104	0.136	0.172	0.213	0.257	0.306	0.360	0.417	0.545	0.689			
51 x 4.8	67.43	70.55		U	15156	6736	3789	2425	1684	1237	947	749	606	501	421	359	309	237	187	21.30		
				D	0.010	0.021	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	7578	5052	3789	3032	2526	2165	1895	1684	1516	1378	1263	1166	1083	947	842			
				D	0.005	0.016	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			
57 x 4.8	75.43	78.56		U	19184	8526	4796	3069	2132	1566	1199	947	767	634	533	454	392	300	237	26.96		
				D	0.004	0.017	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	9592	6395	4796	3837	3197	2741	2398	2132	1918	1744	1599	1476	1370	1199	1066			
				D	0.008	0.015	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			
64 x 4.8	83.54	86.66		U	23684	10526	5921	3789	2632	1933	1480	1170	947	783	658	561	483	370	292	33.28		
				D	0.005	0.016	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	11842	7895	5921	4737	3947	3383	2961	2632	2368	2153	1974	1822	1692	1480	1316			
				D	0.010	0.015	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			

Maximum allowable fiber stress of 124 M.P.A





BAR GRATING - STEEL

IMPERIAL - Type 15-4 Spacing

15-4

15/16"

TABLE OF SAFE LOADS

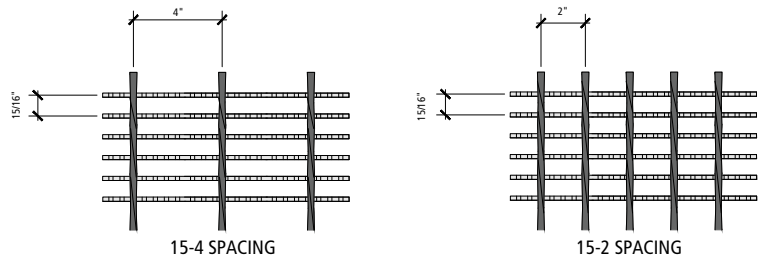
- U - Safe Uniform Load, in lbs. per sq. ft.
- C - Safe Concentrated Load, in lbs. per foot of grating width
- D - Deflection in inches

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.

For serrated surface, increase depth by 1/4" for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



SIZE OF BEARING BAR		APPROX. WT./LBS./SQ.FT		SPAN IN INCHES													SEC. MOD. PER FEET OF WIDTH		
				1'-0"	1'-6"	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"	4.70		U	1800	800	450	288	200	147	113	89								0.150
			D	0.023	0.055	0.099	0.155	0.223	0.304	0.397	0.503								
			C	900	600	450	360	300	257	225	200								
			D	0.019	0.044	0.079	0.124	0.179	0.243	0.318	0.402								
3/4" X 3/16"	6.90		U	2700	1200	675	432	300	220	169	133	108							0.225
			D	0.023	0.055	0.099	0.155	0.223	0.304	0.397	0.503	0.621							
			C	1350	900	675	540	450	386	338	300	270							
			D	0.019	0.044	0.079	0.124	0.179	0.243	0.318	0.402	0.497							
1" X 1/8"	6.10	6.70	U	3200	1422	800	512	356	261	200	158	128	106	89					0.267
			D	0.020	0.042	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670					
			C	1600	1067	800	640	533	457	400	356	320	291	267					
			D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536					
1" X 3/16"	8.90	9.60	U	4800	2133	1200	768	533	392	300	237	192	159	133					0.400
			D	0.020	0.042	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670					
			C	2400	1600	1200	960	800	686	600	533	480	436	400					
			D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536					
1 1/4" X 1/8"	7.50	8.10	U	5000	2222	1250	800	556	408	313	247	200	165	139	118	102			0.417
			D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730			
			C	2500	1667	1250	1000	833	714	625	556	500	455	417	385	357			
			D	0.017	0.029	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"	11.00	11.60	U	7500	3333	1875	1200	833	612	469	370	300	248	208	178	153			0.625
			D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730			
			C	3750	2500	1875	1500	1250	1071	938	833	750	682	625	577	536			
			D	0.017	0.029	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"	8.90	9.40	U	7200	3200	1800	1152	800	588	450	356	288	238	200	170	147	113	89	6.000
			D	0.015	0.029	0.050	0.078	0.113	0.152	0.199	0.251	0.310	0.376	0.447	0.524	0.608	0.794	1.006	
			C	3600	2400	1800	1440	1200	1029	900	800	720	655	600	554	514	450	400	
			D	0.011	0.023	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"	13.10	13.70	U	10800	4800	2700	1728	1200	882	675	533	432	357	300	256	220	169	133	9.000
			D	0.012	0.028	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	
			C	5400	3600	2700	2160	1800	1543	1350	1200	1080	982	900	831	771	675	600	
			D	0.011	0.023	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"	15.20	15.80	U	14700	6533	3675	2352	1633	1200	919	726	588	486	408	348	300	230	181	1.225
			D	0.010	0.024	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	7350	4900	3675	2940	2450	2100	1838	1633	1470	1336	1225	1131	1050	919	817	
			D	0.011	0.020	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"	17.30	17.90	U	19200	8533	4800	3072	2133	1567	1200	948	768	635	533	454	392	300	237	1.600
			D	0.010	0.021	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	9600	6400	4800	3840	3200	2743	2400	2133	1920	1745	1600	1477	1371	1200	1067	
			D	0.005	0.016	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"	19.40	20.00	U	24300	10800	6075	3888	2700	1984	1519	1200	972	803	675	575	496	380	300	2.025
			D	0.004	0.017	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	12150	8100	6075	4860	4050	3471	3038	2700	2430	2209	2025	1869	1736	1519	1350	
			D	0.008	0.015	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"	21.40	22.00	U	30000	13333	7500	4800	3333	2449	1875	1481	1200	992	833	710	612	469	370	2.500
			D	0.005	0.016	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	15000	10000	7500	6000	5000	4286	3750	3333	3000	2727	2500	2308	2143	1875	1667	
			D	0.010	0.015	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	

Maximum allowable fiber stress of 18,000 P.S.I





BAR GRATING - STEEL

METRIC - Type 24-102 Spacing

24-102

24mm

1
BAR
GRATING

TABLE OF SAFE LOADS

U - Safe Uniform Load, in kPa

C - Safe Concentrated Load, in kN per meter

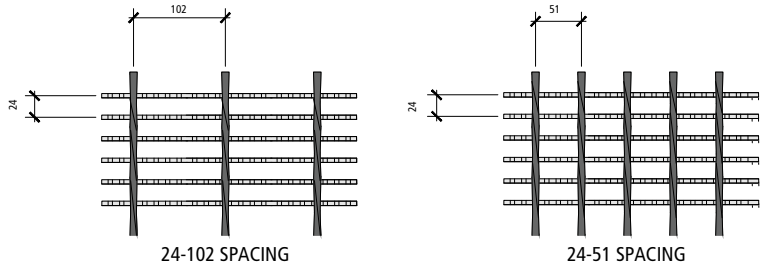
D - Deflection in millimeters

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.

For serrated surface, increase depth by 7mm for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



STANDARD STEEL TYPE 24-102																			
SIZE OF BEARING BAR	APPROX. WT/KG/M2		SPAN IN MILLIMETER														SEC.MOD. PER 305mm OF WIDTH		
	TYPE 24-102	TYPE 24-51	305	458	610	762	915	1067	1219	1372	1524	1676	1829	1981	2133	2438		2743	
19 x 3.2	22.95		U	86.22	38.32	21.56	13.80	9.58	7.04	5.41	4.26								2.460
			D	0.6	1.4	2.5	3.9	5.7	7.7	10.1	12.8								
			C	13.13	8.75	6.57	5.25	4.38	3.75	3.28	2.92								
			D	0.5	1.1	2.0	3.1	4.5	6.2	8.1	10.2								
19 x 4.8	33.69		U	129.33	57.48	32.33	20.69	14.37	10.54	8.10	6.37	5.17							3.690
			D	0.6	1.4	2.5	3.9	5.7	7.7	10.1	12.8	15.8							
			C	19.70	13.13	9.85	7.88	6.57	5.63	4.93	4.38	3.94							
			D	0.5	1.1	2.0	3.1	4.5	6.2	8.1	10.2	12.6							
25 x 3.2	29.78	32.71	U	153.28	68.12	38.32	24.52	17.05	12.50	9.58	7.57	6.13	5.08	4.26					4.379
			D	0.5	1.1	1.9	2.9	4.3	5.8	7.6	9.6	11.8	14.3	17.0					
			C	23.34	15.56	11.67	9.34	7.78	6.67	5.84	5.19	4.67	4.25	3.90					
			D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6					
25 x 4.8	43.45	46.87	U	229.92	102.19	57.48	36.79	25.53	18.78	14.37	11.35	9.20	7.62	6.37					6.560
			D	0.5	1.1	1.9	2.9	4.3	5.8	7.6	9.6	11.8	14.3	17.0					
			C	35.02	23.34	17.51	14.01	11.67	10.01	8.75	7.78	7.00	6.36	5.84					
			D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6					
32 x 3.2	36.62	39.55	U	239.50	106.44	59.88	38.32	26.63	19.54	14.99	11.83	9.58	7.90	6.66	5.65	4.89			6.839
			D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6	16.0	18.5			
			C	36.48	24.32	18.24	14.59	12.15	10.42	9.12	8.11	7.30	6.64	6.08	5.62	5.21			
			D	0.4	0.7	1.2	1.9	2.7	3.7	4.9	6.1	7.6	9.1	10.9	12.8	14.8			
32 x 4.8	53.71	56.64	U	359.25	159.67	89.81	57.48	39.90	29.31	22.47	17.72	14.37	11.88	9.96	8.53	7.33			10.250
			D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6	16.0	18.5			
			C	54.71	36.48	27.36	21.89	18.24	15.63	13.69	12.15	10.94	9.95	9.12	8.42	7.82			
			D	0.4	0.7	1.2	1.9	2.7	3.7	4.9	6.1	7.6	9.1	10.9	12.8	14.8			
38 x 3.2	43.45	45.89	U	344.88	153.28	86.22	55.18	38.32	28.17	21.56	17.05	13.80	11.40	9.58	8.14	7.04	5.41	4.26	98.400
			D	0.4	0.7	1.3	2.0	2.9	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.4	20.2	25.6	
			C	52.52	35.02	26.26	21.01	17.51	15.01	13.13	11.67	10.50	9.56	8.75	8.08	7.50	6.57	5.84	
			D	0.3	0.6	1.0	1.6	2.3	3.1	4.0	5.1	6.3	7.6	9.1	10.7	12.4	16.2	20.4	
38 x 4.8	63.96	66.89	U	517.32	229.92	129.33	82.77	57.48	42.25	32.33	25.53	20.69	17.10	14.37	12.26	10.54	8.10	6.37	147.600
			D	0.3	0.7	1.3	2.0	2.8	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.4	20.2	25.6	
			C	78.79	52.52	39.39	31.51	26.26	22.51	19.70	17.51	15.76	14.33	13.13	12.12	11.25	9.85	8.75	
			D	0.3	0.6	1.0	1.6	2.3	3.1	4.0	5.1	6.3	7.6	9.1	10.7	12.4	16.2	20.4	
45 x 4.8	74.21	77.14	U	704.13	312.95	176.03	112.66	78.22	57.48	44.02	34.78	28.17	23.28	19.54	16.67	14.37	11.02	8.67	20.090
			D	0.3	0.6	1.1	1.7	2.4	3.3	4.3	5.5	6.8	8.2	9.7	11.4	13.2	17.3	21.9	
			C	107.24	71.49	53.62	42.89	35.75	30.64	26.82	23.83	21.45	19.49	17.87	16.50	15.32	13.41	11.92	
			D	0.3	0.5	0.9	1.3	2.0	2.6	3.5	4.4	5.4	6.5	7.8	9.1	10.6	13.8	17.5	
51 x 4.8	84.47	87.39	U	919.68	408.75	229.92	147.15	102.17	75.06	57.48	45.41	36.79	30.42	25.53	21.75	18.78	14.37	11.35	26.240
			D	0.3	0.5	0.9	1.5	2.1	2.9	3.8	4.8	5.9	7.2	8.5	10.0	11.6	15.1	19.2	
			C	140.06	93.38	70.03	56.03	46.69	40.02	35.02	31.12	28.01	25.46	23.34	21.55	20.00	17.51	15.57	
			D	0.1	0.4	0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	12.1	15.3	
57 x 4.8	94.72	97.65	U	1163.97	517.32	290.99	186.24	129.33	95.03	72.76	57.48	46.56	38.46	32.33	27.54	23.76	18.20	14.37	33.210
			D	0.1	0.4	0.8	1.3	1.9	2.6	3.4	4.3	5.3	6.4	7.6	8.9	10.3	13.5	17.0	
			C	177.27	118.18	88.63	70.91	59.09	50.64	44.32	39.39	35.45	32.23	29.54	27.27	25.33	22.16	19.70	
			D	0.2	0.4	0.7	1.0	1.5	2.1	2.7	3.4	4.2	5.1	6.0	7.1	8.2	10.8	13.6	
64 x 4.8	104.48	107.41	U	1437.00	638.67	359.25	229.92	159.65	117.31	89.81	70.94	57.48	47.52	39.90	34.01	29.31	22.47	17.72	41.000
			D	0.1	0.4	0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	12.1	15.3	
			C	218.85	145.90	109.43	87.54	72.95	62.53	54.71	48.63	43.77	39.79	36.48	33.67	31.27	27.36	24.32	
			D	0.3	0.4	0.6	0.9	1.4	1.9	2.4	3.1	3.8	4.6	5.5	6.4	7.4	9.7	12.3	

Maximum allowable fiber stress of 124 M.P.A





BAR GRATING - STEEL

IMPERIAL - Type 13-4 Spacing

13-4

13/16"

TABLE OF SAFE LOADS

U - Safe Uniform Load, in lbs. per sq. ft.

C - Safe Concentrated Load, in lbs. per foot of grating width

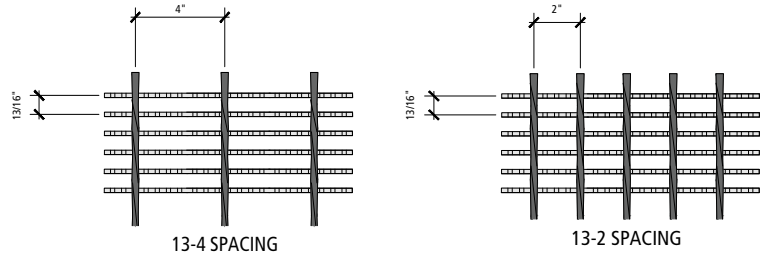
D - Deflection in inches

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.

For serrated surface, increase depth by 1/4" for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



SIZE OF BEARING BAR		APPROX. WT/LBS/SQ.FT		SPAN IN INCHES													SEC. MOD. PER FEET OF WIDTH			
				1'-0"	1'-6"	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"	5.30			U	2076	923	519	332	231	170	130	103								0.173
				D	0.023	0.055	0.099	0.155	0.223	0.304	0.391	0.503								
				C	1038	692	519	415	346	297	260	231								
				D	0.019	0.044	0.079	0.124	0.179	0.243	0.318	0.402								
3/4" X 3/16"	7.80			U	3116	1385	779	498	346	254	195	154	125							0.260
				D	0.023	0.055	0.099	0.155	0.223	0.304	0.397	0.503	0.621							
				C	1558	1039	779	623	519	445	389	346	312							
				D	0.019	0.044	0.079	0.124	0.179	0.243	0.318	0.402	0.497							
1" X 1/8"	7.50	7.50		U	3692	1641	923	591	410	301	231	182	148	122	103					0.308
				D	0.020	0.042	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670					
				C	1846	1231	923	738	615	527	462	410	369	336	308					
				D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536					
1" X 3/16"	10.20	10.80		U	5540	2462	1385	886	615	452	346	274	222	183	154					0.462
				D	0.020	0.042	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670					
				C	2770	1847	1385	1108	923	791	692	615	554	503	462					
				D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536					
1 1/4" X 1/8"	8.50	9.10		U	5768	2564	1442	923	641	471	361	285	231	191	160	137	118			0.481
				D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730			
				C	2884	1923	1442	1154	962	824	721	641	577	524	481	444	412			
				D	0.017	0.029	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"	12.60	13.20		U	8652	3845	2163	1385	962	706	541	427	346	286	240	205	177			0.721
				D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730			
				C	4326	2884	2163	1731	1442	1236	1082	962	865	787	721	666	618			
				D	0.017	0.029	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"	10.10	10.70		U	8308	3692	2077	1329	923	678	519	410	332	275	231	197	170	130	103	0.692
				D	0.015	0.029	0.050	0.078	0.113	0.152	0.199	0.251	0.310	0.376	0.447	0.524	0.608	0.794	1.006	
				C	4154	2769	2077	1662	1385	1187	1038	923	831	755	692	639	593	519	462	
				D	0.011	0.023	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"	15.00	15.60		U	12460	5538	3115	1994	1385	1017	779	615	498	412	346	295	254	195	154	1.038
				D	0.012	0.028	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	
				C	6230	4153	3115	2492	2077	1780	1558	1385	1246	1133	1038	959	890	779	692	
				D	0.011	0.023	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"	17.40	18.00		U	16960	7538	4240	2714	1885	1385	1060	838	678	561	471	401	346	265	209	1.413
				D	0.010	0.024	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	8480	5653	4240	3392	2827	2423	2120	1885	1696	1542	1413	1305	1212	1060	942	
				D	0.011	0.020	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"	19.80	20.40		U	22152	9845	5538	3545	2462	1808	1385	1094	886	732	615	524	452	346	274	1.846
				D	0.010	0.021	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	11076	7384	5538	4431	3692	3165	2769	2462	2215	2014	1846	1704	1582	1385	1231	
				D	0.005	0.016	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"	22.20	22.80		U	28040	12462	7010	4486	3115	2289	1752	1385	1122	927	779	664	572	438	346	2.337
				D	0.004	0.017	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	14020	9347	7010	5608	4673	4005	3505	3115	2804	2549	2337	2157	2003	1752	1558	
				D	0.008	0.015	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"	24.60	25.20		U	34616	15385	8654	5538	3846	2826	2163	1709	1385	1144	962	819	706	541	427	2.885
				D	0.005	0.016	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	17308	11539	8654	6923	5769	4945	4327	3846	3462	3147	2885	2663	2473	2163	1923	
				D	0.010	0.015	0.024	0.037	0.054	0.073	0.095	0.121	0.149	0.180	0.215	0.255	0.292	0.381	0.483	

Maximum allowable fiber stress of 18,000 P.S.I





BAR GRATING - STEEL

METRIC - Type 21-102 Spacing

21-102

21mm

1
BAR
GRATING

TABLE OF SAFE LOADS

U - Safe Uniform Load, in kPa

C - Safe Concentrated Load, in kN per meter

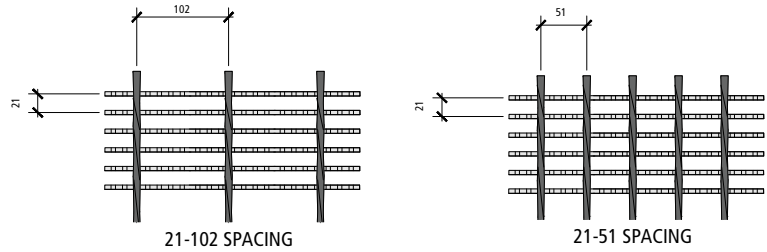
D - Deflection in millimeters

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.

For serrated surface, increase depth by 7mm for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



STANDARD STEEL TYPE 21-102

SIZE OF BEARING BAR	APPROX. WT/KG/M2		SPAN IN MILLIMETER													SEC.MOD. PER 305mm OF WIDTH			
	TYPE 21-102	TYPE 21-51	305	458	610	762	915	1067	1219	1372	1524	1676	1829	1981	2133		2438	2743	
19 x 3.2	25.88		U	99.44	44.20	24.86	15.90	11.06	8.14	6.23	4.93								2.837
			D	0.6	1.4	2.5	3.9	5.7	7.7	9.9	12.8								
			C	15.14	10.10	7.57	6.05	5.05	4.33	3.79	3.37								
			D	0.5	1.1	2.0	3.1	4.5	6.2	8.1	10.2								
19 x 4.8	38.08		U	149.26	66.34	37.31	23.85	16.57	12.17	9.34	7.38	5.99							4.264
			D	0.6	1.4	2.5	3.9	5.7	7.7	10.1	12.8	15.8							
			C	22.73	15.15	11.37	9.09	7.57	6.49	5.68	5.05	4.55							
			D	0.5	1.1	2.0	3.1	4.5	6.2	8.1	10.2	12.6							
25 x 3.2	36.62	36.62	U	176.85	78.60	44.21	28.31	19.64	14.42	11.06	8.72	7.09	5.84	4.93					5.051
			D	0.5	1.1	1.9	2.9	4.3	5.8	7.6	9.6	11.8	14.3	17.0					
			C	26.93	17.96	13.47	10.77	8.97	7.69	6.74	5.98	5.38	4.90	4.49					
			D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6					
25 x 4.8	49.80	52.73	U	265.37	117.94	66.34	42.44	29.46	21.65	16.57	13.12	10.63	8.77	7.38					7.577
			D	0.5	1.1	1.9	2.9	4.3	5.8	7.6	9.6	11.8	14.3	17.0					
			C	40.41	26.94	20.21	16.17	13.47	11.54	10.10	8.97	8.08	7.34	6.74					
			D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6					
32 x 3.2	41.50	44.43	U	276.29	122.79	69.07	44.21	30.70	22.56	17.29	13.65	11.06	9.15	7.66	6.56	5.65			7.888
			D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6	16.0	18.5			
			C	42.08	28.05	21.04	16.84	14.04	12.02	10.52	9.35	8.42	7.65	7.02	6.48	6.01			
			D	0.4	0.7	1.2	1.9	2.7	3.7	4.9	6.1	7.6	9.1	10.9	12.8	14.8			
32 x 4.8	61.52	64.45	U	414.43	184.19	103.61	66.34	46.08	33.82	25.91	20.45	16.57	13.70	11.50	9.82	8.48			11.824
			D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6	16.0	18.5			
			C	63.12	42.08	31.56	25.26	21.04	18.03	15.79	14.04	12.62	11.48	10.52	9.72	9.02			
			D	0.4	0.7	1.2	1.9	2.7	3.7	4.9	6.1	7.6	9.1	10.9	12.8	14.8			
38 x 3.2	49.31	52.24	U	397.95	176.87	99.49	63.66	44.21	32.48	24.86	19.64	15.90	13.17	11.06	9.44	8.14	6.23	4.93	11.349
			D	0.4	0.7	1.3	2.0	2.9	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.4	20.2	25.6	
			C	60.61	40.40	30.30	24.25	20.21	17.32	15.14	13.47	12.12	11.02	10.10	9.32	8.65	7.57	6.74	
			D	0.3	0.6	1.0	1.6	2.3	3.1	4.0	5.1	6.3	7.6	9.1	10.7	12.4	16.2	20.4	
38 x 4.8	73.24	76.17	U	596.83	265.26	149.21	95.51	66.34	48.71	37.31	29.46	23.85	19.73	16.57	14.13	12.17	9.34	7.38	17.023
			D	0.3	0.7	1.3	2.0	2.8	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.4	20.2	25.6	
			C	90.90	60.60	45.45	36.36	30.30	25.97	22.73	20.21	18.18	16.53	15.14	13.99	12.99	11.37	10.10	
			D	0.3	0.6	1.0	1.6	2.3	3.1	4.0	5.1	6.3	7.6	9.1	10.7	12.4	16.2	20.4	
45 x 4.8	84.95	87.88	U	812.38	361.06	203.10	130.00	90.29	66.34	50.77	40.14	32.48	26.87	22.56	19.21	16.57	12.69	10.01	23.173
			D	0.3	0.6	1.1	1.7	2.4	3.3	4.3	5.5	6.8	8.2	9.7	11.4	13.2	17.3	21.9	
			C	123.72	82.48	61.86	49.49	41.25	35.35	30.93	27.50	24.74	22.50	20.62	19.04	17.68	15.47	13.74	
			D	0.3	0.5	0.9	1.3	2.0	2.6	3.5	4.4	5.4	6.5	7.8	9.1	10.6	13.8	17.5	
51 x 4.8	96.67	99.60	U	1061.08	471.59	265.27	169.81	117.93	86.60	66.34	52.40	42.44	35.06	29.46	25.10	21.65	16.57	13.12	30.274
			D	0.3	0.5	0.9	1.5	2.1	2.9	3.8	4.8	5.9	7.2	8.5	10.0	11.6	15.1	19.2	
			C	161.60	107.73	80.80	64.65	53.87	46.18	40.40	35.92	32.32	29.38	26.93	24.86	23.08	20.21	17.96	
			D	0.1	0.4	0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	12.1	15.3	
57 x 4.8	108.39	111.32	U	1343.12	596.94	335.78	214.88	149.21	109.64	83.92	66.34	53.74	44.40	37.31	31.81	27.40	20.98	16.57	38.327
			D	0.1	0.4	0.8	1.3	1.9	2.6	3.4	4.3	5.3	6.4	7.6	8.9	10.3	13.5	17.0	
			C	204.55	136.37	102.28	81.82	68.18	58.43	51.14	45.45	40.91	37.19	34.10	31.47	29.22	25.56	22.73	
			D	0.2	0.4	0.7	1.0	1.5	2.1	2.7	3.4	4.2	5.1	6.0	7.1	8.2	10.8	13.6	
64 x 4.8	120.11	123.04	U	1658.11	736.94	414.53	265.27	184.22	135.37	103.61	81.86	66.34	54.80	46.08	39.23	33.82	25.91	20.45	47.314
			D	0.1	0.4	0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	12.1	15.3	
			C	252.52	168.35	126.26	101.01	84.17	72.15	63.13	56.11	50.51	45.91	42.09	38.85	36.08	31.56	28.06	
			D	0.3	0.4	0.6	0.9	1.4	1.9	2.4	3.1	3.8	4.6	5.5	6.5	7.4	9.7	12.3	

Maximum allowable fiber stress of 124 M.P.A





BAR GRATING - STEEL

IMPERIAL - Type 11-4 Spacing

11-4

11/16"

TABLE OF SAFE LOADS

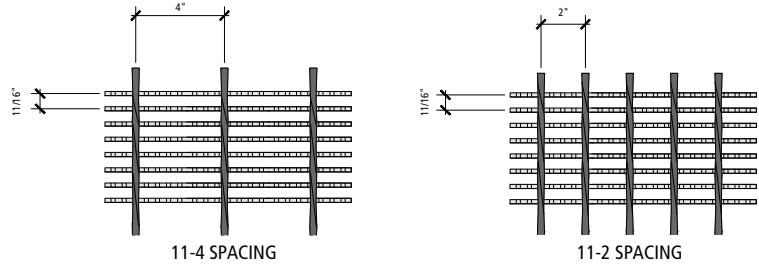
- U** - Safe Uniform Load, in lbs. per sq. ft.
- C** - Safe Concentrated Load, in lbs. per foot of grating width
- D** - Deflection in inches

For serrated surface, increase depth by 1/4" for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.



