

TABLE OF SAFE LOADS

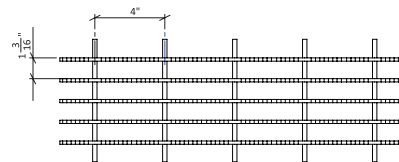
U - Safe Uniform Load, in lbs. per sq. ft.

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

HD TYPE 19-4																			
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	351	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	137	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

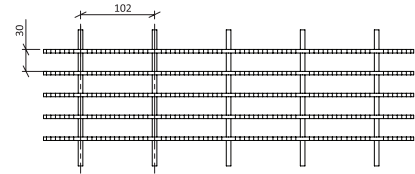
U - Safe Uniform Load, in kPa

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

Maximum allowable fiber stress of 124 M.P.A



TABLE OF SAFE LOADS

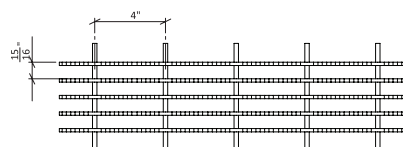
U - Safe Uniform Load, in lbs. per sq. ft.

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.



15-4 Spacing

HD TYPE 15-4																			
SIZE OF BEARING BAR	LBS/SF			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"	7'-6"	8'-0"	
1" X 1/4"	11.70	12.40	U	7112	3160	1778	1138	790	580	444	351	284	235	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	12190	11377	10667	

TABLE OF SAFE LOADS

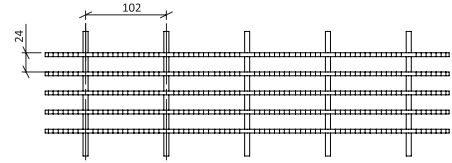
U - Safe Uniform Load, in kPa

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																				
SIZE OF BEARING BAR	KG/M2			SPAN IN MILLIMETER																SEC. MOD. PER 305MM OF WIDTH
	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		



BAR GRATING - HD 22

22-4

22/16"

TABLE OF SAFE LOADS