STANDARD STEEL TYPE 11-4																				
SIZE OF BEARING BAR	APPROX. WT./LBS./SQ.FT			SPAN IN INCHES												SEC. MOD. PER FEET OF WIDTH				
	TYPE 11-4	TYPE 11-2		1'-0"	1'-6"	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"	5.30		U	2456	1092	614	393	273	200	153	121	98								0.173
			D	0.023	0.055	0.099	0.155	0.223	0.304	0.397	0.503	0.621								
			C	1228	819	614	491	409	351	307	273	245								
			D	0.019	0.044	0.079	0.124	0.179	0.243	0.318	0.402	0.497								
3/4" X 3/16"	7.80		U	3680	1636	920	589	409	301	230	182	147								0.260
			D	0.023	0.055	0.099	0.155	0.223	0.304	0.397	0.503	0.621								
			C	1840	1227	920	736	614	526	460	409	368								
			D	0.019	0.044	0.079	0.124	0.179	0.243	0.318	0.402	0.497								
1" X 1/8"	7.50	7.50	U	4364	1940	1091	698	485	356	273	215	175	144	121						0.308
			D	0.020	0.042	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670						
			C	2182	1455	1091	873	727	623	545	485	436	397	364						
			D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536						
1" X 3/16"	10.20	10.80	U	6544	2908	1636	1047	727	534	409	323	262	216	182	155					0.462
			D	0.020	0.042	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670	0.787					
			C	3272	2181	1636	1309	1091	935	818	737	655	595	545	503					
			D	0.018	0.035	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"	8.50	9.10	U	6820	3031	1705	1091	758	557	426	337	273	225	189	161	139				0.481
			D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730				
			C	2150	1433	1075	1364	1136	974	852	758	682	620	568	524	487				
			D	0.017	0.029	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"	12.60	13.20	U	10228	4546	2557	1636	1136	835	639	505	409	338	284	242	209	160			0.721
			D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730	0.953			
			C	5114	3409	2557	2045	1705	1461	1278	1136	1023	930	852	787	731	639			
			D	0.017	0.029	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"	10.10	10.70	U	9820	4364	2455	1571	1091	801	614	485	393	325	273	232	200	153	121		0.692
			D	0.012	0.028	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		
			C	4910	3273	2455	1694	1636	1403	1227	1091	982	893	818	757	701	614	545		
			D	0.011	0.023	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"	15.00	15.60	U	14728	6546	3682	2356	1636	1202	920	727	589	487	409	349	301	230	182		1.038
			D	0.012	0.028	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		
			C	7364	4909	3682	2945	2455	2104	1841	1636	1473	1339	1227	1133	1052	920	818		
			D	0.011	0.023	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"	17.40	18.00	U	20044	8908	5011	3207	2227	1636	1253	909	802	663	557	474	409	313	247		1.413
			D	0.010	0.024	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	10022	6681	5011	4009	3341	2864	2506	2227	2005	1822	1670	1542	1432	1253	1114		
			D	0.011	0.020	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"	19.80	20.40	U	26180	11636	6545	4189	2909	2137	1636	1293	1047	866	727	620	534	409	323		1.846
			D	0.010	0.021	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	13090	8727	6545	5236	4364	3740	3273	2909	2618	2380	2182	2014	1870	1636	1455		
			D	0.005	0.016	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"	22.20	22.80	U	33136	14727	8284	5302	3682	2705	2071	1636	1325	1095	920	784	676	518	409		2.337
			D	0.004	0.017	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	16568	11045	8284	6627	5523	4734	4142	3682	3314	3012	2761	2549	2367	2071	1841		
			D	0.008	0.015	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"	24.60	25.20	U	40908	18181	10227	6545	4545	3340	2557	2020	1636	1352	1136	968	835	639	505		2.885
			D	0.005	0.016	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	20454	13636	10227	8182	6818	5844	5114	4545	4091	3719	3409	3147	2922	2557	2273		
			D	0.010	0.015	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		

Maximum allowable fiber stress of 18,000 P.S.I





BAR GRATING - STEEL

METRIC - Type 17-102 Spacing

17-102

17mm

1
BAR
GRATING

TABLE OF SAFE LOADS

U - Safe Uniform Load, in kPa

C - Safe Concentrated Load, in kN per meter

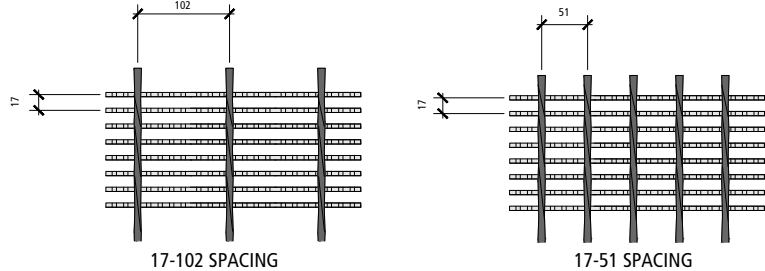
D - Deflection in millimeters

For serrated surface, increase depth by 7mm for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.



STANDARD STEEL TYPE 17-102

SIZE OF BEARING BAR	APPROX. WT/KG/M2		SPAN IN MILLIMETER													SEC. MOD. PER 305mm OF WIDTH				
	TYPE 17-102	TYPE 17-51	305	458	610	762	915	1067	1219	1372	1524	1676	1829	1981	2133		2438	2743		
19 x 3.2	30.27		U	117.64	52.29	29.41	18.82	13.08	9.58	7.33	5.80	4.69							3.362	
			D	0.6	1.4	2.5	3.9	5.7	7.7	10.1	12.8	15.8								
			C	17.92	11.94	8.96	7.16	5.97	5.12	4.48	3.98	3.57								
			D	0.5	1.1	2.0	3.1	4.5	6.2	8.1	10.2	12.6								
19 x 4.8	44.43		U	176.27	78.34	44.07	28.21	19.59	14.42	11.02	8.72	7.04							5.035	
			D	0.6	1.4	2.5	3.9	5.7	7.7	10.1	12.8	15.8								
			C	26.85	17.90	13.42	10.74	8.96	7.67	6.71	5.97	5.37								
			D	0.5	1.1	2.0	3.1	4.5	6.2	8.1	10.2	12.6								
25 x 3.2	39.55	41.99	U	209.04	92.90	52.26	33.43	23.23	17.05	13.08	10.30	8.38	6.90	5.80					5.970	
			D	0.5	1.1	1.9	2.9	4.3	5.8	7.6	9.6	11.8	14.3	17.0						
			C	31.84	21.22	15.92	12.74	10.61	9.09	7.95	7.08	6.36	5.79	5.31						
			D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6						
25 x 4.8	58.10	61.03	U	313.46	139.31	78.36	50.15	34.82	25.58	19.59	15.47	12.55	10.35	8.72	7.42				8.938	
			D	0.5	1.1	1.9	2.9	4.3	5.8	7.6	9.6	11.8	14.3	17.0	20.0					
			C	47.74	31.83	23.87	19.10	15.92	13.64	11.93	10.75	9.56	8.68	7.95	7.34					
			D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6	16.0					
32 x 3.2	48.82	51.27	U	326.68	145.19	81.67	52.26	36.31	26.68	20.41	16.14	13.08	10.78	9.05	7.71	6.66			9.315	
			D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6	16.0	18.5				
			C	31.37	20.91	15.68	12.74	10.61	9.09	7.95	7.08	6.36	5.79	5.31						
			D	0.4	0.7	1.2	1.9	2.7	3.7	4.9	6.1	7.6	9.1	10.9	12.8	14.8				
32 x 4.8	71.77	74.70	U	489.92	217.74	122.48	78.36	54.41	40.00	30.61	24.19	19.59	16.19	13.60	11.59	10.01	7.66		13.973	
			D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6	16.0	18.5	24.2			
			C	74.61	49.74	37.31	29.84	24.88	21.32	18.65	16.57	14.93	13.57	12.43	11.48	10.67	9.32			
			D	0.4	0.7	1.2	1.9	2.7	3.7	4.9	6.1	7.6	9.1	10.9	12.8	14.8	19.4			
38 x 3.2	58.10	60.54	U	470.38	209.06	117.59	75.25	52.26	38.37	29.41	23.23	18.82	15.57	13.08	11.11	9.58	7.33	5.80	13.415	
			D	0.3	0.7	1.3	2.0	2.8	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.4	20.2	25.6		
			C	71.64	47.76	35.82	24.72	23.87	20.47	17.90	15.92	14.33	13.03	11.93	11.04	10.23	8.96	7.95		
			D	0.3	0.6	1.0	1.6	2.3	3.1	4.0	5.1	6.3	7.6	9.1	10.7	12.4	16.2	20.4		
38 x 4.8	85.44	88.37	U	705.47	313.54	176.37	112.85	78.36	57.58	44.07	34.82	28.21	23.33	19.59	16.72	14.42	11.02	8.72	20.123	
			D	0.3	0.7	1.3	2.0	2.8	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.4	20.2	25.6		
			C	107.44	71.63	53.72	42.97	35.82	30.70	26.86	23.87	21.49	19.54	17.90	16.53	15.35	13.42	11.93		
			D	0.3	0.6	1.0	1.6	2.3	3.1	4.0	5.1	6.3	7.6	9.1	10.7	12.4	16.2	20.4		
45 x 4.8	99.60	102.53	U	960.11	426.71	240.03	153.62	106.67	78.36	60.02	43.54	38.42	31.76	26.68	22.70	19.59	14.99	11.83	27.388	
			D	0.3	0.6	1.1	1.7	2.4	3.3	4.3	5.5	6.8	8.2	9.7	11.4	13.2	17.3	21.9		
			C	146.22	97.48	73.11	58.49	48.75	41.79	36.56	32.49	29.25	26.58	24.37	22.50	20.89	18.28	16.25		
			D	0.3	0.5	0.9	1.3	2.0	2.6	3.5	4.4	5.4	6.5	7.8	9.1	10.6	13.8	17.5		
51 x 4.8	113.27	116.20	U	1254.02	557.34	313.51	200.65	139.34	102.36	78.36	61.93	50.15	41.48	34.82	29.70	25.58	19.59	15.47	35.785	
			D	0.3	0.5	0.9	1.5	2.1	2.9	3.8	4.8	5.9	7.2	8.5	10.0	11.6	15.1	19.2		
			C	190.98	127.32	95.49	76.39	63.67	54.57	47.75	42.44	38.20	34.72	31.84	29.38	27.28	23.87	21.23		
			D	0.1	0.4	0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	12.1	15.3		
57 x 4.8	126.94	129.87	U	1587.21	705.43	396.80	253.97	176.37	129.57	99.20	78.36	63.47	52.45	44.07	37.55	32.38	24.81	19.59	45.280	
			D	0.1	0.4	0.8	1.3	1.9	2.6	3.4	4.3	5.3	6.4	7.6	8.9	10.3	13.5	17.0		
			C	241.73	161.15	120.86	96.69	80.58	69.07	60.43	53.72	48.35	43.95	40.28	37.19	34.53	30.22	26.86		
			D	0.2	0.4	0.7	1.0	1.5	2.1	2.7	3.4	4.2	5.1	6.0	7.1	8.2	10.8	13.6		
64 x 4.8	140.61	143.54	U	1959.49	870.89	489.87	313.51	217.71	159.99	122.48	96.76	78.36	64.76	54.41	46.37	40.00	30.61	24.19	55.908	
			D	0.1	0.4	0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	12.1	15.3		
			C	298.42	198.95	149.21	119.38	99.47	85.26	74.61	66.31	59.69	54.26	49.74	45.91	42.63	37.31	33.16		
			D	0.3	0.4	0.6	0.9	1.4	1.9	2.4	3.1	3.8	4.6	5.5	6.4	7.4	9.7	12.3		

Maximum allowable fiber stress of 124 M.P.A





BAR GRATING - STEEL

IMPERIAL - Type 8-4 Spacing

8-4

8/16"

TABLE OF SAFE LOADS - IMPERIAL

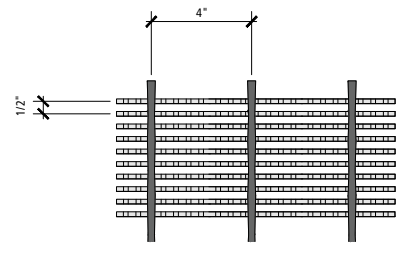
- U - Safe Uniform Load, in lbs. per sq. ft.
- C - Safe Concentrated Load, in lbs. per foot of grating width
- D - Deflection in inches

For serrated surface, increase depth by 1/4" for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.



8-4 SPACING

		STANDARD STEEL TYPE 8-4																
SIZE OF BEARING BAR	APPROX. WT/LBS/SQ.FT TYPE 8-4	SPAN IN INCHES															SEC. MOD. PER FEET OF WIDTH	
		1'-0"	1'-6"	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"	8.30	U	3376	1500	844	540	375	276	211	167	135							0.281
		D	0.023	0.055	0.099	0.155	0.223	0.304	0.397	0.503	0.621							
		C	1688	1125	844	675	563	482	422	375	338							
		D	0.019	0.044	0.079	0.124	0.179	0.243	0.318	0.402	0.491							
3/4" X 3/16"	10.90	U	5064	2251	1266	810	563	413	316	250	203	167						0.422
		D	0.023	0.055	0.099	0.155	0.223	0.304	0.397	0.503	0.621	0.751						
		C	2532	1688	1266	1013	844	723	633	563	506	460						
		D	0.019	0.044	0.079	0.124	0.179	0.243	0.318	0.402	0.497	0.601						
1" X 1/8"	10.90	U	6000	2667	1500	960	667	790	375	296	240	198	167					0.500
		D	0.020	0.042	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670					
		C	3000	2000	1500	1200	1000	857	750	667	600	545	500					
		D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536					
1" X 3/16"	16.00	U	9000	4000	2250	1440	1000	735	563	444	360	298	250	213				0.750
		D	0.020	0.042	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670	0.787				
		C	4500	3000	2250	1800	1500	1286	1125	1000	900	818	750	692				
		D	0.018	0.035	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"	13.40	U	9376	4167	2344	1500	1042	765	586	463	375	310	260	222	191			0.781
		D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730			
		C	4688	3125	2344	1875	1563	1339	1172	1042	937	852	781	721	670			
		D	0.017	0.029	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"	19.90	U	14064	6251	3516	2250	1563	1148	879	694	563	465	391	333	287	220	174	1.172
		D	0.018	0.035	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	
		C	7032	4688	3516	2813	2344	2009	1758	1563	1406	1278	1172	1082	1004	879	781	
		D	0.017	0.029	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"	16.00	U	13500	6000	3375	2160	1500	1102	844	667	540	446	375	320	276	211	167	1.125
		D	0.012	0.028	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	
		C	6750	4500	3375	2700	2250	1929	1688	1500	1350	1227	1125	1038	967	844	750	
		D	0.011	0.023	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"	23.80	U	20252	9001	5063	3240	2250	1653	1266	1000	810	669	563	479	413	316	250	1.688
		D	0.012	0.028	0.050	0.078	0.112	0.152	0.199	0.250	0.310	0.376	0.447	0.524	0.608	0.794	1.006	
		C	10126	6751	5063	4050	3375	2893	2531	2250	2025	1841	1688	1558	1446	1266	1125	
		D	0.011	0.023	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"	27.40	U	27564	12251	6891	4410	3063	2250	1723	1361	1103	911	766	652	563	431	340	2.297
		D	0.010	0.024	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	13782	9188	6891	5513	4594	3938	3445	3063	2756	2506	2297	2120	1961	1723	1531	
		D	0.011	0.020	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"	31.32	U	36000	16000	9000	5760	4000	2939	2250	1778	1440	1190	1000	852	735	563	444	3.000
		D	0.010	0.021	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	18000	12000	9000	7200	6000	5143	4500	4000	3600	3273	3000	2769	2571	2250	2000	
		D	0.005	0.016	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"	35.13	U	45564	20251	11391	7290	5063	3719	2848	2250	1823	1506	1266	1078	930	712	563	3.797
		D	0.004	0.017	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	22782	15188	11391	9113	7594	6509	5695	5063	4556	4142	3797	3505	3254	2848	2531	
		D	0.026	0.024	0.029	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"	38.99	U	56252	25001	14063	9000	6250	4592	3516	2778	2250	1860	1563	1331	1148	879	964	4.688
		D	0.005	0.016	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	28126	18751	14063	11250	9375	8036	7031	6250	5625	5114	4688	4327	4018	3516	3125	
		D	0.010	0.015	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	

Maximum allowable fiber stress of 18,000 P.S.I





BAR GRATING - STEEL

METRIC - Type 13-102 Spacing

13-102

13mm

1
BAR
GRATING

TABLE OF SAFE LOADS

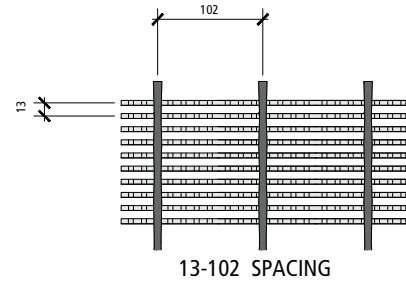
- U - Safe Uniform Load, in kPa
- C - Safe Concentrated Load, in kN per meter
- D - Deflection in millimeters

For serrated surface, increase depth by 7mm for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.



		STANDARD STEEL TYPE 13-102																
SIZE OF BEARING BAR	APPROX. WT/KG/M2 TYPE 12.7-102	SPAN IN MILLIMETER															SEC.MOD. PER 305mm OF WIDTH	
		305	458	610	762	915	1067	1219	1372	1524	1676	1829	1981	2133	2438	2743		
19 x 3.2	40.52	U	161.71	71.87	40.43	25.87	17.96	13.22	10.11	8.00	6.47							4.608
		D	0.6	1.4	2.5	3.9	5.7	7.7	10.1	12.8	15.8							
		C	24.63	16.42	12.31	9.85	8.21	7.03	6.16	5.47	4.93							
		D	0.5	1.1	2.0	3.1	4.5	6.2	8.1	10.2	12.5							
19 x 4.8	53.22	U	242.57	107.81	60.64	38.80	26.97	19.78	15.14	11.98	9.72	8.00						6.921
		D	0.6	1.4	2.5	3.9	5.7	7.7	10.1	12.8	15.8	19.1						
		C	36.94	24.63	18.47	14.78	12.31	10.55	9.24	8.21	7.38	6.71						
		D	0.5	1.1	2.0	3.1	4.5	6.2	8.1	10.2	12.6	15.3						
25 x 3.2	53.22	U	287.40	127.73	71.85	45.98	31.95	37.84	17.96	14.18	11.50	9.48	8.00					8.200
		D	0.5	1.1	1.9	2.9	4.3	5.8	7.6	9.6	11.8	14.3	17.0					
		C	43.77	29.18	21.89	17.51	14.59	12.50	10.94	9.73	8.75	7.95	7.30					
		D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6					
25 x 4.8	78.12	U	431.10	191.60	107.78	68.98	47.90	35.21	26.97	21.27	17.24	14.27	11.98	10.20				12.300
		D	0.5	1.1	1.9	2.9	4.3	5.8	7.6	9.6	11.8	14.3	17.0	20.0				
		C	65.66	43.77	32.83	26.26	21.89	18.76	16.41	14.59	13.13	11.93	10.94	10.10				
		D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6	16.0				
32 x 3.2	65.42	U	449.11	199.60	112.28	71.85	49.91	36.64	28.07	22.18	17.96	14.85	12.45	10.63	9.15			12.808
		D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6	16.0	18.5			
		C	68.40	45.60	34.20	27.36	22.80	19.54	17.10	15.20	13.67	12.43	11.39	10.52	9.78			
		D	0.4	0.7	1.2	1.9	2.7	3.7	4.9	6.1	7.6	9.1	10.9	12.8	14.8			
32 x 4.8	97.16	U	673.67	299.41	168.42	107.78	74.87	54.99	42.10	33.24	26.97	22.27	18.73	15.95	13.75	10.54	8.33	19.221
		D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6	16.0	18.5	24.2	30.7	
		C	102.60	68.40	51.30	41.04	34.20	29.31	25.65	22.80	20.51	18.65	17.10	15.79	14.65	12.82	11.39	
		D	0.4	0.7	1.2	1.9	2.7	3.7	4.9	6.1	7.6	9.1	10.9	12.8	14.8	19.4	24.5	
38 x 3.2	78.12	U	646.65	287.40	161.66	103.46	71.85	52.79	40.43	31.95	25.87	21.36	17.96	15.33	13.22	10.11	8.00	18.450
		D	0.3	0.7	1.3	2.0	2.8	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.4	20.2	25.6	
		C	98.48	65.66	49.24	39.39	32.83	28.14	24.63	21.89	19.70	17.90	16.41	15.14	14.11	12.31	10.94	
		D	0.3	0.6	1.0	1.6	2.3	3.1	4.0	5.1	6.3	7.6	9.1	10.7	12.4	16.2	20.4	
38 x 4.8	116.20	U	970.07	431.14	242.52	155.20	107.78	79.18	60.64	47.90	38.80	32.05	26.97	22.94	19.78	15.14	11.98	27.683
		D	0.3	0.7	1.3	2.0	2.8	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.4	20.2	25.6	
		C	147.74	98.49	73.87	59.09	49.24	42.21	36.93	32.83	29.54	26.86	24.63	22.73	21.10	18.47	16.41	
		D	0.3	0.6	1.0	1.6	2.3	3.1	4.0	5.1	6.3	7.6	9.1	10.7	12.4	16.2	20.4	
45 x 4.8	133.70	U	1320.32	586.81	330.08	211.24	146.72	107.78	82.53	65.19	52.83	43.64	36.69	31.23	26.97	20.64	16.29	37.671
		D	0.3	0.6	1.1	1.7	2.4	3.3	4.3	5.5	6.8	8.2	9.7	11.4	13.2	17.3	21.9	
		C	201.08	134.05	100.54	80.43	67.03	57.46	50.26	44.69	40.21	36.56	33.51	30.93	28.61	25.14	22.34	
		D	0.3	0.5	0.9	1.3	2.0	2.6	3.5	4.4	5.4	6.5	7.8	9.1	10.6	13.8	17.5	
51 x 4.8	153.80	U	1724.40	766.40	431.10	275.90	191.60	140.78	107.78	85.17	68.98	57.00	47.90	40.81	35.21	26.97	21.27	49.200
		D	0.3	0.5	0.9	1.5	2.1	2.9	3.8	4.8	5.9	7.2	8.5	10.0	11.6	15.1	19.2	
		C	262.62	175.08	131.31	105.05	87.54	75.04	65.66	58.36	52.52	47.75	43.77	40.40	37.51	32.83	29.18	
		D	0.1	0.4	0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	12.1	15.3	
57 x 4.8	171.40	U	2182.52	970.01	545.63	349.19	242.52	178.14	136.42	107.78	87.32	72.14	60.64	51.64	44.55	34.10	26.97	62.271
		D	0.1	0.4	0.8	1.3	1.9	2.6	3.4	4.3	5.3	6.4	7.6	8.9	10.3	13.5	17.0	
		C	332.39	221.59	166.19	132.96	110.80	94.97	83.09	73.87	66.47	60.43	55.40	51.14	47.48	41.55	36.93	
		D	0.7	0.6	0.7	1.0	1.5	2.1	2.7	3.4	4.2	5.1	6.0	7.1	8.2	10.8	13.6	
64 x 4.8	190.27	U	2694.47	1197.54	673.62	431.10	299.38	219.96	168.42	133.07	107.78	89.09	74.87	63.75	54.99	42.10	46.18	76.883
		D	0.1	0.4	0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	12.1	15.3	
		C	410.36	273.57	205.18	164.14	136.78	117.25	102.58	91.19	82.07	74.61	68.40	63.13	58.62	51.30	45.59	
		D	0.3	0.4	0.6	0.9	1.4	1.9	2.4	3.1	3.8	4.6	5.5	6.4	7.4	9.7	12.3	

Maximum allowable fiber stress of 124 M.P.A





BAR GRATING - STEEL

IMPERIAL - Type 7-4 Spacing

7-4

7/16"

TABLE OF SAFE LOADS - IMPERIAL

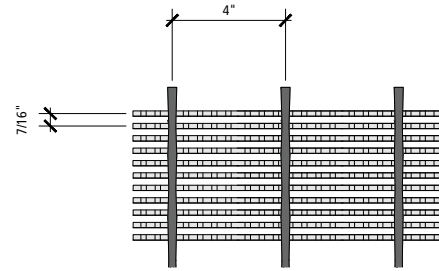
- U - Safe Uniform Load, in lbs. per sq. ft.
- C - Safe Concentrated Load, in lbs. per foot of grating width
- D - Deflection in inches

For serrated surface, increase depth by 1/4" for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.



7-4 SPACING

STANDARD STEEL TYPE 7-4																		
SIZE OF BEARING BAR	APPROX. WT/LBS/SQ.FT TYPE 10-4		SPAN IN INCHES												SEC. MOD. PER FEET OF WIDTH			
			1'-0"	1'-6"	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"	9.30	U	3856	1714	964	617	429	315	341	190	154							0.321
		D	0.023	0.055	0.099	0.155	0.223	0.304	0.397	0.503	0.621							
		C	1928	1285	964	771	643	551	482	429	386							
		D	0.019	0.044	0.079	0.124	0.179	0.243	0.318	0.402	0.497							
3/4" X 3/16"	13.70	U	5784	2571	1446	926	643	472	362	286	231	191						0.482
		D	0.023	0.055	0.099	0.155	0.223	0.304	0.397	0.503	0.621	0.751						
		C	2892	1928	1446	1157	964	827	723	643	579	526						
		D	0.019	0.044	0.079	0.124	0.179	0.243	0.318	0.402	0.497	0.601						
1" X 1/8"	12.30	U	6856	3047	1714	1097	762	560	429	339	274	227	190	162				0.571
		D	0.020	0.042	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670	0.787				
		C	3428	2285	1714	1371	1143	980	857	762	686	623	571	527				
		D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629				
1" X 3/16"	18.10	U	10284	4571	2571	1646	1143	840	643	508	411	340	286	243	210			0.857
		D	0.020	0.042	0.074	0.116	0.168	0.228	0.298	0.377	0.466	0.563	0.670	0.787	0.912			
		C	5142	3428	2571	2057	1714	1469	1286	1143	1029	935	857	791	735			
		D	0.018	0.035	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"	15.30	U	10716	4763	2679	1714	1190	875	670	529	429	354	298	254	219	167		0.893
		D	0.018	0.035	0.060	0.093	0.134	0.182	0.238	0.302	0.372	0.451	0.536	0.629	0.730	0.953		
		C	5358	3572	2679	2143	1786	1531	1339	1190	1071	974	893	824	765	670		
		D	0.017	0.029	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"	22.50	U	16072	7143	4018	2571	1786	1312	1004	794	643	531	446	380	328	251	198	1.339
		D	0.018	0.035	0.060	0.093	0.134	0.187	0.238	0.302	0.372	0.451	0.536	0.629	0.730	0.953	1.207	
		C	8036	5357	4018	3214	2679	2296	2009	1786	1607	1461	1339	1236	1148	1004	893	
		D	0.017	0.029	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"	18.10	U	15428	6857	3857	2469	1714	1259	964	762	617	510	429	365	315	241	190	1.286
		D	0.012	0.028	0.050	0.078	0.112	0.152	0.199	0.251	0.310	0.376	0.447	0.524	0.608	0.764	1.006	
		C	7714	5143	3857	3086	2571	2204	1929	1714	1543	1703	1286	1187	1102	964	857	
		D	0.011	0.023	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"	26.90	U	23156	10292	5789	3703	2571	1889	1446	1143	926	765	643	548	472	362	286	1.929
		D	0.012	0.028	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	
		C	11572	7715	5786	4629	3857	3306	2893	2571	2314	2104	1929	1780	1653	1446	1286	
		D	0.011	0.023	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"	31.20	U	31500	14000	7875	5040	3500	2571	1969	1556	1260	1041	875	746	643	492	389	2.625
		D	0.010	0.024	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	15750	10500	7875	6300	5250	4500	3938	3500	3150	2864	2625	2423	2250	1969	1750	
		D	0.011	0.020	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"	35.59	U	41144	18286	10286	6583	4571	3359	2571	2032	1646	1360	1143	974	840	643	508	3.429
		D	0.010	0.021	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	20572	13715	10286	8229	6857	5878	5143	4571	4114	3740	3429	3165	2939	2571	2286	
		D	0.005	0.016	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"	39.92	U	52072	23143	13018	8331	5786	4251	3254	2571	2083	1721	1446	1232	1063	814	643	4.339
		D	0.004	0.017	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	26036	17357	13018	10414	8679	7439	6509	5786	5207	4734	4339	4005	3719	3254	2893	
		D	0.008	0.015	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"	44.31	U	64284	28571	16071	10286	7143	5248	4018	3175	2571	2125	1786	1522	1312	1004	794	5.357
		D	0.005	0.016	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	32142	21428	16071	12857	10714	9184	8036	7143	6429	5844	5357	4945	4592	4018	3571	
		D	0.010	0.015	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	

Maximum allowable fiber stress of 18,000 P.S.I





BAR GRATING - STEEL

METRIC - Type 11-102 Spacing

11-102

11mm

1
BAR
GRATING

TABLE OF SAFE LOADS

U - Safe Uniform Load, in kPa

C - Safe Concentrated Load, in kN per meter

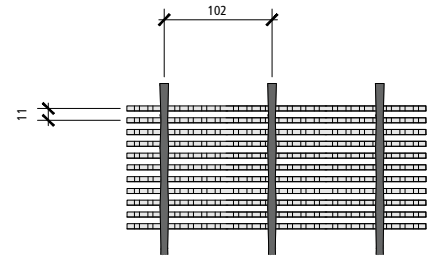
D - Deflection in millimeters

For serrated surface, increase depth by 7mm for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.



11-102 SPACING

		STANDARD STEEL TYPE 11-102																
SIZE OF BEARING BAR	APPROX. WT/KG/M2 TYPE 11-102	SPAN IN MILLIMETER															SEC. MOD. PER 305mm OF WIDTH	
		305	458	610	762	915	1067	1219	1372	1524	1676	1829	1981	2133	2438	2743		
19 x 3.2	45.41	U	184.70	82.09	46.18	29.55	20.55	15.09	16.33	9.10	7.38							5.264
		D	0.6	1.4	2.5	3.9	5.7	7.7	10.1	12.8	15.8							
		C	28.13	18.75	14.06	11.25	9.38	8.04	7.03	6.26	5.63							
		D	0.5	1.1	2.0	3.1	4.5	6.2	8.1	10.2	12.6							
19 x 4.8	66.89	U	277.05	123.13	69.26	44.36	30.80	22.61	17.34	13.70	11.06	9.15						7.905
		D	0.6	1.4	2.5	3.9	5.7	7.7	10.1	12.8	15.8	19.1						
		C	42.19	28.13	21.10	16.88	14.06	12.07	10.55	9.38	8.45	7.67						
		D	0.5	1.1	2.0	3.1	4.5	6.2	8.1	10.2	12.6	15.3						
25 x 3.2	60.05	U	328.40	145.96	82.10	52.55	36.50	26.82	20.55	16.24	13.12	10.87	9.10	7.76				9.364
		D	0.5	1.1	1.9	2.9	4.3	5.8	7.6	9.6	11.8	14.3	17.0	20.0				
		C	50.01	33.34	25.01	20.00	16.68	14.30	12.50	11.12	10.01	9.09	8.33	7.69				
		D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6	16.0				
25 x 4.8	88.37	U	492.60	218.93	123.15	78.84	54.75	40.24	30.80	24.33	19.69	16.29	13.70	11.64	10.06			14.055
		D	0.5	1.1	1.9	2.9	4.3	5.8	7.6	9.6	11.8	14.3	17.0	20.0	23.2			
		C	75.02	50.01	37.51	30.01	25.01	21.43	18.76	16.68	15.01	13.64	12.50	11.54	10.72			
		D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6	16.0	18.5			
32 x 3.2	74.70	U	513.30	228.13	128.32	82.10	57.00	41.91	32.09	25.34	20.55	16.96	14.27	12.17	10.49	8.00		14.645
		D	0.5	0.9	1.5	2.4	3.4	4.6	6.0	7.7	9.4	11.5	13.6	16.0	18.5	24.2		
		C	78.17	52.12	39.09	31.27	26.06	22.34	19.54	17.36	15.63	14.21	13.03	12.02	11.16	9.78		
		D	0.4	0.7	1.2	1.9	2.7	3.7	4.9	6.1	7.6	9.1	10.9	12.8	14.8	19.4		
32 x 4.8	109.85	U	769.85	342.16	192.46	123.15	85.55	62.84	48.09	38.03	30.80	25.43	21.36	18.20	15.71	12.02	9.48	21.960
		D	0.5	0.9	1.5	2.4	3.4	4.8	6.0	7.7	9.4	11.5	13.6	16.0	18.5	24.2	30.7	
		C	117.25	78.16	58.62	46.89	39.09	33.50	29.31	26.06	23.45	21.32	19.54	18.03	16.75	14.65	13.03	
		D	0.4	0.7	1.2	1.9	2.7	3.7	4.9	6.1	7.6	9.1	10.9	12.8	14.8	19.4	24.5	
38 x 3.2	88.37	U	739.00	328.44	184.75	118.27	82.10	60.31	46.18	36.50	29.55	24.43	20.55	17.48	15.09	11.54	9.10	21.090
		D	0.3	0.7	1.3	2.0	2.8	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.4	19.4	25.6	
		C	112.55	75.03	56.27	45.02	37.51	32.16	28.14	25.01	22.51	24.85	18.76	17.32	16.08	14.06	12.50	
		D	0.3	0.6	1.0	1.6	2.3	3.1	4.0	5.1	6.3	7.6	9.1	10.7	12.4	16.2	20.4	
38 x 4.8	131.34	U	1109.17	492.97	277.29	177.37	123.15	90.48	69.26	54.75	44.36	36.64	30.80	26.25	22.61	17.34	13.70	31.636
		D	0.3	0.7	1.3	2.0	2.8	3.9	5.1	6.4	7.9	9.6	11.4	13.3	15.4	20.2	25.6	
		C	168.84	112.56	84.42	67.54	56.27	48.23	42.21	37.51	33.76	30.70	28.14	25.97	24.12	21.10	18.76	
		D	0.3	0.6	1.0	1.6	2.3	3.1	4.0	5.1	6.3	7.6	9.1	10.7	12.4	16.2	20.4	
45 x 4.8	152.26	U	1508.85	670.60	377.21	241.42	167.65	123.15	94.32	74.53	60.35	49.86	41.91	35.73	30.80	23.57	18.63	43.050
		D	0.3	0.6	1.1	1.7	2.4	3.3	4.3	5.5	6.8	8.2	9.7	11.4	13.2	17.3	21.9	
		C	229.79	153.20	114.90	91.92	76.60	65.66	57.46	51.07	45.96	41.79	38.30	35.35	32.83	28.73	25.53	
		D	0.3	0.5	0.9	1.3	2.0	2.6	3.5	4.4	5.4	6.5	7.8	9.1	10.6	13.8	17.5	
51 x 4.8	173.68	U	1970.80	875.91	492.70	315.33	218.95	160.90	123.15	97.33	78.84	65.14	54.75	46.65	40.24	30.80	24.33	56.236
		D	0.3	0.5	0.9	1.5	2.1	2.9	3.8	4.8	5.9	7.2	8.5	10.0	11.6	15.1	19.2	
		C	300.15	200.10	150.07	120.06	100.04	85.76	75.04	66.69	60.02	54.57	50.03	46.18	42.88	37.51	33.35	
		D	0.1	0.4	0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	12.1	15.3	
57 x 4.8	194.80	U	2494.25	1108.56	623.56	399.05	277.15	203.62	155.87	123.15	99.78	82.44	54.89	59.01	50.92	38.99	30.80	71.160
		D	0.1	0.4	0.8	1.3	1.9	2.6	3.4	4.3	5.3	6.4	7.6	8.9	10.3	13.5	17.0	
		C	379.87	253.24	189.93	151.94	126.63	108.54	94.97	84.42	75.97	69.07	63.31	58.43	54.26	47.48	42.21	
		D	0.2	0.4	0.7	1.0	1.5	2.1	2.7	3.4	4.2	5.1	6.0	7.1	8.2	10.8	13.6	
64 x 4.8	216.23	U	3079.20	1368.53	769.80	492.70	342.15	251.38	192.46	152.08	123.15	101.79	85.55	72.90	62.84	48.09	38.03	87.855
		D	0.1	0.4	0.8	1.2	1.7	2.3	3.0	3.8	4.7	5.7	6.8	8.0	9.3	12.1	15.3	
		C	468.95	312.63	234.48	187.58	156.32	133.99	117.25	104.22	93.80	85.26	78.16	72.15	67.00	58.62	52.10	
		D	0.3	0.4	0.6	0.9	1.4	1.9	2.4	3.1	3.8	4.6	5.5	6.4	7.4	9.7	12.3	

Maximum allowable fiber stress of 124 M.P.A





BAR GRATING - HD 19

19-4
19/16"

TABLE OF SAFE LOADS

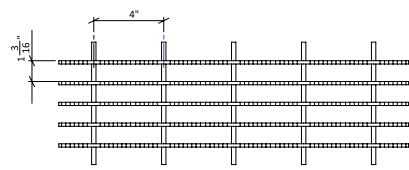
U - Safe Uniform Load, in lbs. per sq. ft.

C - Safe Concentrated Load, in lbs. per foot of grating width

For serrated surface, increase depth by 1/4" for proper load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



19-4 Spacing

SIZE OF BEARING BAR		LBS/SF		SPAN IN INCHES													SEC. MOD. PER FEET OF WIDTH		
TYPE 19-4	TYPE 19-2	1'-0"	1'-6"	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"			
1" X 1/4"	9.4	10.5	U	5613	2495	1403	898	624	458	277	225	186	156	133	115	100	88	0.432	
			C	2807	1871	1403	1123	936	802	702	624	561	510	468	432	401	374		351
1" X 5/16"	12.4	13.5	U	7020	3120	1755	1123	780	573	439	347	281	233	195	166	144	125	110	0.538
			C	3510	2340	1755	1404	1170	1003	878	780	702	638	585	540	502	468	439	
1" X 3/8"	13.8	14.9	U	8427	3745	2107	1348	936	688	527	416	337	279	234	199	172	150	132	0.646
			C	4213	2809	2107	1685	1404	1204	1053	936	843	766	702	648	602	562	527	
1 1/4" X 1/4"	11.6	12.7	U	8773	3899	2193	1404	975	716	548	433	351	290	244	208	179	156	137	0.675
			C	4387	2924	2193	1755	1462	1253	1097	975	877	798	731	675	627	585	548	
1 1/4" X 5/16"	15.3	16.4	U	10967	4874	2742	1755	1219	895	686	542	439	363	305	260	224	195	172	0.842
			C	5484	3656	2742	2194	1828	1567	1371	1219	1097	997	914	844	784	731	686	
1 1/4" X 3/8"	17.1	18.2	U	13160	5849	3290	2106	1462	1074	823	650	526	435	366	311	269	234	206	1.009
			C	6580	4387	3290	2632	2193	1880	1645	1462	1316	1196	1097	1012	940	877	823	
1 1/2" X 1/4"	13.8	14.9	U	12627	5612	3157	2020	1403	1031	789	624	505	417	351	299	258	224	197	0.972
			C	6313	4209	3157	2525	2104	1804	1578	1403	1263	1148	1052	971	902	842	789	
1 1/2" X 5/16"	18.1	19.2	U	15787	7017	3947	2526	1754	1289	987	780	632	522	439	374	323	281	247	1.212
			C	7893	5263	3947	3157	2631	2256	1973	1754	1579	1435	1316	1214	1128	1053	987	
1 1/2" X 3/8"	20.4	21.5	U	18947	8421	4737	3031	2105	1547	1184	936	758	626	526	448	387	337	296	1.453
			C	9473	6316	4737	3789	3158	2707	2368	2105	1895	1722	1579	1457	1353	1263	1184	
1 3/4" X 1/4"	16.0	17.1	U	17187	7639	4297	2750	1910	1403	1074	849	680	568	477	407	351	306	269	1.323
			C	8593	5729	4297	3437	2864	2455	2148	1910	1719	1562	1432	1322	1228	1146	1074	
1 3/4" X 5/16"	21.0	22.1	U	21487	9550	5372	3438	2388	1754	1343	1061	859	710	597	509	439	382	336	1.651
			C	10743	7163	5372	4297	3581	3070	2686	2388	2149	1953	1791	1653	1535	1433	1343	
1 3/4" X 3/8"	23.7	24.8	U	25787	11461	6447	4126	2865	2105	1612	1273	1031	852	716	610	526	458	403	1.978
			C	12893	8596	6447	5157	4298	3684	3223	2865	2579	2344	2149	1984	1842	1719	1612	
2" X 1/4"	18.3	19.4	U	22453	9979	5613	3593	2495	1833	1403	1109	898	742	624	531	458	399	351	1.728
			C	11227	7484	5613	4491	3742	3208	2807	2495	2245	2041	1871	1727	1604	1497	1403	
2" X 5/16"	23.8	24.9	U	28067	12474	7017	4491	3119	2291	1754	1386	1123	928	780	664	573	499	439	2.156
			C	14031	9356	7017	5614	4678	4010	3509	3116	2807	2552	2339	2159	2005	1871	1754	
2" X 3/8"	27.0	28.1	U	33680	14969	8420	5389	3742	2749	2105	1663	1347	1113	936	797	687	599	526	2.583
			C	16840	11227	8420	6736	5613	4811	4210	3742	3368	3062	2807	2591	2406	2245	2105	
2-1/4" X 1/4"	20.5	21.6	U	28427	12634	7107	4548	3159	2321	1777	1404	1137	840	790	673	580	505	444	2.700
			C	14213	9476	7107	5685	4738	4061	3553	3159	2843	2584	2369	2187	2030	1895	1777	
2-1/4" X 5/16"	25.3	26.5	U	35527	15790	8882	5684	3948	2901	2221	1755	1421	1175	987	841	725	632	555	3.369
			C	17763	11843	8882	7105	5936	5076	4441	3948	3553	3230	2961	2733	2538	2369	2221	
2-1/4" X 3/8"	30.1	31.3	U	42627	18945	10657	6820	4736	3480	2664	2105	1705	1409	1184	1099	870	758	666	4.036
			C	21313	14209	10657	8525	7104	6090	5328	4736	4263	3875	3552	3279	3045	2842	2664	
2 1/2" X 1/4"	22.7	23.8	U	35093	15597	8773	5615	3899	2865	2193	1733	1404	1160	975	831	716	624	548	2.700
			C	17547	11698	8773	7019	5849	5013	4387	3899	3509	3190	2924	2699	2507	2340	2193	
2 1/2" X 5/16"	29.5	30.6	U	53860	19494	10965	7018	4873	3581	2741	2166	1755	1450	1219	1039	895	780	685	3.369
			C	21930	14620	10965	8772	7310	6266	5483	4873	4386	3987	3655	3374	3133	2924	2741	
2 1/2" X 3/8"	33.6	34.7	U	52627	23390	13157	8420	5847	4296	3289	2599	2105	1740	1462	1246	1074	936	822	4.036
			C	26314	17542	13157	10525	8771	7518	6578	5847	5263	4784	4386	4048	3759	3508	3289	
3" X 1/4"	27.1	28.2	U	50520	22453	12630	8083	5613	4124	3158	2495	2021	1670	1403	1196	1031	898	789	3.889
			C	25260	16840	12630	10104	8420	7217	6316	5613	5052	4593	4210	3886	3609	3368	3158	
3" X 5/16"	35.2	36.3	U	63154	28068	15789	10105	7017	5156	3948	3119	2526	2088	1754	1495	1289	1123	987	4.852
			C	31577	21051	15789	12631	10526	9022	7894	7017	6316	5742	5263	4858	4511	4210	3948	
3" X 3/8"	40.1	41.2	U	75787	33683	18947	12126	8421	6187	4737	3743	3031	2505	2105	1794	1547	1347	1184	5.813
			C	37893	25262	18947	15157	12631	10822	9473	8421	7579	6890	6316	5830	5413	5052	4737	
3 1/2" X 1/4"	31.5	32.6	U	68773	30566	17193	11004	7641	5614	4298	3396	2751	2273	1910	1628	1404	1223	1075	5.293
			C	34387	22924	17193	13755	11462	9825	8597	7641	6877	6252	5731	5290	4912	4585	4298	
3 1/2" X 5/16"	40.8	41.9	U	85967	38208	21492	13755	9552	7018	5373	4245	3439	2842	2388	2035	1755	1529	1344	6.604
			C	42984	28656	21492	17194	14328	12281	10746	9552	8597	7815	7164	6613	6141	5731	5371	
3 1/2" X 3/8"	46.7	47.8	U	103160	45849	25790	16506	11462	8421	6448	5094	4126	3410	2866	2442	2105	1834	1612	7.911
			C	51580	34387	25790	20632	17193	14737	12895	11462	10316	9378	8597	7935	7369	6877	6448	
4" X 1/4"	38.6	39.7	U	89827	39923	22457	14372	9981	7333	5614	4436	3593	2969	2495	2126	1833	1594	1404	7.000
			C	44913	29942	22457	17965	14971	12832	11228	9981	8983	8166	7486	6910	6416	5988	5614	
4" X 5/16"	46.5	47.6	U	112280	49902	28070	17965	12476	9166	7018	5545	4491	3712	3116	2658	2292	1996	1755	8.625
			C	56140	37427	28070	22456	18714	16040	14035	12476	11228	10207	9357	8637	8020	7485	7018	
4" X 3/8"	56.1	57.2	U	134733	59881	33683	21557	14970	10999	8421	6653	5389	4454	3743	3189	2750	2395	2105	10.446
			C	67367	44911	33683	26947	22456	19248	16842	14970	13473	12248	11228	10364	9624	8982	8421	



BAR GRATING - HD 30

30-102

30mm

1
BAR
GRATING

TABLE OF SAFE LOADS

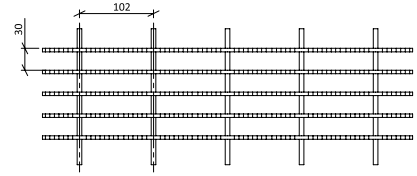
U - Safe Uniform Load, in kPa

C - Safe Concentrated Load, in kN/m

For serrated surface, increase depth by 1/4" for proper load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



30-102 Spacing

HD TYPE 30-102																		
SIZE OF BEARING BAR	KG/M2		SPAN IN MILLIMETER														SEC. MOD. PER 305MM OF WIDTH	
	TYPE 30-102	TYPE 30-51	305	457	610	762	914	1067	1219	1372	1524	1676	1829	1981	2134	2286		2438
25 x 6.4	45.89	51.27	U	269	120	67	43	30	22	17	13	11	9	7	6	5	4	7.085
			C	41	27	20	16	14	12	10	9	8	7	7	6	6	5	
25 x 7.9	60.54	65.91	U	336	149	84	54	37	27	21	17	13	11	9	8	7	6	8.823
			C	51	34	26	20	17	15	13	11	10	9	9	8	7	7	
25 x 9.5	67.38	72.75	U	404	179	101	65	45	33	25	20	16	13	11	10	8	7	10.594
			C	61	41	31	25	20	18	15	14	12	11	10	9	9	8	
32 x 6.4	56.64	62.01	U	420	187	105	67	47	34	26	21	17	14	12	10	9	7	11.070
			C	64	43	32	26	21	18	16	14	13	12	11	10	9	9	
32 x 7.9	74.70	80.07	U	525	233	131	84	58	43	33	26	21	17	15	12	11	9	13.809
			C	80	53	40	32	27	23	20	18	16	15	13	12	11	11	
32 x 9.5	83.49	88.86	U	630	280	158	101	70	51	39	31	25	21	18	15	13	11	16.548
			C	96	64	48	38	32	27	24	21	19	17	16	15	14	13	
38 x 6.4	67.38	72.75	U	605	269	151	97	67	49	38	30	24	20	17	14	12	11	15.941
			C	92	61	46	37	31	26	23	20	18	17	15	14	13	12	
38 x 7.9	88.37	93.74	U	756	336	189	121	84	62	47	37	30	25	21	18	15	13	19.877
			C	115	77	58	46	38	33	29	26	23	21	19	18	16	15	
38 x 9.5	99.60	104.97	U	908	403	227	145	101	74	57	45	36	30	25	21	19	16	23.829
			C	138	92	69	55	46	39	35	31	28	25	23	21	20	18	
44 x 6.4	78.12	83.49	U	823	366	206	132	91	67	51	41	33	27	23	19	17	15	21.697
			C	125	84	63	50	42	36	31	28	25	23	21	19	18	17	
44 x 7.9	102.53	107.90	U	1029	457	257	165	114	84	64	51	41	34	29	24	21	18	27.076
			C	157	105	78	63	52	45	39	35	31	28	26	24	22	21	
44 x 9.5	115.71	121.08	U	1235	549	309	198	137	101	77	61	49	41	34	29	25	22	32.439
			C	188	125	94	75	63	54	47	42	38	34	31	29	27	25	
51 x 6.4	89.35	94.72	U	1075	478	269	172	120	88	67	53	43	36	30	25	22	19	28.339
			C	164	109	82	66	55	47	41	36	33	30	27	25	23	22	
51 x 7.9	116.20	121.57	U	1344	598	336	215	149	110	84	66	54	44	37	32	27	24	35.358
			C	205	137	102	82	68	59	51	45	41	37	34	31	29	27	
51 x 9.5	131.82	137.20	U	1613	717	403	258	179	132	101	80	65	53	45	38	33	29	42.361
			C	246	164	123	98	82	70	61	55	49	45	41	38	35	33	
57 x 6.4	100.09	105.46	U	1362	605	340	218	151	111	85	67	54	40	38	32	28	24	44.280
			C	207	138	104	83	69	59	52	46	41	38	35	32	30	28	
57 x 7.9	123.52	129.38	U	1702	756	425	272	189	139	106	84	68	56	47	40	35	30	55.252
			C	259	173	130	104	87	74	65	58	52	47	43	40	37	35	
57 x 9.5	146.96	152.82	U	2042	907	510	327	227	167	128	101	82	67	57	53	42	36	66.190
			C	311	207	155	124	104	89	78	69	62	57	52	48	44	41	
64 x 6.4	110.83	116.20	U	1681	747	420	269	187	137	105	83	67	56	47	40	34	30	44.280
			C	256	171	128	102	85	73	64	57	51	47	43	39	37	34	
64 x 7.9	144.03	149.40	U	2580	934	525	336	233	172	131	104	84	69	58	50	43	37	55.252
			C	320	213	160	128	107	91	80	71	64	58	53	49	46	43	
64 x 9.5	164.05	169.42	U	2521	1120	630	403	280	206	158	124	101	83	70	60	51	45	66.190
			C	384	256	192	154	128	110	96	85	77	70	64	59	55	51	
76 x 6.4	132.31	137.68	U	2420	1075	605	387	269	198	151	120	97	80	67	57	49	43	63.780
			C	369	246	184	147	123	105	92	82	74	67	61	57	53	49	
76 x 7.9	171.86	177.23	U	3025	1344	756	484	336	247	189	149	121	100	84	72	62	54	79.573
			C	461	307	230	184	154	132	115	102	92	84	77	71	66	61	
76 x 9.5	195.78	201.15	U	3630	1613	908	581	403	296	227	179	145	120	101	86	74	65	95.333
			C	553	369	276	221	184	158	138	123	111	101	92	85	79	74	
89 x 6.4	153.80	159.17	U	3294	1464	824	527	366	269	206	163	132	109	91	78	67	59	86.805
			C	502	334	251	201	167	143	125	111	100	91	84	77	72	67	
89 x 7.9	199.20	204.57	U	4118	1830	1029	659	458	336	257	203	165	136	114	97	84	73	108.306
			C	627	418	314	251	209	179	157	139	125	114	105	96	90	84	
89 x 9.5	228.01	233.38	U	4941	2196	1235	791	549	403	309	244	198	163	89	117	101	88	129.740
			C	753	502	376	301	251	215	188	167	151	137	125	116	108	100	
102 x 6.4	188.46	193.83	U	4303	1912	1076	688	478	351	269	212	172	142	120	102	88	76	114.800
			C	655	437	328	262	218	187	164	146	131	121	109	96	94	87	
102 x 7.9	227.03	232.40	U	5378	2390	1345	861	598	439	336	266	215	178	149	127	110	96	141.450
			C	819	546	410	328	273	234	205	182	164	149	137	126	117	109	
102 x 9.5	273.90	279.27	U	6454	2868	1613	1033	717	527	403	319	258	213	179	153	132	115	171.314
			C	983	655	491	393	328	281	246	218	197	179	164	151	140	131	

Maximum allowable fiber stress of 124 M.P.A





BAR GRATING - HD 15

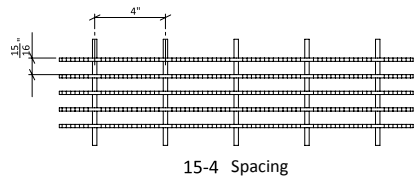
15-4
15/16"

TABLE OF SAFE LOADS

U - Safe Uniform Load, in lbs. per sq. ft.
C - Safe Concentrated Load, in lbs. per foot of grating width
 For serrated surface, increase depth by 1/4" for proper load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



SIZE OF BEARING BAR		LBS/SF		HD TYPE 15-4														SEC. MOD. PER FEET OF WIDTH	
				SPAN IN INCHES															
				1'-0"	1'-6"	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"
1" X 1/4"	11.70	12.40	U	7112	3160	1778	1138	790	580	444	351	284	198	168	145	126	111	0.533	
			C	3560	2373	1778	1422	1185	1016	889	790	711	646	593	548	508	475		444
1" X 5/16"	14.90	16.10	U	8888	3952	2222	1422	988	726	556	439	356	264	247	210	181	158	139	0.667
			C	4440	2959	2222	1778	1481	1270	1111	988	889	808	741	683	635	592	556	
1" X 3/8"	17.70	18.80	U	10652	4733	2667	1707	1185	871	667	527	427	353	296	252	218	189	167	0.800
			C	5330	3553	2667	2133	1778	1524	1333	1185	1067	970	889	820	762	711	667	
1 1/4" X 1/4"	14.50	15.10	U	11080	4926	2778	1778	1235	907	694	549	444	367	309	262	227	197	174	0.833
			C	5560	3707	2778	2222	1852	1587	1389	1235	1111	1010	926	855	794	741	694	
1 1/4" X 5/16"	18.40	19.60	U	13888	6172	3472	2222	1543	1134	868	686	556	459	386	329	283	247	217	1.042
			C	6944	4630	3472	2778	2315	1984	1736	1543	1389	1263	1157	1068	992	926	868	
1 1/4" X 3/8"	21.90	22.90	U	16700	7422	4167	2667	1852	1361	1042	823	667	551	463	395	340	297	260	1.250
			C	8330	5553	4167	3333	2778	2381	2083	1852	1667	1515	1389	1282	1190	1111	1042	
1 1/2" X 1/4"	17.30	17.90	U	16000	7112	4000	2560	1778	1306	1000	790	640	529	444	379	327	284	250	1.200
			C	8000	5334	4000	3200	2667	2286	2000	1778	1600	1455	1333	1231	1143	1067	1000	
1 1/2" X 5/16"	21.90	23.10	U	19968	8874	5000	3200	2222	1633	1250	988	800	661	556	473	408	355	313	1.500
			C	10000	6666	5000	4000	3333	2857	2500	2222	2000	1818	1667	1538	1429	1333	1250	
1 1/2" X 3/8"	26.00	27.10	U	24000	10668	6000	3840	2667	1959	1500	1185	960	793	667	568	490	427	375	1.800
			C	12000	8000	6000	4800	4000	3429	3000	2667	2400	2182	2000	1846	1714	1600	1500	
1 3/4" X 1/4"	20.10	20.70	U	21792	9687	5444	3484	2420	1778	1361	1075	871	720	605	516	444	387	340	1.633
			C	10888	7260	5444	4356	3630	3111	2722	2420	2178	1980	1815	1675	1556	1452	1361	
1 3/4" X 5/16"	25.30	26.80	U	27240	12107	6806	4356	3025	2222	1701	1344	1089	900	756	645	556	484	425	2.042
			C	13616	9077	6806	5444	4537	3889	3403	3025	2722	2475	2269	2095	1944	1815	1701	
1 3/4" X 3/8"	30.10	31.30	U	32700	14534	8167	5227	3630	2667	2042	1613	1307	1080	907	774	667	581	510	2.450
			C	16330	10885	8167	6533	5444	4667	4083	3630	3267	2970	2722	2512	2333	2177	2042	
2" X 1/4"	22.80	23.50	U	28476	12654	7111	4551	3160	2322	1778	1405	1138	940	790	674	580	506	444	2.130
			C	14222	9482	7111	5689	4741	4063	3556	3160	2844	2586	2370	2188	2032	1896	1778	
2" X 5/16"	28.80	29.90	U	35524	15790	8889	5689	3951	2902	2222	1756	1422	1175	988	841	726	632	556	2.667
			C	17778	11852	8889	7111	5926	5079	4444	3951	3556	3232	2963	2735	2540	2370	2222	
2" X 3/8"	34.20	35.40	U	42652	18957	10667	6827	4741	3483	2667	2107	1707	1410	1185	1010	871	758	667	3.200
			C	21330	14219	10667	8533	7111	6095	5333	4741	4267	3879	3556	3282	3048	2844	2667	
2-1/4" X 1/4"	25.60	26.30	U	35968	15986	9000	5760	4000	2939	2250	1778	1440	1190	1000	851	735	639	563	2.700
			C	18000	12000	9000	7200	6000	5143	4500	4000	3600	3273	3000	2769	2571	2400	2250	
2-1/4" X 5/16"	32.30	33.40	U	45016	20007	11250	7200	5000	3673	2813	2222	1800	1488	1250	1065	918	800	703	3.375
			C	22496	14997	11250	9000	7500	6429	5625	5000	4500	4091	3750	3461	3214	2999	2813	
2-1/4" X 3/8"	38.40	39.60	U	53984	23993	13500	8640	6000	4408	3375	2667	2160	1785	1500	1278	1102	960	844	4.050
			C	27000	18000	13500	10800	9000	7714	6750	6000	5400	4909	4500	4154	3857	3600	3375	
2 1/2" X 1/4"	28.40	29.10	U	44476	19766	11111	7111	4938	3628	2778	2195	1778	1469	1235	1053	907	791	694	3.333
			C	22222	14814	11111	8889	7407	6349	5556	4938	4444	4040	3704	3419	3175	2963	2778	
2 1/2" X 5/16"	35.70	36.90	U	55556	24692	13889	8889	6173	4535	3472	2743	2222	1837	1543	1315	1134	988	868	4.167
			C	27778	18518	13889	11111	9259	7937	6944	6173	5556	5051	4630	4274	3968	3704	3472	
2 1/2" X 3/8"	42.60	43.70	U	66652	29621	16667	10667	7407	5442	4167	3292	2667	2204	1852	1578	1361	1185	1042	5.000
			C	33330	22219	16667	13333	11111	9524	8333	7407	6667	6061	5556	5128	4762	4444	4167	
3" X 1/4"	34.40	35.50	U	64000	28444	16000	10240	7111	5224	4000	3160	2560	2116	1778	1515	1306	1138	1000	4.800
			C	32000	21334	16000	12800	10667	9143	8000	7111	6400	5818	5333	4923	4571	4267	4000	
3" X 5/16"	43.10	44.60	U	80000	35556	20000	12800	8889	6531	5000	3951	3200	2645	2222	1893	1633	1422	1250	6.000
			C	40000	26666	20000	16000	13333	11429	10000	8889	8000	7273	6667	6154	5714	5333	5000	
3" X 3/8"	51.30	52.80	U	96000	42668	24000	15360	10667	7837	6000	4741	3840	3174	2667	2272	1959	1707	1500	7.200
			C	48000	32000	24000	19200	16000	13714	12000	10667	9600	8727	8000	7385	6857	6400	6000	
3 1/2" X 1/4"	39.90	41.10	U	87112	38716	21778	13938	9679	7111	5444	4302	3484	2880	2420	2062	1778	1549	1361	6.533
			C	43560	29041	21778	17422	14519	12444	10889	9679	8711	7919	7259	6702	6222	5808	5444	
3 1/2" X 5/16"	49.90	51.50	U	96916	48410	24222	17422	12099	8889	6806	5377	4356	3600	3025	2294	2222	1723	1701	8.167
			C	54440	36293	27222	21778	18148	15556	13611	12099	10889	9899	9074	8375	7778	7259	6806	
3 1/2" X 3/8"	59.50	61.10	U	130652	58069	32667	20907	14519	10667	8167	6453	5227	4320	3630	3092	2667	2323	2042	9.800
			C	65330	43553	32667	26133	21778	18667	16333	14519	13067	11879	10889	10051	9333	8711	8167	
4" X 1/4"	45.50	46.60	U	113760	50561	28444	18204	12642	9288	7111	5619	4551	3761	3160	2693	2322	2022	1778	8.533
			C	56888	37926	28444	22756	18963	16254	14222	12642	11378	10343	9481	8752	8127	7585	7111	
4" X 5/16"	56.90	58.40	U	142240	63215	35556	22756	15802	11610	8889	7023	5689	4702	3951	3367	2902	2529	2222	10.667
			C	71112	47408	35556	28444	23704	20317	17778	15802	14222	12929	11852	10940	10159	9482	8889	
4" X 3/8"	67.80	69.40	U	170652	75845	42667	27307	18963	13932	10667	8428	6827	5642	4741	4039	3483	3034	2667	12.800
			C	85330	56885	42667	34133	28444	24381	21333	18963	17067	15515	14222	13128				

TABLE OF SAFE LOADS

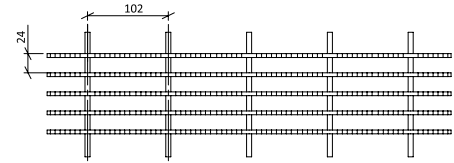
U - Safe Uniform Load, in kPa

C - Safe Concentrated Load, in kN/m

For serrated surface, increase depth by 1/4" for proper load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



24-102 Spacing

HD TYPE 24-102															SEC. MOD. PER 305MM OF WIDTH				
SIZE OF BEARING BAR	KG/M2		SPAN IN MILLIMETER																
	TYPE 24-102	TYPE 24-51	305	457	610	762	914	1067	1219	1372	1524	1676	1829	1981		2134	2286	2438	
25 x 6.4	57.12	60.54	U	341	151	85	55	38	28	21	17	14	11	9	8	7	6	5	8.741
			C	52	35	26	21	17	15	13	12	10	9	9	8	7	7	6	
25 x 7.9	72.75	78.61	U	426	189	106	68	47	35	27	21	17	13	12	10	9	8	7	10.939
			C	65	43	32	26	22	19	16	14	13	12	11	10	9	9	8	
25 x 9.5	86.42	91.79	U	510	227	128	82	57	42	32	25	20	17	14	12	10	9	8	13.120
			C	78	52	39	31	26	22	19	17	16	14	13	12	11	10	10	
32 x 6.4	70.79	73.72	U	531	236	133	85	59	43	33	26	21	18	15	13	11	9	8	13.661
			C	81	54	41	32	27	23	20	18	16	15	14	12	12	11	10	
32 x 7.9	89.84	95.70	U	665	296	166	106	74	54	42	33	27	22	18	16	14	12	10	17.089
			C	101	68	51	41	34	29	25	23	20	18	17	16	14	14	13	
32 x 9.5	106.92	111.81	U	800	356	200	128	89	65	50	39	32	26	22	19	16	14	12	20.500
			C	122	81	61	49	41	35	30	27	24	22	20	19	17	16	15	
38 x 6.4	84.47	87.39	U	766	341	192	123	85	63	48	38	31	25	21	18	16	14	12	19.680
			C	117	78	58	47	39	33	29	26	23	21	19	18	17	16	15	
38 x 7.9	106.92	112.78	U	956	425	240	153	106	78	60	47	38	32	27	23	20	17	15	24.600
			C	146	97	73	58	49	42	36	32	29	27	24	22	21	19	18	
38 x 9.5	126.94	132.31	U	1150	511	287	184	128	94	72	57	46	38	32	27	23	20	18	29.520
			C	175	117	88	70	58	50	44	39	35	32	29	27	25	23	22	
44 x 6.4	98.14	101.07	U	1044	464	261	167	116	85	65	51	42	34	29	25	21	19	16	26.781
			C	159	106	79	64	53	45	40	35	32	29	26	24	23	21	20	
44 x 7.9	123.52	130.85	U	1305	580	326	209	145	106	81	64	52	43	36	31	27	23	20	33.489
			C	199	132	99	79	66	57	50	44	40	36	33	31	28	26	25	
44 x 9.5	146.96	152.82	U	1566	696	391	250	174	128	98	77	63	52	43	37	32	28	24	40.180
			C	238	159	119	95	79	68	60	53	48	43	40	37	34	32	30	
51 x 6.4	111.32	114.74	U	1364	606	341	218	151	111	85	67	55	45	38	32	28	24	21	34.932
			C	207	138	104	83	69	59	52	46	41	38	35	32	30	28	26	
51 x 7.9	140.61	145.98	U	1702	756	426	273	189	139	106	84	68	56	47	40	35	30	27	43.739
			C	259	173	130	104	86	74	65	58	52	47	43	40	37	35	32	
51 x 9.5	166.98	172.84	U	2043	908	511	327	227	167	128	101	82	68	57	48	42	36	32	52.480
			C	311	207	156	124	104	89	78	69	62	57	52	48	44	41	39	
57 x 6.4	124.99	128.41	U	1723	766	431	276	192	141	108	85	69	57	48	41	35	31	27	44.280
			C	263	175	131	105	88	75	66	58	53	48	44	40	38	35	33	
57 x 7.9	157.70	163.07	U	2156	958	539	345	240	176	135	106	86	71	60	51	44	38	34	55.350
			C	328	219	164	131	109	94	82	73	66	60	55	50	47	44	41	
57 x 9.5	187.48	193.34	U	2586	1149	647	414	287	211	162	128	103	86	72	61	53	46	40	66.420
			C	394	263	197	158	131	113	98	88	79	72	66	61	56	53	49	
64 x 6.4	138.66	142.08	U	2130	947	532	341	237	174	133	105	85	70	59	50	43	38	33	54.661
			C	324	216	162	130	108	93	81	72	65	59	54	50	46	43	41	
64 x 7.9	174.30	180.16	U	2661	1183	665	426	296	217	166	131	106	88	74	63	54	47	42	68.339
			C	405	270	203	162	135	116	101	90	81	74	68	62	58	54	51	
64 x 9.5	207.99	213.36	U	3193	1419	798	511	355	261	200	158	128	106	89	76	65	57	50	82.000
			C	486	324	243	195	162	139	122	108	97	88	81	75	69	65	61	
76 x 6.4	167.95	173.33	U	3066	1362	766	490	341	250	192	151	123	101	85	73	63	54	48	78.720
			C	467	311	233	187	156	133	117	104	93	85	78	72	67	62	58	
76 x 7.9	210.43	217.76	U	3832	1703	958	613	426	313	240	189	153	127	106	91	78	68	60	98.400
			C	584	389	292	233	195	167	146	130	117	106	97	90	83	78	73	
76 x 9.5	250.47	257.79	U	4598	2044	1150	736	511	375	287	227	184	152	128	109	94	82	72	118.080
			C	700	467	350	280	233	200	175	156	140	127	117	108	100	93	88	
89 x 6.4	194.81	200.67	U	4173	1854	1043	668	464	341	261	206	167	138	116	99	85	74	65	107.141
			C	636	424	318	254	212	182	159	141	127	116	106	98	91	85	79	
89 x 7.9	243.63	251.44	U	4642	2319	1160	835	580	426	326	258	209	172	145	110	106	83	81	133.939
			C	794	530	397	318	265	227	199	177	159	144	132	122	113	106	99	
89 x 9.5	290.50	298.31	U	6258	2781	1565	1001	695	511	391	309	250	207	174	148	128	111	98	160.720
			C	953	635	477	381	318	272	238	212	191	173	159	147	136	127	119	
102 x 6.4	222.15	227.52	U	5449	2422	1362	872	606	445	341	269	218	180	151	129	111	97	85	139.941
			C	830	553	415	332	277	237	207	184	166	151	138	128	119	111	104	
102 x 7.9	277.81	285.13	U	6813	3028	1703	1090	757	556	426	336	273	225	189	161	139	121	106	174.939
			C	1038	692	519	415	346	296	259	231	207	189	173	160	148	138	130	
102 x 9.5	331.03	338.84	U	8174	3633	2044	1308	908	667	511	404	327	270	227	193	167	145	128	209.920
			C	1245	830	623	498	415	356	311	277	249	226	207	192	178	166	156	

Maximum allowable fiber stress of 124 M.P.A



BAR GRATING - HD 22

22-4

22/16"

TABLE OF SAFE LOADS

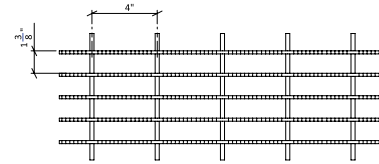
U - Safe Uniform Load, in lbs. per sq. ft.

C - Safe Concentrated Load, in lbs. per foot of grating width

For serrated surface, increase depth by 1/4" for proper load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



22-4 Spacing

		HD TYPE 22-4																		
SIZE OF BEARING BAR	LBS/SF		SPAN IN INCHES																SEC. MOD. PER FEET OF WIDTH	
	TYPE 22-4	TYPE 22-2	1'-0"	1'-6"	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"			
1" X 1/4"	8.30	9.00	U	4853	2157	1213	777	539	396	303	240	194	160	135	115	99	86	76	0.364	
			C	2427	1618	1213	971	809	693	607	539	485	441	404	373	347	324	303		
1" X 5/16"	10.70	11.80	U	6044	2685	1515	970	673	495	379	299	242	200	168	143	124	107	95	0.455	
			C	3030	2020	1515	1212	1010	866	758	673	606	551	505	466	433	404	379		
1" X 3/8"	12.60	13.70	U	7267	3230	1817	1163	807	593	454	359	291	240	202	172	148	129	114	0.545	
			C	3633	2422	1817	1453	1211	1038	908	807	727	661	606	559	519	484	454		
1 1/4" X 1/4"	10.20	10.90	U	7573	3366	1893	1212	841	618	473	374	303	250	210	179	155	135	118	0.568	
			C	3787	2524	1893	1515	1262	1082	947	841	757	688	631	583	541	505	473		
1 1/4" X 5/16"	13.10	14.20	U	9468	4208	2367	1515	1052	773	592	468	379	313	263	224	193	168	148	0.710	
			C	4734	3156	2367	1894	1578	1353	1184	1052	947	861	789	728	676	631	592		
1 1/4" X 3/8"	15.40	16.50	U	11360	5049	2840	1818	1262	927	710	561	454	376	316	269	232	202	178	0.852	
			C	5680	3787	2840	2272	1893	1623	1420	1262	1136	1033	947	874	811	757	710		
1 1/2" X 1/4"	12.10	12.80	U	10907	4847	2727	1745	1212	890	682	539	436	361	303	258	223	194	170	0.818	
			C	5453	3636	2727	2181	1818	1558	1363	1212	1091	992	909	839	779	727	682		
1 1/2" X 5/16"	15.40	16.80	U	13636	6060	3409	2182	1515	1113	852	673	454	451	379	323	278	242	213	1.023	
			C	6822	4549	3409	2727	2273	1948	1705	1515	1364	1240	1136	1050	974	910	852		
1 1/2" X 3/8"	18.30	19.40	U	16360	7271	4090	2618	1818	1336	1023	808	654	541	454	387	334	291	256	1.227	
			C	8180	5453	4090	3272	2727	2337	2045	1818	1636	1487	1363	1258	1169	1091	1023		
1 3/4" X 1/4"	14.70	14.00	U	14853	6601	3713	2377	1650	1213	928	733	564	491	413	352	303	264	232	1.114	
			C	7427	4651	3713	2971	2476	2122	1857	1650	1485	1350	1238	1143	1061	990	928		
1 3/4" X 5/16"	17.80	19.00	U	18560	8248	4640	2970	2062	1515	1160	917	742	614	516	439	379	330	290	1.392	
			C	9280	6186	4640	3712	3093	2652	2320	2062	1856	1687	1547	1428	1326	1237	1160		
1 3/4" X 3/8"	21.40	22.30	U	22267	9896	5567	3563	2474	1818	1392	1100	981	736	619	527	454	396	348	1.670	
			C	11133	7422	5567	4453	3711	3181	2783	2474	2227	2024	1856	1713	1590	1484	1392		
2" X 1/4"	16.00	16.60	U	19400	8622	4850	3104	2156	1584	1213	958	776	641	539	459	396	345	303	1.455	
			C	9700	6467	4850	3880	3233	2771	2425	2156	1940	1764	1617	1492	1386	1293	1213		
2" X 5/16"	20.20	21.30	U	24228	10769	6061	3879	2694	1979	1515	1197	970	801	673	573	495	431	379	1.818	
			C	12122	8080	6061	4848	4040	3463	3030	2694	2424	2204	2020	1865	1732	1616	1515		
2" X 3/8"	24.00	25.10	U	29093	12930	7273	4655	3233	2375	1818	1437	1164	962	808	689	594	517	455	2.182	
			C	14547	9698	7273	5819	4849	4156	3637	3233	2909	2645	2424	2238	2078	1940	1818		
2-1/4" X 1/4"	17.90	18.50	U	24547	10910	6137	3927	2727	2004	1534	1212	982	811	682	581	501	436	384	1.841	
			C	12273	8182	6137	4909	4091	3507	3068	2727	2455	2232	2046	1888	1753	1636	1534		
2-1/4" X 5/16"	22.60	23.70	U	30712	13650	7670	4909	3409	2505	1918	1515	1227	1014	852	727	626	546	479	2.301	
			C	15336	10225	7670	6136	5114	4383	3835	3409	3068	2789	2557	2359	2192	2045	1918		
2-1/4" X 3/8"	26.90	28.00	U	36813	16361	9203	5890	4090	3005	2301	1818	1473	1217	1023	871	751	654	575	2.761	
			C	18407	12271	9203	7363	6136	5259	4602	4090	3681	3347	3068	2832	2630	2454	2301		
2 1/2" X 1/4"	19.80	20.40	U	30307	13470	7577	4849	3367	2474	1894	1497	1212	1002	842	717	619	539	474	2.273	
			C	15153	10102	7577	6061	5051	4330	3788	3367	3031	2755	2526	2331	2165	2020	1894		
2 1/2" X 5/16"	25.00	26.10	U	37864	16829	9470	6061	4209	3092	2367	1871	1515	1252	1052	896	773	673	592	2.841	
			C	12943	12629	6470	7576	6313	5411	4735	4209	3788	3444	3157	1991	1706	1726	2367		
2 1/2" X 3/8"	29.70	30.80	U	45453	20201	11363	7273	5050	3710	2841	2245	1818	1503	1263	1076	928	808	710	3.409	
			C	22727	15151	11363	9091	7576	6493	5682	5050	4545	4132	3788	3496	3247	3030	2841		
3" X 1/4"	24.10	25.20	U	43640	19396	10910	6982	4849	3562	2728	2155	1746	1443	1212	1033	891	776	682	3.273	
			C	21820	14547	10910	8728	7273	6234	5455	4849	4364	3967	3637	3357	3117	2909	2728		
3" X 5/16"	30.20	31.70	U	54560	24251	13636	8727	6061	4453	3409	2694	2182	1803	1515	1291	1113	970	852	4.091	
			C	27272	18182	13636	10909	9091	7792	6818	6061	5455	4959	4545	4196	3896	3636	3409		
3" X 3/8"	35.80	37.40	U	65453	29090	16363	10473	7373	5343	4091	3232	2618	2164	1818	1549	1336	1164	1023	4.909	
			C	32727	21818	16363	13091	10909	9350	8182	7273	6545	5950	5454	5035	4675	4364	4091		
3 1/2" X 1/4"	27.90	29.00	U	59387	26394	14847	9502	6599	4848	3712	2933	2375	1963	1650	1406	1212	1056	928	4.455	
			C	29693	19796	14847	11879	9898	8484	7423	6599	5939	5399	4949	4568	4242	3959	3712		
3 1/2" X 5/16"	34.90	36.50	U	74244	32996	18561	11879	8249	6061	4640	3666	2970	2454	2062	1757	1515	1320	1160	5.568	
			C	37122	24748	18561	14848	12374	10606	9280	8249	7424	6749	6187	5711	5303	4950	4640		
3 1/2" X 3/8"	41.60	43.10	U	89093	39597	22273	14255	9899	7273	5568	4400	3564	2945	2475	2109	1818	1584	1392	6.682	
			C	44547	29698	22273	17819	14849	12728	11137	9899	8909	8099	7424	6853	6364	5940	5568		
4" X 1/4"	31.70	32.90	U	77573	34477	19393	12412	8619	6333	4848	3831	3103	2564	2155	1836	1583	1379	1212	5.818	
			C	38787	25858	19393	15515	12929	11082	9697	8619	7757	7052	6464	5967	5541	5172	4848		
4" X 5/16"	39.70	41.20	U	96984	43103	24242	15515	10774	7916	6061	4789	3879	3206	2694	2295	1979	1724	1515	7.273	
			C	48480	32321	24242	19394	16162	13853	12121	10774	9697	8815	8081	7458	6926	6464	6061		
4" X 3/8"	47.30	48.80	U	116360	51716	29090	18618	12929	9499	7273	5746	4654	3847	3232	2754	2375	2069	1818	8.727	
			C	58180	38787	29090	23272	19393	16623	14545	12929	11636	10578	9697	8951	8311	7757	7273		

Maximum allowable fiber stress of 18,000 P.S.I.





BAR GRATING - HD 35

35-102

35mm

1
BAR
GRATING

TABLE OF SAFE LOADS

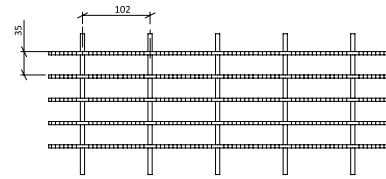
U - Safe Uniform Load, in kPa

C - Safe Concentrated Load, in kN/m

For serrated surface, increase depth by 1/4" for proper load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



35-102 Spacing

HD TYPE 35-102																		
SIZE OF BEARING BAR	KG/M2		SPAN IN INCHES													SEC. MOD. PER 305MM OF WIDTH		
	TYPE 35-102	TYPE 35-51	305	457	610	762	914	1067	1219	1372	1524	1676	1829	1981	2134		2286	2438
25 x 6.4	40.52	43.94	U	232	103	58	37	26	19	15	11	9	8	6	5	4	4	5.970
			C	35	24	18	14	12	10	9	8	7	6	6	5	5	5	
25 x 7.9	52.24	57.61	U	290	129	73	46	32	24	18	14	12	10	8	7	6	5	7.462
			C	44	29	22	18	15	13	11	10	9	8	7	6	6	6	
25 x 9.5	61.52	66.89	U	348	155	87	56	39	28	22	17	14	11	10	8	7	6	8.938
			C	53	35	27	21	18	15	13	12	11	10	9	8	8	7	
32 x 6.4	49.80	53.22	U	363	161	91	58	40	30	23	18	15	12	10	9	7	6	9.315
			C	55	37	28	22	18	16	14	12	11	10	9	9	8	7	
32 x 7.9	63.96	69.33	U	454	202	113	73	50	37	28	22	18	15	13	11	9	8	11.644
			C	69	46	35	28	23	20	17	15	14	13	12	11	10	9	
32 x 9.5	75.19	80.56	U	544	242	136	87	60	44	34	27	22	18	15	13	11	10	13.973
			C	83	55	41	33	28	24	21	18	17	15	14	13	12	11	
38 x 6.4	59.08	62.49	U	522	232	131	84	58	43	33	26	21	17	15	12	11	9	13.415
			C	80	53	40	32	27	20	18	16	14	13	12	11	11	10	
38 x 7.9	75.19	82.02	U	653	290	163	105	73	53	41	32	22	22	18	15	13	12	16.777
			C	100	66	50	40	33	28	25	22	20	18	17	15	14	13	
38 x 9.5	89.35	94.72	U	784	348	196	125	87	64	49	39	31	26	22	19	16	14	20.123
			C	119	80	60	48	40	34	30	27	24	22	20	18	17	16	
44 x 6.4	71.77	68.35	U	711	316	178	114	79	58	44	35	27	24	20	17	15	13	18.270
			C	108	68	54	43	36	31	27	24	22	20	18	17	15	14	
44 x 7.9	86.91	92.77	U	889	395	222	142	99	73	56	44	36	29	25	21	18	16	22.829
			C	135	90	68	54	45	39	34	30	27	25	23	21	19	18	
44 x 9.5	104.48	108.88	U	1067	474	267	171	119	87	67	53	47	35	30	25	22	19	27.388
			C	162	108	81	65	54	46	41	36	32	30	27	25	23	22	
51 x 6.4	78.12	81.05	U	929	413	232	149	103	76	58	46	37	31	26	22	19	17	23.862
			C	142	94	71	57	47	40	35	31	28	26	24	22	20	19	
51 x 7.9	98.62	104.00	U	1161	516	290	186	129	95	73	57	46	38	32	27	24	21	29.815
			C	177	118	88	71	59	51	44	39	35	32	29	27	25	24	
51 x 9.5	117.18	122.55	U	1394	619	348	223	155	114	87	69	56	46	39	33	28	25	35.785
			C	212	141	106	85	71	61	53	47	42	39	35	33	30	28	
57 x 6.4	87.39	90.32	U	1176	523	294	188	131	96	73	58	47	39	33	28	24	21	30.192
			C	179	119	90	72	60	51	45	40	36	33	30	28	26	24	
57 x 7.9	110.34	115.71	U	1471	654	367	235	163	120	92	73	59	49	41	35	30	26	37.736
			C	224	149	112	90	75	64	56	50	45	41	37	34	32	30	
57 x 9.5	131.34	136.71	U	1763	784	441	282	196	144	110	87	71	58	49	42	36	31	45.280
			C	269	179	134	107	90	77	67	60	54	49	45	41	38	36	
64 x 6.4	96.67	99.60	U	1452	645	363	232	161	119	91	72	58	48	40	34	30	26	37.277
			C	221	147	111	88	74	63	55	49	44	40	37	34	32	29	
64 x 7.9	122.06	127.43	U	1814	806	454	290	202	148	113	90	73	60	50	43	37	32	46.592
			C	189	184	94	111	92	79	69	61	55	50	46	42	39	35	
64 x 9.5	145.01	150.38	U	2177	968	544	348	242	178	136	108	87	72	60	52	44	39	55.908
			C	332	221	166	133	111	95	83	74	66	60	55	51	47	44	
76 x 6.4	117.67	123.04	U	2090	929	523	334	232	171	131	103	84	69	58	49	43	37	53.677
			C	318	212	159	127	106	91	80	71	64	58	53	49	45	42	
76 x 7.9	147.45	154.77	U	2613	1162	653	418	290	213	163	129	105	86	73	62	53	46	67.092
			C	398	265	199	159	133	114	99	88	80	72	66	61	57	53	
76 x 9.5	174.79	182.60	U	3135	1393	784	502	353	256	196	155	125	104	87	74	64	56	80.508
			C	477	318	239	191	159	136	119	106	95	87	80	73	68	64	
89 x 6.4	136.22	141.59	U	2845	1264	711	455	316	232	178	140	114	94	79	67	58	51	73.062
			C	433	289	217	173	144	124	108	96	87	79	72	67	62	58	
89 x 7.9	170.40	178.21	U	3556	1581	889	569	395	290	222	176	142	118	99	84	73	63	91.315
			C	542	361	271	217	181	155	135	120	108	98	90	83	77	72	
89 x 9.5	203.11	210.43	U	4268	1897	1067	683	474	348	267	211	171	141	119	101	87	76	109.585
			C	650	433	325	260	217	186	162	144	130	118	108	100	93	87	
102 x 6.4	154.77	160.63	U	3716	1651	929	595	413	303	232	184	149	123	103	88	76	66	95.415
			C	566	377	283	226	189	162	141	126	113	103	94	87	81	75	
102 x 7.9	193.83	201.15	U	4646	2065	1161	743	516	379	290	229	186	154	129	110	95	83	119.277
			C	707	472	354	283	236	202	177	157	141	129	118	109	101	94	
102 x 9.5	230.94	238.26	U	5574	2477	1393	892	619	455	348	275	223	184	155	132	114	99	143.123
			C	849	566	424	340	283	243	212	189	170	154	141	131	121	113	

Maximum allowable fiber stress of 124 M.P.A





BAR GRATING - HD 30

30-4

30/16"

TABLE OF SAFE LOADS

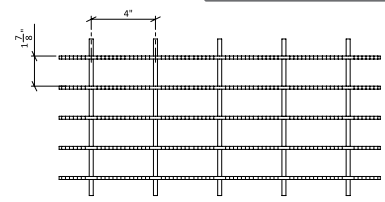
U - Safe Uniform Load, in lbs. per sq. ft.

C - Safe Concentrated Load, in lbs. per foot of grating width

For serrated surface, increase depth by 1/4" for proper load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



30-4 Spacing

HD TYPE 30-4																			
SIZE OF BEARING BAR	LBS/SF		SPAN IN INCHES															SEC. MOD. PER FEET OF WIDTH	
	TYPE 30-4	TYPE 30-2	1'-0"	1'-6"	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"		
1" X 1/4"	6.30	7.00	U	3560	1582	890	570	396	291	223	176	142	118	99	84	73	63	56	0.267
			C	1780	1187	890	712	593	509	445	396	356	324	297	274	254	237	223	
1" X 5/16"	8.20	9.40	U	4476	1990	1111	711	494	393	278	219	178	147	123	106	91	80	69	0.333
			C	2222	1482	1111	889	741	635	556	494	444	404	370	342	317	296	278	
1" X 3/8"	9.60	10.80	U	5332	2370	1333	853	593	435	333	263	213	176	148	126	109	95	83	0.400
			C	2667	1778	1333	1067	889	762	667	593	533	485	444	410	381	356	333	
1 1/4" X 1/4"	7.80	8.40	U	5560	2471	1390	890	618	454	348	275	222	184	154	132	113	99	87	0.417
			C	2780	1853	1390	1112	927	794	695	618	556	505	463	428	397	371	348	
1 1/4" X 5/16"	10.00	11.10	U	6912	3074	1736	1111	772	567	434	343	278	230	193	164	142	123	109	0.521
			C	3472	2314	1736	1389	1157	992	868	772	694	631	579	534	496	463	434	
1 1/4" X 3/8"	11.80	12.90	U	8333	3704	2083	1333	926	680	521	412	333	275	231	197	170	148	130	0.625
			C	4167	2778	2083	1667	1389	1190	1042	926	833	758	694	641	595	556	521	
1 1/2" X 1/4"	9.20	9.80	U	8000	3556	2000	1280	889	653	500	395	320	264	222	189	163	142	125	0.600
			C	4000	2667	2000	1600	1333	1143	1000	889	800	727	667	615	571	533	500	
1 1/2" X 5/16"	11.80	12.90	U	10016	4451	2500	1600	1111	816	625	494	400	331	278	237	204	178	156	0.750
			C	5000	3334	2500	2000	1667	1429	1250	1111	1000	909	833	769	714	667	625	
1 1/2" X 3/8"	13.90	15.00	U	12000	5333	3000	1920	1333	980	750	593	480	397	333	284	245	213	188	0.900
			C	6000	4000	3000	2400	2000	1714	1500	1333	1200	1091	1000	923	857	800	750	
1 3/4" X 1/4"	10.60	11.30	U	10893	4841	2723	1743	1210	889	681	538	436	360	303	258	222	194	170	0.817
			C	5447	3631	2723	2179	1816	1556	1362	1210	1089	990	908	838	778	726	681	
1 3/4" X 5/16"	13.60	14.70	U	13596	6041	3403	2178	1512	1111	851	672	544	450	378	322	278	242	213	1.021
			C	6802	4535	3403	2722	2269	1944	1701	1512	1361	1237	1134	1046	972	907	851	
1 3/4" X 3/8"	16.00	17.10	U	16333	7259	4083	2613	1851	1333	1021	807	653	540	454	387	333	290	255	1.225
			C	8167	5444	4083	3267	2722	2333	2042	1815	1633	1485	1361	1256	1167	1089	1021	
2" X 1/4"	12.00	12.70	U	14227	6323	3557	2276	1581	1161	889	703	569	470	395	337	290	253	222	1.067
			C	7113	4742	3557	2845	2371	2032	1778	1581	1423	1293	1186	1094	1016	948	889	
2" X 5/16"	15.30	16.50	U	17760	7893	4444	2844	1975	1451	1111	878	711	588	494	420	363	316	278	1.333
			C	8888	5926	4444	3556	2963	2540	2222	1975	1778	1616	1481	1367	1270	1185	1111	
2" X 3/8"	18.10	19.30	U	21333	9481	5333	3413	2370	1741	1333	1053	853	705	593	505	435	379	333	1.600
			C	10667	7111	5333	4267	3556	3048	2667	2370	2133	1939	1778	1641	1524	1422	1333	
2-1/4" X 1/4"	13.60	14.10	U	18000	8000	4500	2880	2000	1469	1125	889	720	595	500	426	367	320	281	1.350
			C	9000	6000	4500	3600	3000	2571	2250	2000	1800	1636	1500	1385	1286	1200	1125	
2-1/4" X 5/16"	17.10	18.20	U	22468	9986	5625	3600	2500	1837	1406	1111	900	744	625	532	459	399	352	1.688
			C	11254	7503	5625	4500	3750	3214	2813	2500	2250	2045	1875	1731	1607	1501	1406	
2-1/4" X 3/8"	20.30	21.40	U	27000	12000	3750	4320	3000	2204	1688	1333	1080	893	750	639	551	480	422	2.025
			C	13500	9000	6750	5400	4500	3857	3375	3000	2700	2455	2250	2077	1929	1800	1688	
2 1/2" X 1/4"	14.90	15.30	U	22227	9879	5557	3556	2470	1814	1389	1098	889	735	617	526	454	395	347	1.667
			C	11113	7409	5557	4445	3704	3175	2778	2470	2223	2021	1852	1710	1588	1482	1389	
2 1/2" X 5/16"	18.90	20.00	U	27776	12344	6944	4444	3086	2268	1736	1372	1111	918	772	657	567	494	434	2.083
			C	13888	9260	6944	5556	4630	3968	3472	3086	2778	2525	2315	2137	1984	1852	1736	
2 1/2" X 3/8"	22.30	23.50	U	33333	14815	8333	5333	3704	2721	2083	1646	1333	1102	926	789	680	593	521	2.500
			C	16667	11111	8333	6667	5556	4762	4167	3704	3333	3030	2778	2564	2381	2222	2083	
3" X 1/4"	18.20	19.30	U	32000	14222	8000	5120	3556	2612	2000	1580	1280	1058	889	757	653	569	500	2.400
			C	16000	10667	8000	6400	5333	4571	4000	3556	3200	2909	2667	2462	2286	2133	2000	
3" X 5/16"	22.80	24.40	U	40000	17776	10000	6400	4444	3265	2500	1975	1600	1322	1111	947	816	711	625	3.000
			C	20000	13334	10000	8000	6667	5714	5000	4444	4000	3636	3333	3077	2857	2667	2500	
3" X 3/8"	27.00	28.60	U	48000	21333	12000	7680	5333	3918	3000	2370	1920	1587	1333	1136	980	853	750	3.600
			C	24000	16000	12000	9600	8000	6857	6000	5333	4800	4364	4000	3692	3429	3200	3000	
3 1/2" X 1/4"	21.00	22.20	U	43560	19360	10890	6970	4840	3556	2733	2151	1742	1440	1210	1031	889	774	681	3.267
			C	21780	14520	10890	8712	7260	6223	5445	4840	4356	3960	3630	3351	3111	2904	2723	
3 1/2" X 5/16"	26.40	27.90	U	54428	24189	13611	8711	6049	4444	3403	2689	2178	1800	1512	1288	1111	968	851	4.083
			C	27222	18148	13611	10889	9074	7778	6806	6049	5444	4949	4537	4188	3889	3630	3403	
3 1/2" X 3/8"	31.30	32.80	U	65333	29037	16333	10453	7259	5333	4083	3226	2613	2160	1815	1546	1333	1161	1021	4.900
			C	32667	21778	16333	13067	10889	9333	8167	7259	6533	5939	5444	5026	4667	4356	4083	
4" X 1/4"	23.90	29.00	U	56893	25286	14223	9103	6321	4644	3556	2810	2276	1881	1580	1347	1161	1011	889	4.267
			C	28447	18964	14223	11379	9482	8128	7112	6321	5689	5172	4741	4376	4064	3793	3556	
4" X 5/16"	29.90	31.50	U	71112	31604	17778	11378	7901	5805	4444	3512	2844	2351	1975	1683	1451	1264	1111	5.333
			C	35560	23707	17778	14222	11852	10159	8889	7901	7111	6465	5926	5471	5079	4741	4444	
4" X 3/8"	35.50	37.10	U	85333	37926	21333	13653	9481	6966	5333	4214	3413	2821	2370	2020	1741	1517	1333	6.400
			C	42667	28444	21333	17067	14222	12190	10667	9481	8533	7758	7111	6564	6095	5689	5333	

Maximum allowable fiber stress of 18,000 P.S.I





BAR GRATING - HD 48

48-102

48mm

1
BAR
GRATING

TABLE OF SAFE LOADS

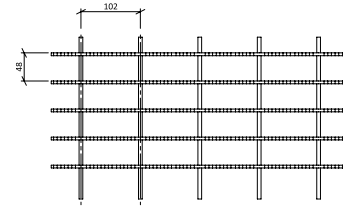
U - Safe Uniform Load, in kPa

C - Safe Concentrated Load, in kN/m

For serrated surface, increase depth by 1/4" for proper load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



48-102 Spacing

HD TYPE 48-102																			
SIZE OF BEARING BAR	KG/M2			SPAN IN INCHES														SEC. MOD. PER 305MM OF WIDTH	
	TYPE 48-102	TYPE 48-51		305	457	610	762	914	1067	1219	1372	1524	1676	1829	1981	2134	2286		2438
25 x 6.4	30.76	34.18	U	171	76	43	27	19	14	11	8	7	6	5	4	3	3	3	4.379
			C	26	17	13	10	9	7	6	6	5	5	4	4	4	3	3	
25 x 7.9	40.04	45.89	U	214	95	53	34	24	19	13	10	9	7	6	5	4	4	3	5.461
			C	32	22	16	13	11	9	8	7	6	6	5	5	5	4	4	
25 x 9.5	46.87	52.73	U	255	114	64	41	28	21	16	13	10	8	7	6	5	5	4	6.560
			C	39	26	19	16	13	11	10	9	8	7	6	6	6	5	5	
32 x 6.4	38.08	41.01	U	266	118	67	43	30	22	17	13	11	9	7	6	5	5	4	6.839
			C	41	27	20	16	14	12	10	9	8	7	7	6	6	5	5	
32 x 7.9	48.82	54.19	U	331	147	83	53	37	27	21	16	13	11	9	8	7	6	5	8.544
			C	51	34	25	20	17	14	13	11	10	9	8	8	7	7	6	
32 x 9.5	57.61	62.98	U	399	177	100	64	44	33	25	20	16	13	11	9	8	7	6	10.250
			C	61	41	30	24	20	17	15	14	12	11	10	9	9	8	8	
38 x 6.4	44.92	47.85	U	383	170	96	61	43	31	24	19	15	13	11	9	8	7	6	9.840
			C	58	39	29	23	19	15	13	12	11	10	9	8	8	7	7	
38 x 7.9	57.61	62.98	U	480	213	120	77	53	39	30	24	19	16	13	11	10	9	7	12.300
			C	73	49	36	29	24	21	18	16	15	13	12	11	10	10	9	
38 x 9.5	67.87	73.24	U	575	255	144	92	64	47	36	28	23	19	16	14	12	10	9	14.760
			C	88	58	44	35	29	25	22	19	18	16	15	13	13	12	11	
44 x 6.4	51.75	55.17	U	522	232	130	83	58	43	33	26	21	17	15	12	11	9	8	13.399
			C	79	53	40	32	26	23	20	18	16	14	13	12	11	11	10	
44 x 7.9	66.40	71.77	U	651	289	163	104	72	53	41	32	26	22	18	15	13	12	10	16.744
			C	99	66	50	40	33	28	25	22	20	18	17	15	14	13	12	
44 x 9.5	78.12	83.49	U	782	348	196	125	89	64	49	39	31	26	22	19	16	14	12	20.090
			C	119	79	60	48	40	34	30	26	24	22	20	18	17	16	15	
51 x 6.4	58.59	62.01	U	681	303	170	109	76	56	43	34	27	23	19	16	14	12	11	17.499
			C	104	69	52	42	35	30	26	23	21	19	17	16	15	14	13	
51 x 7.9	74.70	80.56	U	851	378	213	136	95	70	53	42	34	28	24	20	17	15	13	21.861
			C	130	86	65	52	43	37	32	29	26	24	22	20	19	17	16	
51 x 9.5	88.37	94.23	U	1022	454	255	163	114	83	64	50	41	34	28	24	21	18	16	26.240
			C	156	104	78	62	52	44	39	35	31	28	26	24	22	21	19	
57 x 6.4	66.40	68.84	U	862	383	216	138	96	70	54	43	34	29	24	20	18	15	13	22.140
			C	131	88	66	53	44	38	33	29	26	24	22	20	19	18	16	
57 x 7.9	83.49	88.86	U	1076	478	269	172	120	88	67	53	43	36	30	25	22	19	17	27.683
			C	164	109	82	66	55	47	41	36	33	30	27	25	23	22	21	
57 x 9.5	99.11	104.48	U	1293	575	180	207	144	106	81	64	52	43	36	31	26	23	20	33.210
			C	197	131	98	79	66	56	49	44	39	36	33	30	28	26	25	
64 x 6.4	72.75	74.70	U	1065	473	266	170	118	87	67	53	43	35	30	25	22	19	17	27.339
			C	162	108	81	65	54	46	41	36	32	29	27	25	23	22	20	
64 x 7.9	92.28	97.65	U	1330	591	333	213	148	109	83	66	53	44	37	31	27	24	21	34.161
			C	203	135	101	81	68	58	51	45	41	37	34	31	29	27	25	
64 x 9.5	108.88	114.74	U	1597	710	399	255	177	130	100	79	64	53	44	38	33	28	25	41.000
			C	243	162	122	97	81	69	61	54	49	44	41	37	35	32	30	
76 x 6.4	88.86	94.23	U	1533	681	383	245	170	125	96	76	61	51	43	36	31	27	24	39.360
			C	233	156	117	93	78	67	58	52	47	42	39	36	33	31	29	
76 x 7.9	111.32	119.13	U	1916	851	479	307	213	156	120	95	77	63	53	45	39	34	30	49.200
			C	292	195	146	117	97	83	73	65	58	53	49	45	42	39	36	
76 x 9.5	131.82	139.64	U	2299	1022	575	368	255	188	144	114	92	76	64	54	47	41	36	59.040
			C	350	233	175	140	117	100	88	78	70	64	58	54	50	47	44	
89 x 6.4	102.53	108.39	U	2087	927	522	334	232	170	131	103	83	69	58	49	43	37	33	53.579
			C	318	212	159	127	106	91	79	71	64	58	53	49	45	42	40	
89 x 7.9	128.90	136.22	U	2607	1159	652	417	290	213	163	129	104	86	72	62	53	46	41	66.961
			C	397	265	199	159	132	113	99	88	79	72	66	61	57	53	50	
89 x 9.5	152.82	160.14	U	3129	1391	782	501	348	255	196	155	125	103	87	74	64	56	49	80.360
			C	477	318	238	191	159	136	119	106	95	87	79	73	68	64	60	
102 x 6.4	116.69	141.59	U	2725	1211	681	436	303	222	170	135	109	90	76	65	56	48	43	69.979
			C	415	277	208	166	138	119	104	92	83	75	69	64	59	55	52	
102 x 7.9	145.98	153.80	U	3406	1514	852	545	378	278	213	168	136	113	95	81	70	61	53	87.461
			C	519	346	259	207	173	148	130	115	104	94	86	80	74	69	65	
102 x 9.5	173.33	181.14	U	4087	1817	1022	654	454	334	255	202	163	135	114	97	83	73	64	104.960
			C	623	415	311	249	207	178	156	138	124	113	104	96	89	83	78	

Maximum allowable fiber stress of 124 M.P.A





BAR GRATING - STAINLESS STEEL

IMPERIAL - Type 19-4 Spacing

19-4

19/16"

TABLE OF SAFE LOADS - IMPERIAL

U - Safe Uniform Load, in lbs. per sq. ft.

C - Safe Concentrated Load, in lbs. per foot of grating width

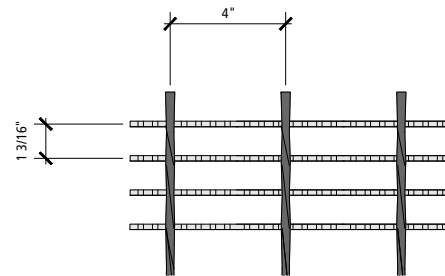
D - Deflection in inches

For serrated surface, increase depth by 1/4" for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.



19-4 SPACING

304 & 316 STAINLESS STEEL TYPE 19-4																	
SIZE OF BEARING BAR	APPROX. WT/LBS/SQ.FT TYPE 19-4		SPAN IN INCHES														
			1'-0"	1'-6"	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"	0.00	U	1578	701	394	252	176	129	99	78							
		D	0.026	0.063	0.114	0.178	0.257	0.350	0.457	0.579							
		C	789	526	394	316	263	226	198	176							
		D	0.022	0.051	0.091	0.143	0.206	0.280	0.366	0.463							
3/4" X 3/16"	5.64	U	2369	1053	592	379	263	193	148	117							
		D	0.026	0.063	0.114	0.178	0.257	0.350	0.457	0.579							
		C	1184	790	592	473	394	339	296	263							
		D	0.022	0.051	0.091	0.143	0.206	0.280	0.366	0.463							
1" X 1/8"	4.99	U	2809	1248	702	449	312	229	176	139	112	93					
		D	0.023	0.048	0.085	0.134	0.193	0.262	0.343	0.434	0.536	0.648					
		C	1404	936	702	561	468	401	351	312	281	256					
		D	0.021	0.040	0.069	0.107	0.154	0.209	0.274	0.348	0.428	0.519					
1" X 3/16"	7.19	U	4208	1870	1052	673	468	343	263	208	169	139					
		D	0.023	0.048	0.085	0.134	0.193	0.262	0.343	0.434	0.536	0.648					
		C	2104	1403	1052	842	702	601	527	468	421	382					
		D	0.021	0.040	0.069	0.107	0.154	0.209	0.274	0.348	0.428	0.519					
1 1/4" X 1/8"	6.09	U	4386	1949	1097	702	488	358	274	217	176	144	122	103	90		
		D	0.021	0.040	0.069	0.107	0.154	0.209	0.274	0.348	0.428	0.519	0.617	0.724	0.840		
		C	2193	1462	1097	877	731	627	548	488	439	399	366	338	313		
		D	0.020	0.033	0.055	0.085	0.123	0.168	0.220	0.277	0.343	0.414	0.494	0.580	0.672		
1 1/4" X 3/16"	8.84	U	6577	2923	1644	1052	731	537	411	324	263	218	182	156	134		
		D	0.021	0.040	0.069	0.107	0.154	0.209	0.274	0.348	0.428	0.519	0.617	0.724	0.840		
		C	3289	2192	1644	1315	1097	940	822	731	658	598	548	506	470		
		D	0.020	0.033	0.055	0.085	0.123	0.168	0.220	0.277	0.343	0.414	0.494	0.580	0.672		
1 1/2" X 1/8"	7.19	U	6315	2807	1579	1010	702	516	394	312	252	209	176	150	129	99	78
		D	0.014	0.032	0.058	0.090	0.129	0.175	0.229	0.289	0.357	0.433	0.514	0.603	0.700	0.914	1.158
		C	3157	2105	1579	1263	1052	902	790	702	631	574	527	486	451	394	351
		D	0.013	0.026	0.046	0.071	0.102	0.140	0.183	0.231	0.285	0.345	0.412	0.483	0.561	0.732	0.925
1 1/2" X 3/16"	10.48	U	9475	4211	2369	1515	1052	773	592	468	379	313	263	224	193	148	117
		D	0.014	0.032	0.058	0.090	0.129	0.175	0.229	0.289	0.357	0.433	0.514	0.603	0.700	0.914	1.158
		C	4737	3158	2369	1894	1579	1353	1184	1052	948	861	790	729	677	592	527
		D	0.013	0.026	0.046	0.071	0.102	0.140	0.183	0.231	0.285	0.345	0.412	0.483	0.561	0.732	0.925
1 3/4" X 3/16"	11.71	U	12892	5730	3223	2063	1432	1052	805	637	516	427	358	306	263	201	159
		D	0.012	0.028	0.049	0.077	0.110	0.150	0.196	0.247	0.306	0.371	0.441	0.518	0.600	0.784	0.992
		C	6446	4297	3223	2579	2149	1842	1612	1432	1290	1172	1074	992	921	805	717
		D	0.013	0.023	0.039	0.061	0.089	0.120	0.157	0.198	0.245	0.296	0.352	0.414	0.480	0.627	0.793
2" X 3/16"	13.78	U	16838	7484	4210	2694	1871	1374	1052	832	673	557	468	399	343	263	208
		D	0.012	0.024	0.043	0.067	0.097	0.131	0.171	0.218	0.268	0.325	0.386	0.452	0.525	0.686	0.868
		C	8419	5613	4210	3369	2806	2405	2105	1871	1684	1531	1403	1295	1203	1052	935
		D	0.006	0.018	0.035	0.054	0.077	0.105	0.137	0.174	0.214	0.259	0.308	0.363	0.420	0.549	0.694
2 1/4" X 3/16"	15.49	U	21313	9473	5328	3410	2369	1740	1332	1052	852	704	592	504	436	333	263
		D	0.005	0.020	0.038	0.060	0.085	0.116	0.152	0.193	0.238	0.288	0.343	0.403	0.467	0.610	0.771
		C	10657	7104	5328	4263	3552	3045	2664	2369	2131	1938	1776	1640	1522	1332	1184
		D	0.009	0.017	0.030	0.047	0.069	0.093	0.122	0.154	0.191	0.230	0.274	0.322	0.373	0.488	0.617
2 1/2" X 3/16"	17.08	U	26313	11695	6578	4210	2924	2148	1644	1300	1052	870	731	623	537	411	324
		D	0.006	0.018	0.035	0.054	0.077	0.105	0.137	0.174	0.214	0.259	0.308	0.363	0.420	0.549	0.694
		C	13156	8771	6578	5263	4385	3759	3290	2924	2631	2392	2193	2024	1880	1644	1462
		D	0.012	0.017	0.028	0.043	0.062	0.084	0.109	0.139	0.171	0.207	0.247	0.290	0.336	0.439	0.556

Maximum allowable fiber stress of 18.000 P.S.I.





BAR GRATING - STAINLESS STEEL

METRIC - Type 30-102 Spacing

30-102

30mm

1
BAR
GRATING

TABLE OF SAFE LOADS

U - Safe Uniform Load, in kPa

C - Safe Concentrated Load, in kN per meter

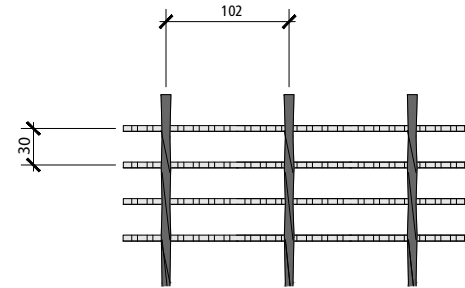
D - Deflection in millimeters

For serrated surface, increase depth by 7mm for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.



30-102 SPACING

		304 & 316 STAINLESS STEEL TYPE 30-102															
SIZE OF BEARING BAR	APPROX. WT/LBS/SQ.FT TYPE 30-102	SPAN IN MILLIMETER															
		305	458	610	762	915	1067	1219	1372	1524	1676	1829	1981	2133	2438	2743	
19 x 3.2	0.00	U	76	34	19	12	8	6	5	4							
		D	0.672	1.608	2.894	4.531	6.519	8.888	11.606	14.705							
		C	38	25	19	15	13	11	9	8							
		D	0.555	1.286	2.310	3.625	5.233	7.104	9.297	11.753							
19 x 4.8	27.54	U	113	50	28	18	13	9	7	6							
		D	0.672	1.608	2.894	4.531	6.519	8.888	11.606	14.705							
		C	57	38	28	23	19	16	14	13							
		D	0.555	1.286	2.310	3.625	5.233	7.104	9.297	11.753							
25 x 3.2	24.36	U	135	60	34	21	15	11	8	7	5	4					
		D	0.585	1.228	2.163	3.391	4.912	6.666	8.712	11.022	13.624	16.460					
		C	67	45	34	27	22	19	17	15	13	12					
		D	0.526	1.023	1.754	2.719	3.918	5.321	6.958	8.829	10.876	13.185					
25 x 4.8	35.10	U	202	90	50	32	22	16	13	10	8	7					
		D	0.585	1.228	2.163	3.391	4.912	6.666	8.712	11.022	13.624	16.460					
		C	101	67	50	40	34	29	25	22	20	18					
		D	0.526	1.023	1.754	2.719	3.918	5.321	6.958	8.829	10.876	13.185					
32 x 3.2	29.73	U	210	93	53	34	23	17	13	10	8	7	6	5	4		
		D	0.526	1.023	1.754	2.719	3.918	5.321	6.958	8.829	10.876	13.185	15.670	18.389	21.342		
		C	105	70	53	42	35	30	26	23	21	19	18	16	15		
		D	0.497	0.848	1.403	2.163	3.128	4.268	5.584	7.046	8.712	10.525	12.542	14.735	17.073		
32 x 4.8	43.16	U	315	140	79	50	35	26	20	16	13	10	9	7	6		
		D	0.526	1.023	1.754	2.719	3.918	5.321	6.958	8.829	10.876	13.185	15.670	18.389	21.342		
		C	158	105	79	63	53	45	39	35	32	29	26	24	23		
		D	0.497	0.848	1.403	2.163	3.128	4.268	5.584	7.046	8.712	10.525	12.542	14.735	17.073		
38 x 3.2	35.10	U	302	134	76	48	34	25	19	15	12	10	8	7	6	5	4
		D	0.351	0.819	1.462	2.280	3.274	4.444	5.818	7.338	9.063	10.993	13.068	15.319	17.775	23.213	29.411
		C	151	101	76	61	50	43	38	34	30	28	25	23	22	19	17
		D	0.322	0.672	1.169	1.813	2.602	3.567	4.648	5.876	7.250	8.771	10.466	12.279	14.238	18.594	23.505
38 x 4.8	51.17	U	454	202	113	73	50	37	28	22	18	15	13	11	9	7	6
		D	0.351	0.819	1.462	2.280	3.274	4.444	5.818	7.338	9.063	10.993	13.068	15.319	17.775	23.213	29.411
		C	227	151	113	91	76	65	57	50	45	41	38	35	32	28	25
		D	0.322	0.672	1.169	1.813	2.602	3.567	4.648	5.876	7.250	8.771	10.466	12.279	14.238	18.594	23.505
45 x 4.8	57.17	U	618	274	154	99	69	50	39	30	25	20	17	15	13	10	8
		D	0.292	0.702	1.257	1.959	2.807	3.801	4.970	6.286	7.777	9.414	11.197	13.156	15.232	19.909	25.201
		C	309	206	154	124	103	88	77	69	62	56	51	48	44	39	34
		D	0.322	0.585	0.994	1.549	2.251	3.040	3.976	5.028	6.227	7.513	8.946	10.525	12.191	15.933	20.143
51 x 4.8	67.28	U	807	358	202	129	90	66	50	40	32	27	22	19	16	13	10
		D	0.292	0.614	1.082	1.696	2.456	3.333	4.356	5.525	6.812	8.244	9.794	11.490	13.331	17.424	22.043
		C	403	269	202	161	134	115	101	90	81	73	67	62	58	50	45
		D	0.146	0.468	0.877	1.374	1.959	2.660	3.479	4.415	5.438	6.578	7.835	9.209	10.671	13.945	17.629
57 x 4.8	75.63	U	1021	454	255	163	113	83	64	50	41	34	28	24	21	16	13
		D	0.117	0.497	0.965	1.520	2.163	2.953	3.859	4.912	6.052	7.309	8.712	10.232	11.870	15.495	19.588
		C	510	340	255	204	170	146	128	113	102	93	85	79	73	64	57
		D	0.234	0.439	0.760	1.199	1.754	2.368	3.099	3.918	4.853	5.847	6.958	8.186	9.472	12.396	15.670
64 x 4.8	83.39	U	1260	560	315	202	140	103	79	62	50	42	35	30	26	20	16
		D	0.146	0.468	0.877	1.374	1.959	2.660	3.479	4.415	5.438	6.578	7.835	9.209	10.671	13.945	17.629
		C	630	420	315	252	210	180	158	140	126	115	105	97	90	79	70
		D	0.292	0.439	0.702	1.082	1.579	2.134	2.777	3.537	4.356	5.262	6.286	7.367	8.537	11.139	14.121

Maximum allowable fiber stress of 124 M.P.A





BAR GRATING - ALUMINUM

IMPERIAL - Type 19-4 Spacing

19-4

19/16"

TABLE OF SAFE LOADS

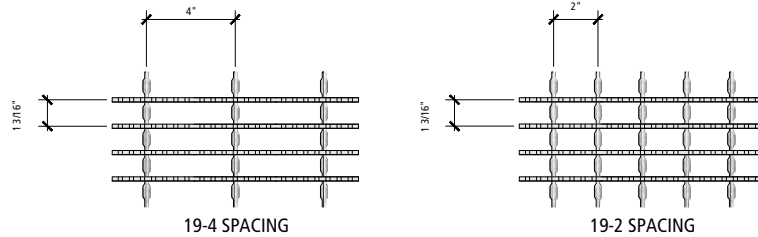
- U** - Safe Uniform Load, in lbs. per sq. ft.
- C** - Safe Concentrated Load, in lbs. per foot of grating width
- D** - Deflection in inches

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.

For serrated surface, increase depth by 1/4" for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



ALUMINUM TYPE 19-4

SIZE OF BEARING BAR	APPROX. WT/LBS/SQ.FT		SPAN IN INCHES																SEC. MOD. PER FEET OF WIDTH	
	TYPE 19-4	TYPE 19-2	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"				
3/4" x 1/8"	1.40	1.60	U	948	421	237	152	105	77										0.118	
			D	0.048	0.108	0.192	0.300	0.432	0.588											
			C	474	316	237	189	158	135											
			D	0.042	0.088	0.154	0.240	0.346	0.470											
3/4" x 3/16"	1.90	2.10	U	1420	631	355	227	158	116										0.178	
			D	0.048	0.108	0.192	0.300	0.432	0.586											
			C	710	473	355	284	237	203											
			D	0.042	0.088	0.154	0.240	0.346	0.470											
1" x 1/8"	1.71	1.90	U	1684	748	421	269	187	137	105									0.216	
			D	0.036	0.081	0.144	0.225	0.324	0.439	0.576										
			C	842	561	421	337	281	241	211										
			D	0.027	0.064	0.115	0.180	0.259	0.353	0.461										
1" x 3/16"	2.46	2.70	U	2528	1124	632	404	281	206	158	125								0.325	
			D	0.036	0.081	0.144	0.225	0.324	0.441	0.576	0.729									
			C	1264	843	632	505	421	361	316	281									
			D	0.027	0.064	0.115	0.180	0.259	0.353	0.461	0.583									
1 1/4" x 1/8"	2.08	2.30	U	2632	1170	658	421	292	215	164	130								0.339	
			D	0.027	0.064	0.115	0.180	0.259	0.353	0.461	0.583									
			C	1316	877	658	526	439	376	329	292									
			D	0.024	0.052	0.092	0.144	0.208	0.282	0.369	0.467									
1 1/4" x 3/16"	3.01	3.30	U	3948	1755	987	632	439	322	247	195	158							0.507	
			D	0.027	0.064	0.115	0.180	0.259	0.353	0.461	0.583	0.720								
			C	1974	1316	987	789	658	564	493	439	395								
			D	0.021	0.051	0.092	0.144	0.207	0.282	0.369	0.467	0.576								
1 1/2" x 1/8"	2.46	2.70	U	3788	1684	947	606	421	309	237	187	152							0.488	
			D	0.024	0.054	0.096	0.150	0.216	0.294	0.384	0.486	0.600								
			C	1894	1263	947	758	632	541	474	421	379								
			D	0.021	0.044	0.077	0.120	0.173	0.235	0.307	0.389	0.480								
1 1/2" x 3/16"	3.56	3.90	U	5684	2526	1421	909	632	464	355	281	227	188						0.730	
			D	0.024	0.054	0.096	0.150	0.216	0.294	0.384	0.486	0.600	0.726							
			C	2842	1895	1421	1137	947	812	711	632	568	517							
			D	0.021	0.044	0.077	0.120	0.173	0.235	0.307	0.389	0.480	0.581							
1 3/4" x 3/16"	4.12	4.40	U	7736	3438	1934	1238	860	632	484	382	309	256	215	183				0.994	
			D	0.015	0.044	0.082	0.129	0.185	0.252	0.329	0.417	0.514	0.622	0.741	0.869					
			C	3868	2579	1934	1547	1289	1105	967	860	774	703	645	595					
			D	0.016	0.037	0.066	0.103	0.148	0.202	0.263	0.333	0.411	0.498	0.592	0.695					
2" x 3/16"	4.68	5.00	U	10104	4491	2526	1617	1123	825	632	499	404	334	281	239	206			1.299	
			D	0.014	0.039	0.072	0.113	0.162	0.221	0.288	0.365	0.450	0.545	0.648	0.761	0.882				
			C	5052	3368	2526	2021	1684	1444	1263	1123	1011	919	842	777	722				
			D	0.018	0.034	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608	0.706				
2 1/4" x 3/16"	5.24	5.80	U	12788	5684	3197	2046	1421	1044	799	632	512	423	355	303	261	200		1.644	
			D	0.016	0.036	0.064	0.100	0.144	0.196	0.256	0.324	0.400	0.484	0.576	0.676	0.784	1.024			
			C	6394	4263	3197	2558	2132	1827	1599	1421	1279	1163	1066	984	914	799			
			D	0.011	0.028	0.051	0.080	0.115	0.157	0.205	0.259	0.320	0.387	0.461	0.541	0.624	0.819			
2 1/2" x 3/16"	5.79	6.10	U	15788	7017	3947	2526	1454	1289	987	780	632	522	439	374	322	247		2.029	
			D	0.018	0.034	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608	0.706	0.922			
			C	7894	5263	3947	3158	2632	2256	1974	1754	1579	1435	1316	1215	1128	987			
			D	0.012	0.026	0.046	0.072	0.104	0.141	0.184	0.233	0.288	0.348	0.415	0.487	0.564	0.737			

Maximum allowable fiber stress of 18,000 P.S.I





BAR GRATING - ALUMINUM

METRIC - Type 30-102 Spacing

30-102

30mm

1
BAR
GRATING

TABLE OF SAFE LOADS

U - Safe Uniform Load, in kPa

C - Safe Concentrated Load, in kN per meter

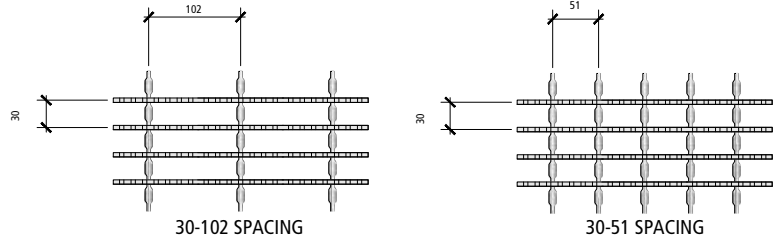
D - Deflection in millimeters

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.

For serrated surface, increase depth by 7mm for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



ALUMINUM TYPE 30-102																			
SIZE OF BEARING BAR	APPROX. WT/KG/M2		SPAN IN MILLIMETER												SEC. MOD. PER 305mm OF WIDTH				
	TYPE 30-102	TYPE 30-51	305	458	610	762	915	1067	1219	1372	1524	1676	1829	1981		2133	2438		
19 x 3.2	6.84	7.81	U	45.41	20.14	11.35	7.28	5.03	3.69									1.94	
			D	1.2	2.7	4.9	7.6	11.0	14.9										
			C	6.92	4.61	3.46	2.76	2.31	1.97										
			D	1.1	2.2	3.9	6.1	8.8	11.9										
19 x 4.8	9.28	10.25	U	68.02	30.16	17.00	10.87	7.57	5.56									2.92	
			D	1.2	2.7	4.9	7.6	11.0	14.9										
			C	10.36	6.90	5.18	4.14	3.46	2.96										
			D	1.1	2.2	3.9	6.1	8.8	11.9										
25 x 3.2	8.35	9.28	U	80.66	35.77	20.17	12.89	8.96	6.56	5.03								3.54	
			D	0.9	2.1	3.7	5.7	8.2	11.2	14.6									
			C	12.28	8.18	6.14	4.92	4.10	3.52	3.08									
			D	0.7	1.6	2.9	4.6	6.6	9.0	11.7									
25 x 4.8	12.01	13.18	U	121.09	53.70	30.27	19.35	13.46	9.87	7.57	5.99							5.33	
			D	0.9	2.1	3.7	5.7	8.2	11.2	14.6	18.5								
			C	18.44	12.28	9.22	7.37	6.14	5.27	4.61	4.10								
			D	0.7	1.6	2.9	4.6	6.6	9.0	11.7	14.8								
32 x 3.2	10.16	11.23	U	126.07	55.91	31.52	20.17	13.99	10.30	7.86	6.23							5.56	
			D	0.7	1.6	2.9	4.6	6.6	9.0	11.7	14.8								
			C	19.20	12.79	9.60	7.67	6.41	5.49	4.80	4.26								
			D	0.6	1.3	2.3	3.7	5.3	7.2	9.4	11.9								
32 x 4.8	14.70	16.11	U	189.11	83.87	47.28	30.27	21.03	15.42	11.83	9.34	7.57						8.31	
			D	0.7	1.6	2.9	4.6	6.6	9.0	11.7	14.8	18.3							
			C	28.80	19.18	14.40	11.51	9.60	8.23	7.19	6.41	5.76							
			D	0.5	1.3	2.3	3.7	5.3	7.2	9.4	11.9	14.6							
38 x 3.2	12.01	13.18	U	181.45	80.47	45.36	29.03	20.17	14.80	11.35	8.96	7.28						8.00	
			D	0.6	1.4	2.4	3.8	5.5	7.5	9.8	12.3	15.2							
			C	27.63	18.40	13.82	11.06	9.22	7.89	6.92	6.14	5.53							
			D	0.5	1.1	2.0	3.0	4.4	6.0	7.8	9.9	12.2							
38 x 4.8	17.38	19.04	U	272.26	120.74	68.07	43.54	30.27	22.23	17.00	13.46	10.87	9.01					11.97	
			D	0.6	1.4	2.4	3.8	5.5	7.5	9.8	12.3	15.2	18.4						
			C	41.46	27.61	20.73	16.59	13.82	11.85	10.37	9.22	8.29	7.54						
			D	0.5	1.1	2.0	3.0	4.4	6.0	7.8	9.9	12.2	14.8						
45 x 4.8	20.12	21.48	U	370.55	164.33	92.64	59.30	41.19	30.27	23.18	18.30	14.80	12.26	10.30	8.77			16.30	
			D	0.4	1.1	2.1	3.3	4.7	6.4	8.4	10.6	13.1	15.8	18.8	22.1				
			C	56.43	37.58	28.22	22.57	18.81	16.12	14.11	12.55	11.29	10.26	9.41	8.68				
			D	0.4	0.9	1.7	2.6	3.8	5.1	6.7	8.5	10.4	12.6	15.0	17.7				
51 x 4.8	22.85	24.41	U	483.98	214.63	121.00	77.45	53.79	39.52	30.27	23.90	19.35	16.00	13.46	11.45	9.87		21.30	
			D	0.4	1.0	1.8	2.9	4.1	5.6	7.3	9.3	11.4	13.8	16.5	19.3	22.4			
			C	73.71	49.09	36.85	29.49	24.57	21.07	18.43	16.38	14.75	13.41	12.28	11.34	10.53			
			D	0.5	0.9	1.5	2.3	3.3	4.5	5.8	7.4	9.1	11.1	13.2	15.4	17.9			
57 x 4.8	25.58	28.32	U	612.55	271.65	153.14	98.00	68.07	50.01	38.27	30.27	24.52	20.26	17.00	14.51	12.50	9.58		26.96
			D	0.4	0.9	1.6	2.5	3.7	5.0	6.5	8.2	10.2	12.3	14.6	17.2	19.9	26.0		
			C	93.29	62.12	46.64	37.32	31.11	26.66	23.33	20.73	18.66	16.97	15.55	14.36	13.34	11.66		
			D	0.3	0.7	1.3	2.0	2.9	4.0	5.2	6.6	8.1	9.8	11.7	13.7	15.8	20.8		
64 x 4.8	28.27	29.78	U	756.25	335.38	189.06	121.00	69.65	61.74	47.28	37.36	30.27	25.00	21.03	17.91	15.42	11.83		33.28
			D	0.5	0.9	1.5	2.3	3.3	4.5	5.8	7.4	9.1	11.1	13.2	15.4	17.9	23.4		
			C	115.17	76.70	57.59	46.08	38.40	32.92	28.80	25.59	23.04	20.94	19.20	17.73	16.46	14.40		
			D	0.3	0.7	1.2	1.8	2.6	3.6	4.7	5.9	7.3	8.8	10.5	12.4	14.3	18.7		

Maximum allowable fiber stress of 124 K.P.A





BAR GRATING - ALUMINUM

IMPERIAL - Type 15-4 Spacing

15-4

15/16"

TABLE OF SAFE LOADS

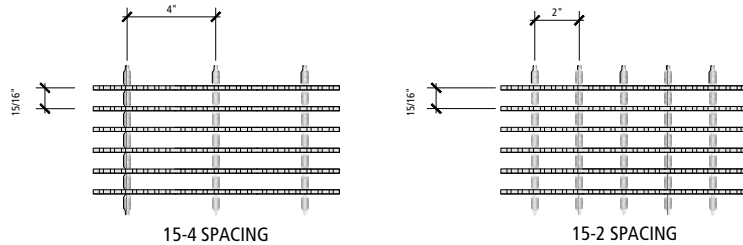
- U** - Safe Uniform Load, in lbs. per sq. ft.
- C** - Safe Concentrated Load, in lbs. per foot of grating width
- D** - Deflection in inches

For serrated surface, increase depth by 1/4" for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.



ALUMINUM TYPE 15-4																			
SIZE OF BEARING BAR	APPROX. WT/LBS/SQ.FT		SPAN IN INCHES											SEC. MOD. PER FEET OF WIDTH					
	TYPE 15-4	TYPE 15-2	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"		6'-6"	7'-0"	8'-0"		
3/4" X 1/8"	1.70	1.90	U	1200	533	300	192	133	98									0.150	
			D	0.048	0.108	0.192	0.300	0.432	0.588										
			C	600	400	300	240	200	171										
			D	0.042	0.088	0.154	0.240	0.346	0.470										
3/4" X 3/16"	2.30	2.80	U	1800	800	450	288	200	147	113								0.225	
			D	0.048	0.108	0.192	0.300	0.432	0.588	0.768									
			C	900	600	450	360	300	257	225									
			D	0.042	0.088	0.154	0.240	0.346	0.470	0.614									
1" X 1/8"	2.10	2.40	U	2132	948	533	341	237	174	133								0.267	
			D	0.036	0.081	0.144	0.225	0.324	0.441	0.576									
			C	1066	711	533	427	356	305	267									
			D	0.027	0.064	0.115	0.180	0.259	0.353	0.461									
1" X 3/16"	3.06	3.30	U	3200	1422	800	512	356	261	200	158							0.400	
			D	0.036	0.081	0.144	0.225	0.324	0.441	0.576	0.729								
			C	1600	1067	800	640	533	457	400	356								
			D	0.027	0.064	0.115	0.180	0.259	0.353	0.461	0.583								
1-1/4" X 1/8"	2.60	2.80	U	3332	1481	833	533	370	272	208	165	133						0.417	
			D	0.027	0.064	0.115	0.180	0.259	0.353	0.461	0.583	0.720							
			C	1666	1111	833	667	556	476	417	370	333							
			D	0.021	0.051	0.092	0.144	0.207	0.282	0.369	0.467	0.576							
1 1/4" X 3/16"	3.75	4.00	U	5000	2222	1250	800	556	408	313	247	200	165					0.625	
			D	0.027	0.064	0.115	0.180	0.259	0.353	0.462	0.583	0.720	0.871						
			C	2500	1667	1250	1000	833	714	625	556	500	455						
			D	0.021	0.051	0.092	0.144	0.207	0.282	0.369	0.467	0.576	0.697						
1-1/2" X 1/8"	3.10	3.30	U	4800	2133	1200	768	533	392	300	237	192	159					0.600	
			D	0.024	0.054	0.096	0.150	0.216	0.294	0.384	0.486	0.600	0.726						
			C	2400	1600	1200	960	800	686	600	533	480	436						
			D	0.021	0.044	0.077	0.120	0.173	0.235	0.307	0.389	0.480	0.581						
1 1/2" X 3/16"	4.45	4.80	U	7200	3200	1800	1152	800	588	450	356	288	238	200				0.900	
			D	0.024	0.054	0.096	0.150	0.216	0.294	0.384	0.487	0.600	0.726	0.864					
			C	3600	2400	1800	1440	1200	1029	900	800	720	655	600					
			D	0.021	0.044	0.077	0.120	0.173	0.235	0.307	0.389	0.480	0.581	0.691					
1 3/4" X 3/16"	5.16	5.50	U	9800	4356	2450	1568	1089	800	613	484	392	324	272	232			1.225	
			D	0.015	0.044	0.082	0.129	0.185	0.252	0.329	0.417	0.514	0.622	0.740	0.869				
			C	4900	3267	2450	1960	1633	1400	1225	1089	980	891	817	754				
			D	0.016	0.037	0.066	0.103	0.148	0.202	0.263	0.333	0.411	0.498	0.593	0.965				
2" X 3/16"	5.87	6.20	U	12800	5689	3200	2048	1422	1045	800	632	512	423	356	303	261		1.600	
			D	0.014	0.039	0.072	0.113	0.162	0.221	0.288	0.364	0.450	0.544	0.649	0.761	0.881			
			C	6400	4267	3200	2560	2133	1829	1600	1422	1280	1164	1067	985	914			
			D	0.018	0.034	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.519	0.609	0.705			
2 1/4" X 3/16"	6.57	6.90	U	16200	7200	4050	2592	1800	1322	1013	800	648	536	450	383	331	253	2.025	
			D	0.016	0.036	0.064	0.100	0.144	0.196	0.256	0.324	0.400	0.484	0.576	0.675	0.785	1.023		
			C	8100	5400	4050	3240	2700	2314	2025	1800	1620	1473	1350	1246	1157	1013		
			D	0.011	0.028	0.051	0.080	0.115	0.157	0.205	0.259	0.320	0.387	0.461	0.541	0.627	0.820		
2 1/2" X 3/16"	7.27	7.80	U	20000	8889	5000	3200	2222	1633	1250	988	800	661	556	473	408	313	2.500	
			D	0.018	0.034	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.435	0.519	0.608	0.705	0.923		
			C	10000	6667	5000	4000	3333	2857	2500	2222	2000	1818	1667	1538	1429	1250		
			D	0.012	0.026	0.046	0.072	0.104	0.141	0.184	0.233	0.288	0.348	0.415	0.487	0.565	0.737		

Maximum allowable fiber stress of 18,000 P.S.I





BAR GRATING - ALUMINUM

METRIC - Type 24-102 Spacing

24-102

24mm

1
BAR
GRATING

TABLE OF SAFE LOADS

U - Safe Uniform Load, in kPa

C - Safe Concentrated Load, in kN per meter

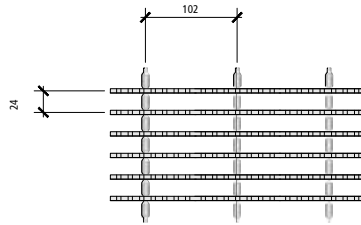
D - Deflection in millimeters

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.

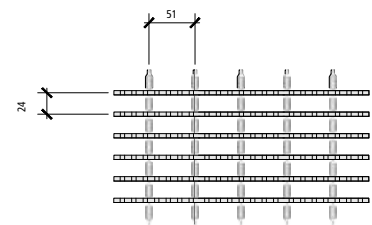
For serrated surface, increase depth by 7mm for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



24-102 SPACING



24-51 SPACING

ALUMINUM TYPE 24-102																		
SIZE OF BEARING BAR	APPROX. WT/KG/M2			SPAN IN MILLIMETER											SEC. MOD. PER 305mm OF WIDTH			
	TYPE 24-102	TYPE 24-51		305	458	610	762	915	1067	1219	1372	1524	1676	1829		1981	2133	2438
19 x 3.2	8.30	9.28	U	57.48	25.49	14.37	9.20	6.37	4.69									2.460
			D	1.2	2.7	4.9	7.6	11.0	14.9									
			C	8.75	5.83	4.38	3.50	2.92	2.49									
			D	1.1	2.2	3.9	6.1	8.8	11.9									
19 x 4.8	11.23	13.67	U	86.22	38.24	21.56	13.80	9.58	7.04	5.41								3.690
			D	1.2	2.7	4.9	7.6	11.0	14.9	19.5								
			C	13.13	8.74	6.57	5.25	4.38	3.75	3.28								
			D	1.1	2.2	3.9	6.1	8.8	11.9	15.6								
25 x 3.2	10.25	11.72	U	102.12	45.29	25.53	16.33	11.35	8.33	6.37								4.379
			D	0.9	2.1	3.7	5.7	8.2	11.2	14.6								
			C	15.55	10.36	7.78	6.23	5.19	4.45	3.90								
			D	0.7	1.6	2.9	4.6	6.6	9.0	11.7								
25 x 4.8	14.94	16.11	U	153.28	67.98	38.32	24.52	17.05	12.50	9.58	7.57							6.560
			D	0.9	2.1	3.7	5.7	8.2	11.2	14.6	18.5							
			C	23.34	15.55	11.67	9.34	7.78	6.67	5.84	5.19							
			D	0.7	1.6	2.9	4.6	6.6	9.0	11.7	14.8							
32 x 3.2	12.69	13.67	U	159.60	70.78	39.90	25.53	17.72	13.03	9.96	7.90	6.37						6.839
			D	0.7	1.6	2.9	4.6	6.6	9.0	11.7	14.8	18.3						
			C	24.31	16.19	12.15	9.73	8.11	6.94	6.08	5.40	4.86						
			D	0.5	1.3	2.3	3.7	5.3	7.2	9.4	11.9	14.6						
32 x 4.8	18.31	19.53	U	239.50	106.21	59.88	38.32	26.63	19.54	14.99	11.83	9.58	7.90					10.250
			D	0.7	1.6	2.9	4.6	6.6	9.0	11.7	14.8	18.3	22.1					
			C	36.48	24.29	18.24	14.59	12.15	10.42	9.12	8.11	7.30	6.64					
			D	0.5	1.3	2.3	3.7	5.3	7.2	9.4	11.9	14.6	17.7					
38 x 3.2	15.14	16.11	U	229.92	101.96	57.48	36.79	25.53	18.78	14.37	11.35	9.20	7.62					9.840
			D	0.6	1.4	2.4	3.8	5.5	7.5	9.8	12.3	15.2	18.4					
			C	35.02	23.32	17.51	14.01	11.67	10.01	8.75	7.78	7.00	6.36					
			D	0.5	1.1	2.0	3.0	4.4	6.0	7.8	9.9	12.2	14.8					
38 x 4.8	21.73	23.44	U	344.88	152.95	86.22	55.18	38.32	28.17	21.56	17.05	13.80	11.40	9.58				14.760
			D	0.6	1.4	2.4	3.8	5.5	7.5	9.8	12.4	15.2	18.4	21.9				
			C	52.52	34.98	26.26	21.01	17.51	15.01	13.13	11.67	10.50	9.56	8.75				
			D	0.5	1.1	2.0	3.0	4.4	6.0	7.8	9.9	12.2	14.8	17.6				
45 x 4.8	25.19	26.85	U	469.42	208.18	117.36	75.11	52.16	38.32	29.36	23.18	18.78	15.52	13.03	11.11			20.090
			D	0.4	1.1	2.1	3.3	4.7	6.4	8.4	10.6	13.1	15.8	18.8	22.1			
			C	71.49	47.61	35.75	28.60	23.83	20.43	17.87	15.89	14.30	13.00	11.92	11.00			
			D	0.4	0.9	1.7	2.6	3.8	5.1	6.7	8.5	10.4	12.6	15.1	24.5			
51 x 4.8	28.66	30.27	U	613.12	271.90	153.28	98.10	68.11	50.06	38.32	30.27	24.52	20.26	17.05	14.51	12.50		26.240
			D	0.4	1.0	1.8	2.9	4.1	5.6	7.3	9.2	11.4	13.8	16.5	19.3	22.4		
			C	93.38	62.18	46.69	37.35	31.12	26.69	23.34	20.75	18.68	16.98	15.57	14.37	13.34		
			D	0.5	0.9	1.5	2.3	3.3	4.5	5.8	7.4	9.1	11.1	13.2	15.5	17.9		
57 x 4.8	32.08	33.69	U	775.98	344.13	194.00	124.16	86.22	63.32	48.52	38.32	31.04	25.67	21.56	18.35	15.85	12.12	33.210
			D	0.4	0.9	1.6	2.5	3.7	5.0	6.5	8.2	10.2	12.3	14.6	17.1	19.9	26.0	
			C	118.18	78.70	59.09	47.27	39.39	33.76	29.54	26.26	23.64	21.49	19.70	18.18	16.88	14.78	
			D	0.3	0.7	1.3	2.0	2.9	4.0	5.2	6.6	8.1	9.8	11.7	13.7	15.9	20.8	
64 x 4.8	35.50	38.08	U	958.00	424.85	239.50	153.28	106.43	78.22	59.88	47.33	38.32	31.66	26.63	22.66	19.54	14.99	41.000
			D	0.5	0.9	1.5	2.3	3.3	4.5	5.8	7.4	9.1	11.0	13.2	15.4	17.9	23.4	
			C	145.90	97.16	72.95	58.36	48.63	41.68	36.48	32.42	29.18	26.52	24.32	22.44	20.85	18.24	
			D	0.3	0.7	1.2	1.8	2.6	3.6	4.7	5.9	7.3	8.8	10.5	12.4	14.4	18.7	

Maximum allowable fiber stress of 124 K.P.A





BAR GRATING - ALUMINUM

IMPERIAL - Type 11-4 Spacing

11-4

11/16"

TABLE OF SAFE LOADS

U - Safe Uniform Load, in lbs. per sq. ft.

C - Safe Concentrated Load, in lbs. per foot of grating width

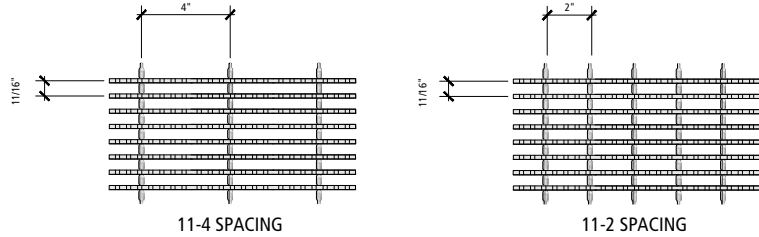
D - Deflection in inches

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.

For serrated surface, increase depth by 1/4" for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



ALUMINUM TYPE 11-4

SIZE OF BEARING BAR	APPROX. WT/LBS/SQ.FT		SPAN IN INCHES														SEC. MOD. PER FEET OF WIDTH	
	TYPE 11-4	TYPE 11-2	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"		
3/4" X 1/8"	2.10	2.40	U	1636	727	409	262	182	134	102								0.205
			D	0.048	0.108	0.192	0.300	0.432	0.588	0.768								
			C	818	545	409	327	273	234	205								
			D	0.042	0.088	0.154	0.240	0.346	0.470	0.614								
3/4" X 3/16"	3.10	3.40	U	2456	1092	614	393	273	200	153								0.307
			D	0.048	0.108	0.192	0.300	0.432	0.588	0.768								
			C	1228	819	614	491	409	351	307								
			D	0.042	0.088	0.154	0.240	0.346	0.470	0.614								
1" X 1/8"	2.80	3.10	U	2908	1292	727	465	323	237	182	144							0.364
			D	0.036	0.081	0.144	0.225	0.324	0.441	0.576	0.729							
			C	1454	969	727	582	485	416	364	323							
			D	0.027	0.064	0.115	0.180	0.259	0.353	0.461	0.583							
1" X 3/16"	4.10	4.30	U	4364	1940	1091	698	485	356	273	215	175						0.545
			D	0.036	0.081	0.144	0.225	0.324	0.441	0.577	0.727	0.900						
			C	2182	1455	1091	873	727	623	545	485	436						
			D	0.027	0.064	0.115	0.180	0.259	0.353	0.460	0.583	0.720						
1-1/4" X 1/8"	3.50	3.70	U	4544	2020	1136	727	505	371	284	224	182						0.568
			D	0.027	0.064	0.115	0.180	0.259	0.353	0.461	0.583	0.720						
			C	2272	1515	1136	909	758	649	568	505	455						
			D	0.021	0.051	0.092	0.144	0.207	0.282	0.369	0.467	0.576						
1 1/4" X 3/16"	5.10	5.30	U	6820	3031	1705	1091	758	557	426	337	273	225					0.852
			D	0.027	0.064	0.115	0.180	0.259	0.353	0.461	0.584	0.721	0.871					
			C	3410	2273	1705	1364	1136	974	852	758	682	620					
			D	0.021	0.051	0.092	0.144	0.207	0.282	0.369	0.467	0.576	0.697					
1-1/2" X 1/8"	4.10	4.30	U	6544	2908	1636	1047	727	534	409	323	262	216	182				0.818
			D	0.024	0.054	0.096	0.150	0.216	0.294	0.384	0.486	0.600	0.726	0.864				
			C	3272	2181	1636	1309	1091	935	818	727	655	595	545				
			D	0.021	0.044	0.077	0.120	0.173	0.235	0.307	0.389	0.480	0.581	0.691				
1 1/2" X 3/16"	6.10	6.30	U	9820	4364	2455	1571	1091	802	614	485	393	325	273	232			1.227
			D	0.024	0.054	0.096	0.150	0.216	0.294	0.384	0.486	0.600	0.727	0.865	1.014			
			C	4910	3273	2455	1964	1636	1403	1227	1091	982	893	818	755			
			D	0.021	0.044	0.077	0.120	0.173	0.235	0.307	0.389	0.480	0.581	0.691	0.811			
1 3/4" X 3/16"	7.10	7.30	U	13364	5940	3341	2138	1485	1091	835	660	535	442	371	316	273		1.670
			D	0.015	0.044	0.082	0.129	0.185	0.252	0.329	0.417	0.515	0.623	0.740	0.868	1.008		
			C	6682	4455	3341	2673	2227	1909	1670	1485	1336	1215	1114	1028	955		
			D	0.016	0.037	0.066	0.103	0.148	0.202	0.263	0.333	0.411	0.498	0.593	0.695	0.806		
2" X 3/16"	8.00	8.20	U	17456	7758	4364	2793	1939	1425	1091	862	698	577	485	413	356	273	2.182
			D	0.014	0.039	0.072	0.113	0.162	0.221	0.288	0.365	0.450	0.544	0.648	0.760	0.881	1.153	
			C	8728	5819	4364	3491	2909	2494	2182	1939	1746	1587	1455	1343	1247	1091	
			D	0.018	0.034	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.519	0.609	0.706	0.922	
2 1/4" X 3/16"	9.00	9.20	U	22092	9819	5523	3535	2455	1803	1381	1091	884	730	614	523	451	345	2.761
			D	0.016	0.036	0.064	0.100	0.144	0.196	0.256	0.324	0.400	0.484	0.576	0.676	0.784	1.023	
			C	11046	7364	5523	4418	3682	3156	2761	2455	2209	2008	1841	1699	1578	1381	
			D	0.011	0.028	0.051	0.080	0.115	0.157	0.205	0.259	0.320	0.387	0.461	0.541	0.627	0.819	
2 1/2" X 3/16"	10.00	10.20	U	27272	12121	6818	4364	3030	2226	1705	1347	1091	902	758	646	557	426	3.409
			D	0.018	0.034	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.519	0.609	0.706	0.921	
			C	13636	9091	6818	5455	4546	3896	3409	3030	2727	2479	2273	2098	1948	1705	
			D	0.012	0.026	0.046	0.072	0.104	0.141	0.184	0.233	0.288	0.348	0.415	0.487	0.564	0.737	

Maximum allowable fiber stress of 18,000 P.S.I.





BAR GRATING - ALUMINUM

METRIC - Type 17-102 Spacing

17-102

17mm

1
BAR
GRATING

TABLE OF SAFE LOADS

U - Safe Uniform Load, in kPa

C - Safe Concentrated Load, in kN per meter

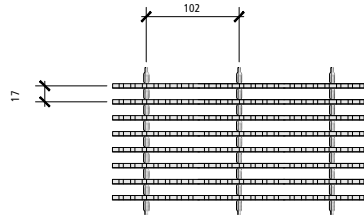
D - Deflection in millimeters

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.

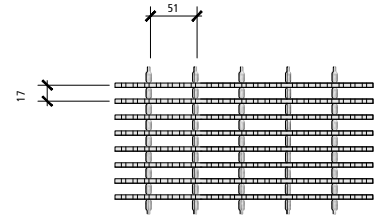
For serrated surface, increase depth by 7mm for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



17-102 SPACING



17-51 SPACING

ALUMINUM TYPE 17-102																		
SIZE OF BEARING BAR	APPROX. WT/KG/M2		SPAN IN MILLIMETER												SEC. MOD. PER 305mm OF WIDTH			
	TYPE 17.5-102	TYPE 17.5-51	305	458	610	762	915	1067	1219	1372	1524	1676	1829	1981		2133	2438	
19 x 3.2	10.25	11.72	U	78.36	34.75	19.59	12.55	8.72	6.42	4.89								3.362
			D	1.2	2.7	4.9	7.6	11.0	14.9	19.5								
			C	11.93	7.95	5.97	4.77	3.98	3.41	2.99								
			D	1.1	2.2	3.9	6.1	8.8	11.9	15.6								
19 x 4.8	15.14	16.60	U	117.64	52.17	29.41	18.82	13.08	9.58	7.33								5.035
			D	1.2	2.7	4.9	7.6	11.0	14.9	19.5								
			C	17.92	11.93	8.96	7.16	5.97	5.12	4.48								
			D	1.1	2.2	3.9	6.1	8.8	11.9	15.6								
25 x 3.2	13.67	15.14	U	139.29	61.77	34.82	22.27	15.47	11.35	8.72	6.90							5.970
			D	0.9	2.1	3.7	5.7	8.2	11.2	14.6	18.5							
			C	21.21	14.13	10.61	8.49	7.08	6.07	5.31	4.71							
			D	0.7	1.6	2.9	4.6	6.6	9.0	11.7	14.8							
25 x 4.8	20.02	20.99	U	209.04	92.70	52.26	33.43	23.23	17.05	13.08	10.30	8.38						8.938
			D	0.9	2.1	3.7	5.7	8.2	11.2	14.7	18.5	22.9						
			C	31.84	21.20	15.92	12.74	10.61	9.09	7.95	7.08	6.36						
			D	0.7	1.6	2.9	4.6	6.6	9.0	11.7	14.8	18.3						
32 x 3.2	17.09	18.06	U	217.66	96.53	54.41	34.82	24.19	17.77	13.60	10.73	8.72						9.315
			D	0.7	1.6	2.9	4.6	6.6	9.0	11.7	14.8	18.3						
			C	33.15	22.07	16.57	13.26	11.06	9.47	8.29	7.37	6.64						
			D	0.5	1.3	2.3	3.7	5.3	7.2	9.4	11.9	14.6						
32 x 4.8	24.90	25.88	U	326.68	144.87	81.67	52.26	36.31	26.68	20.41	16.14	13.08	10.78					13.973
			D	0.7	1.6	2.9	4.6	6.6	9.0	11.7	14.8	18.3	22.1					
			C	49.75	33.13	24.88	19.90	16.57	14.21	12.43	11.06	9.95	9.05					
			D	0.5	1.3	2.3	3.7	5.3	7.2	9.4	11.9	14.6	17.7					
38 x 3.2	20.02	20.99	U	313.46	139.01	78.36	50.15	34.82	25.58	19.59	15.47	12.55	10.35	8.72				13.415
			D	0.6	1.4	2.4	3.8	5.5	7.5	9.8	12.3	15.2	18.4	21.9				
			C	47.74	31.79	23.87	19.10	15.92	13.64	11.93	10.61	9.56	8.68	7.95				
			D	0.5	1.1	2.0	3.0	4.4	6.0	7.8	9.9	12.2	14.8	17.6				
38 x 4.8	29.78	30.76	U	470.38	208.60	117.59	75.25	52.26	38.42	29.41	23.23	18.82	15.57	13.08	11.11			20.123
			D	0.6	1.4	2.4	3.8	5.5	7.5	9.8	12.3	15.2	18.5	22.0	25.8			
			C	71.64	47.71	35.82	28.65	23.87	20.47	17.90	15.92	14.33	13.03	11.93	11.02			
			D	0.5	1.1	2.0	3.0	4.4	6.0	7.8	9.9	12.2	14.8	17.6	20.6			
45 x 4.8	34.67	35.64	U	640.14	283.88	160.03	102.41	71.13	52.26	40.00	31.61	25.63	21.17	17.77	15.14	13.08		27.388
			D	0.4	1.1	2.1	3.3	4.7	6.4	8.4	10.6	13.1	15.8	18.8	22.0	25.6		
			C	97.49	64.92	48.75	39.00	32.49	27.85	24.37	21.67	19.49	17.73	16.25	15.00	13.93		
			D	0.4	0.9	1.7	2.6	3.8	5.1	6.7	8.5	10.4	12.6	15.1	17.7	20.5		
51 x 4.8	39.06	40.04	U	836.14	370.81	209.04	133.78	92.88	68.26	52.26	41.29	33.43	27.64	23.23	19.78	17.05	13.08	35.785
			D	0.4	1.0	1.8	2.9	4.1	5.6	7.3	9.3	11.4	13.8	16.5	19.3	22.4	29.3	
			C	127.34	84.80	63.67	50.93	42.44	36.39	31.84	28.29	25.47	23.15	21.23	19.59	18.19	15.92	
			D	0.5	0.9	1.5	2.3	3.3	4.5	5.8	7.4	9.1	11.1	13.2	15.5	17.9	23.4	
57 x 4.8	43.94	44.92	U	1058.21	469.29	264.55	169.33	117.59	86.36	66.15	52.26	42.34	34.97	29.41	25.05	21.60	16.53	45.280
			D	0.4	0.9	1.6	2.5	3.7	5.0	6.5	8.2	10.2	12.3	14.6	17.2	19.9	26.0	
			C	161.16	107.32	80.58	64.46	53.72	46.05	40.28	35.82	32.23	29.30	26.86	24.79	23.02	20.15	
			D	0.3	0.7	1.3	2.0	2.9	4.0	5.2	6.6	8.1	9.8	11.7	13.7	15.9	20.8	
64 x 4.8	48.82	49.80	U	1306.33	579.32	326.58	209.04	145.14	106.63	81.67	64.52	52.26	43.21	36.31	30.94	26.68	20.41	55.908
			D	0.5	0.9	1.5	2.3	3.3	4.5	5.8	7.4	9.1	11.1	13.2	15.5	17.9	23.4	
			C	198.95	132.49	99.47	79.59	66.33	56.84	49.74	44.21	39.79	36.17	33.16	30.61	28.42	24.88	
			D	0.3	0.7	1.2	1.8	2.6	3.6	4.7	5.9	7.3	8.8	10.5	12.4	14.3	18.7	

Maximum allowable fiber stress of 124 K.P.A





BAR GRATING - ALUMINUM

IMPERIAL - Type 7-4 Spacing

7-4

7/16"

TABLE OF SAFE LOADS - IMPERIAL

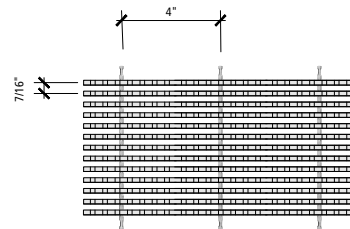
- U - Safe Uniform Load, in lbs. per sq. ft
- C - Safe Concentrated Load, in lbs. per foot of grating width
- D - Deflection in inches

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.

For serrated surface, increase depth by 1/4" for load rate

GENERAL

Loads and deflections are theoretical and based on static loading.



7-4 SPACING

		ALUMINUM TYPE 7-4															
SIZE OF BEARING BAR	APPROX. WT/LBS/SQ.FT TYPE 7-4	SPAN IN INCHES													SEC. MOD. PER FEET OF WIDTH		
		1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"		8'-0"	
1" X 3/16"	6.3	U	6856	3047	1714	1097	762	560	429	339	274						0.857
		D	0.036	0.081	0.144	0.225	0.324	0.441	0.577	0.730	0.899						
		C	3428	2285	1714	1371	1143	980	857	762	686						
		D	0.027	0.064	0.115	0.180	0.259	0.353	0.461	0.583	0.72						
1 1/4" X 3/16"	7.78	U	10716	4763	2679	1714	1190	875	670	529	429	354	298				1.339
		D	0.027	0.064	0.115	0.180	0.259	0.353	0.461	0.583	0.721	0.871	1.038				
		C	5358	3572	2679	2143	1786	1531	1339	1190	1071	974	893				
		D	0.021	0.051	0.092	0.144	0.207	0.282	0.369	0.466	0.576	0.697	0.83				
1 1/2" X 3/16"	9.28	U	15428	6857	3857	2469	1714	1259	964	762	617	510	429	365			1.929
		D	0.024	0.054	0.096	0.150	0.216	0.294	0.384	0.486	0.600	0.726	0.865	1.014			
		C	7714	5143	3857	3086	2571	2204	1929	1714	1543	1403	1286	1187			
		D	0.021	0.044	0.077	0.120	0.173	0.235	0.307	0.389	0.480	0.581	0.691	0.811			
1 3/4" X 3/16"	10.8	U	21000	9333	5250	3360	2333	1714	1313	1037	840	694	583	497	429	328	2.625
		D	0.015	0.044	0.082	0.129	0.185	0.252	0.329	0.417	0.514	0.622	0.740	0.869	1.009	1.316	
		C	10500	7000	5250	4200	3500	3000	2625	2333	2100	1909	1750	1615	1500	1313	
		D	0.016	0.037	0.066	0.103	0.148	0.202	0.263	0.333	0.411	0.498	0.592	0.695	0.806	1.054	
2" X 3/16"	12.32	U	27428	12190	6857	4389	3048	2239	1714	1355	1097	907	762	649	560	429	3.429
		D	0.014	0.039	0.072	0.113	0.162	0.220	0.288	0.365	0.450	0.545	0.648	0.760	0.882	1.153	
		C	13714	9143	6857	5486	4572	3918	3429	3048	2743	2494	2286	2110	1959	1714	
		D	0.018	0.034	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608	0.706	0.921	
2 1/4" X 3/16"	13.83	U	34716	15429	8679	5554	3857	2834	2170	1714	1389	1148	964	822	708	542	4.339
		D	0.016	0.036	0.064	0.100	0.144	0.196	0.256	0.324	0.400	0.484	0.576	0.676	0.783	1.023	
		C	17358	11572	8679	6943	5786	4959	4339	3857	3471	3156	2893	2670	2480	2170	
		D	0.017	0.030	0.051	0.080	0.117	0.157	0.205	0.259	0.320	0.387	0.461	0.541	0.627	0.819	
2 1/2" X 3/16"	15.33	U	42856	19047	10714	6857	4762	3499	2679	2116	1714	1417	1190	1014	875	670	5.357
		D	0.018	0.034	0.058	0.090	0.130	0.176	0.230	0.292	0.360	0.436	0.518	0.608	0.706	0.922	
		C	21428	14285	10714	8572	7143	6123	5357	4762	4286	3896	3571	3297	3061	2679	
		D	0.012	0.026	0.046	0.072	0.104	0.141	0.184	0.233	0.288	0.348	0.415	0.487	0.564	0.737	

Maximum allowable fiber stress of 18,000 P.S.I.





BAR GRATING - ALUMINUM

METRIC - Type 11-102 Spacing

11-102

11mm

1
BAR
GRATING

TABLE OF SAFE LOADS - METRIC

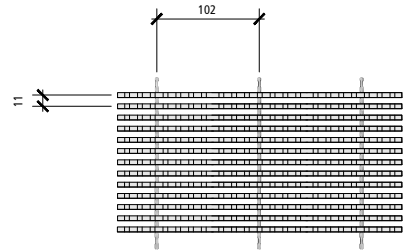
- U** - Safe Uniform Load, in kPa
- C** - Safe Concentrated Load, in kN per meter
- D** - Deflection in millimeters

Note: Spans to the right of heavy line not recommended. Deflections shown based on tabulated loadings. For lesser design loads reduce deflection in direct proportion. For serrated surface increase depth by one size.

For serrated surface, increase depth by 7mm for load rate.

GENERAL

Loads and deflections are theoretical and based on static loading.



11-102 SPACING

ALUMINUM TYPE 11-102																	
SIZE OF BEARING BAR	APPROX. WT/KG/M2 TYPE 11-102	SPAN IN MILLIMETER													SEC.MOD. PER 305mm OF WIDTH		
		305	458	610	762	915	1067	1219	1372	1524	1676	1829	1981	2133		2438	
25 X 4.8	30.76	U	227.26	128.11	82.10	52.55	36.50	26.82	20.55	16.24	13.12						14.055
		D	0.9	2.1	3.7	5.7	8.2	11.2	14.7	18.5	22.8						
		C	41.61	31.24	25.01	20.00	16.68	14.30	12.50	11.12	10.01						
		D	0.7	1.6	2.9	4.6	6.6	9.0	11.7	14.8	18.3						
32 X 4.8	37.99	U	355.21	200.24	128.32	82.10	57.00	41.91	32.09	25.34	20.55	16.96	14.27				21.960
		D	0.7	1.6	2.9	4.6	6.6	9.0	11.7	14.8	18.3	22.1	26.4				
		C	65.03	48.83	39.09	31.27	26.06	22.34	19.54	17.36	15.63	14.21	13.03				
		D	0.5	1.3	2.3	3.7	5.3	7.2	9.4	11.8	14.6	17.7	21.1				
38 X 4.8	45.31	U	511.40	288.29	184.75	118.27	82.10	60.31	46.18	36.50	29.55	24.43	20.55	17.48			31.636
		D	0.6	1.4	2.4	3.8	5.5	7.5	9.8	12.3	15.2	18.4	22.0	25.8			
		C	93.63	70.30	56.27	45.02	37.51	32.16	28.14	25.01	22.51	20.47	18.76	17.32			
		D	0.5	1.1	2.0	3.0	4.4	6.0	7.8	9.9	12.2	14.8	17.6	20.6			
45 X 4.8	52.73	U	696.10	392.41	251.48	160.94	111.75	82.10	62.89	49.67	40.24	33.24	27.93	23.81	20.55	15.71	43.050
		D	0.4	1.1	2.1	3.3	4.7	6.4	8.4	10.6	13.1	15.8	18.8	22.1	25.6	33.4	
		C	127.44	95.68	76.60	61.28	51.07	43.77	38.30	34.04	30.64	27.85	25.53	23.56	21.89	19.16	
		D	0.4	0.9	1.7	2.6	3.8	5.1	6.7	8.5	10.4	12.6	15.0	17.7	20.5	26.8	
51 X 4.8	60.15	U	909.18	512.53	328.45	210.23	146.00	107.25	82.10	64.90	52.55	43.45	36.50	31.09	26.82	20.55	56.236
		D	0.4	1.0	1.8	2.9	4.1	5.6	7.3	9.3	11.4	13.8	16.5	19.3	22.4	29.3	
		C	166.45	124.97	100.04	80.04	66.71	57.16	50.03	44.47	40.02	36.39	33.35	30.78	28.58	25.01	
		D	0.5	0.9	1.5	2.3	3.3	4.5	5.8	7.4	9.1	11.1	13.2	15.4	17.9	23.4	
57 X 4.8	67.52	U	1150.76	648.72	415.72	266.04	184.75	135.75	103.94	82.10	66.53	54.99	46.18	39.37	33.91	25.96	71.160
		D	0.4	0.9	1.6	2.5	3.7	5.0	6.5	8.2	10.2	12.3	14.6	17.2	19.9	26.0	
		C	210.68	158.18	126.63	101.30	84.42	72.35	63.31	56.27	50.64	46.05	42.21	38.96	36.18	31.66	
		D	0.4	0.8	1.3	2.0	3.0	4.0	5.2	6.6	8.1	9.8	11.7	13.7	15.9	20.8	
64 X 4.8	74.85	U	1420.58	800.82	513.20	328.45	228.10	167.60	128.32	101.36	82.10	67.87	57.00	48.57	41.91	32.09	87.855
		D	0.5	0.9	1.5	2.3	3.3	4.5	5.8	7.4	9.1	11.1	13.2	15.4	17.9	23.4	
		C	260.07	195.27	156.32	125.07	104.22	89.33	78.16	69.48	62.53	56.84	52.10	48.10	44.66	39.09	
		D	0.3	0.7	1.2	1.8	2.6	3.6	4.7	5.9	7.3	8.8	10.5	12.4	14.3	18.7	

Maximum allowable fiber stress of 124 K.PA



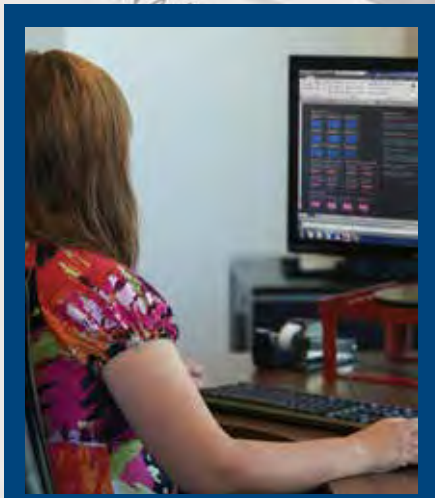
CUSTOM FABRICATION



Throughout this catalogue we list industry standard specification. However, a substantial portion of the product we ship out of our facilities is custom manufactured to the specific requirements of individual customers.

Our custom fabrication capability includes an in-house CAD Department to create drawings for customer approval and for our well equipped and skilled staff to work from.

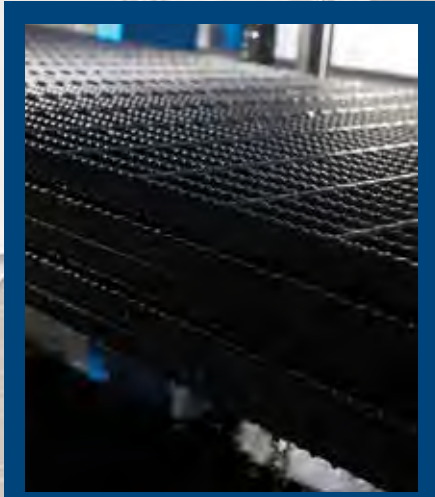
If you require a custom landing, walkway or tread speak to your ASG Sales Representative. They will provide you with an estimate for your approval prior to commencing the fabrication process, and a timeline for the completion of your project.



TECHNICAL DRAWINGS



FABRICATION



PAINTING

MATERIAL LIST

SPEC:
19W4 (30-102)
BEARING BAR:
SERRATED/STEEL
1-1/4" x 3/16" (32 x 4.8)



**NOTCHING TOLERANCES
NOTCHES & CUTOUTS:**

-0" (0mm)
+1/8" (3.2mm)

NOTCHED BY:

DATE ISSUED: February-27-15
DRAWN BY: GS

DWG NO:

SHEET NO:

(OF 14

**G6-2 REQUIRED
FOR APPROVAL**

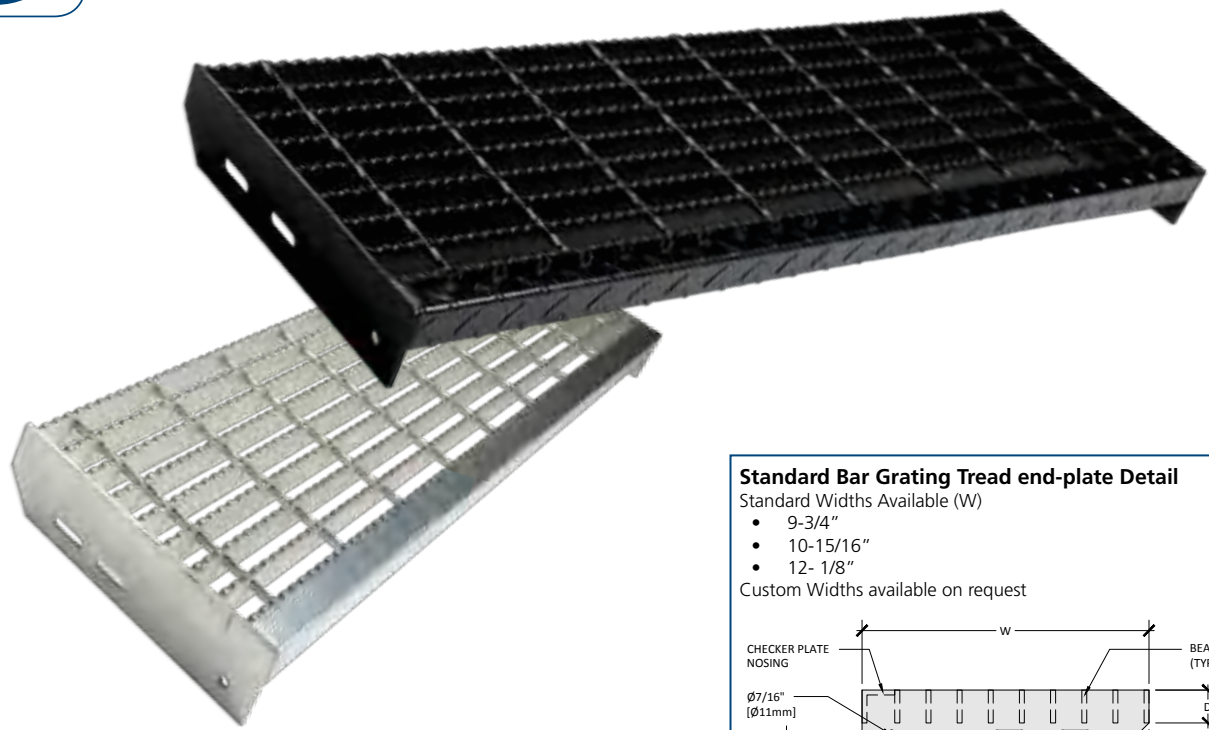
CUSTOMER:
POF / SOF

PLATFORM & GRATING

THE PROPERTY OF
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BAR GRATING - STAIR TREADS

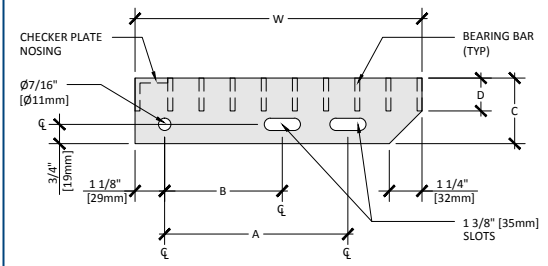


Standard Bar Grating Tread end-plate Detail

Standard Widths Available (W)

- 9-3/4"
- 10-15/16"
- 12- 1/8"

Custom Widths available on request



STAIR TREAD WEIGHTS (LBS)							
MATERIAL	TREAD WIDTH (INCHES)	BEARING BAR SIZE					
		1" x 1/8"	1-1/4" x 1/8"	3/4" x 3/16"	1" x 3/16"	1-1/4" x 3/16"	1-1/2" x 3/16"
LB. PER LINEAL INCH OF TREAD LENGTH							
Steel	6-3/16	0.29	0.32	0.31	0.36	0.41	0.48
Steel	7-7/8	0.34	0.38	0.36	0.43	0.49	0.55
Steel	8-9/16	0.38	0.43	0.41	0.5	0.57	0.64
Steel	9-3/4	0.43	0.49	0.46	0.56	0.65	0.73
Steel	10-15/16	0.48	0.55	0.52	0.63	0.73	0.83
Steel	12-1/8	0.53	0.6	0.58	0.7	0.81	0.92
If galvanized steel - multiply lb. per lineal inch by a factor of 1.10							
Aluminum	6-3/16	0.10	0.11	0.10	0.12	0.14	0.16
Aluminum	7-7/8	0.11	0.13	0.12	0.14	0.16	0.18
Aluminum	8-9/16	0.13	0.14	0.14	0.17	0.19	0.21
Aluminum	9-3/4	0.14	0.16	0.15	0.18	0.21	0.24
Aluminum	10-15/16	0.16	0.18	0.17	0.21	0.24	0.27
Aluminum	12-1/8	0.17	0.20	0.19	0.23	0.27	0.30

STANDARD END PLATE DIMENSIONS						
# of Bars	Tread Width (W)		Outer Slot (A)		Inner Slot (B)	
	Metric (mm)	Imperial (in)	Metric (mm)	Imperial (in)	Metric (mm)	Imperial (in)
8	248	9-3/4	178	7	114	4-1/2
9	278	10-15/16	178	7	114	4-1/2
10	308	12-1/8	178	7	114	4-1/2

Grating Depth		Dimension (C)		Dimension (D)	
Metric (mm)	Imperial (in)	Metric (mm)	Imperial (in)	Metric (mm)	Imperial (in)
Up to 32	Up to 1-1/4	64	2-1/2	32	1-1/4
38 to 44	1-1/2 to 1-3/4	76	3	44	1-3/4

- Stair treads supplied with 1/4" x 3/16" plain or serrated 19W4 grating.
- Complete with checker plate nosing and standard end plates.
- Available in bare, painted and galvanized.
- Aluminum and Stainless Steel available.

MAXIMUM TREAD LENGTH (INCHES)							
MATERIAL	BEARING BAR SIZE	19-4		MATERIAL	BEARING BAR SIZE	19-4	
		1-3/16" o/c				1-3/16" o/c	
		PLAIN	SERRATED			PLAIN	SERRATED
Steel	1 x 1/8	31	27	Aluminum	1 x 1/8	24	21
Steel	1 x 3/16	41	34	Aluminum	1 x 3/16	28	26
Steel	1 x 1/4	49	42	Aluminum	1 x 1/4	31	27
Steel	1-1/4 x 1/8	43	37	Aluminum	1-1/4 x 1/8	30	28
Steel	1-1/4 x 3/16	56	50	Aluminum	1-1/4 x 3/16	34	31
Steel	1-1/4 x 1/4	63	56	Aluminum	1-1/4 x 1/4	38	34
Steel	1-1/2 x 1/8	56	49	Aluminum	1-1/2 x 1/8	36	33
Steel	1-1/2 x 3/16	66	63	Aluminum	1-1/2 x 3/16	42	38
Steel	1-1/2 x 1/4	66	66	Aluminum	1-1/2 x 1/4	47	43
Steel	1-3/4 x 3/16	66	66	Aluminum	1-3/4 x 3/16	51	46
Steel	1-3/4 x 1/4	74	67	Aluminum	1-3/4 x 1/4	58	52
Steel	2 x 3/16	78	72	Aluminum	2 x 3/16	61	56
Steel	2 x 1/4	89	82	Aluminum	2 x 1/4	66	63
Steel	2-1/4 x 3/16	92	85	Aluminum	2-1/4 x 3/16	66	66
Steel	2-1/4 x 1/4	106	97	Aluminum	2-1/4 x 1/4	66	66
Steel	2-1/2 x 3/16	107	100	Aluminum	2-1/2 x 3/16	66	66
Steel	2-1/2 x 1/4	123	114	Aluminum	2-1/2 x 1/4	73	67

BAR TO BAR DIMENSIONS (INCHES)					
# OF BARS	BAR THICKNESS				
	0.125	0.1875	0.250	0.313	0.375
	DISTANCE FROM BAR TO OUTSIDE OF NOSING				
2	2.5625	2.6250	2.6875	2.7500	2.8125
3	3.7500	3.8125	3.8750	3.9375	4.0000
4	4.9375	5.0000	5.0625	5.1250	5.1875
5	6.1250	6.1875	6.2500	6.3125	6.3750
6	7.3125	7.3750	7.4375	7.5000	7.5625
7	8.5000	8.5625	8.6250	8.6875	8.7500
8	9.6875	9.7500	9.8125	9.8750	9.9375
9	10.8750	10.9375	11.0000	11.0625	11.1250
10	12.0625	12.1250	12.1875	12.2500	12.3125



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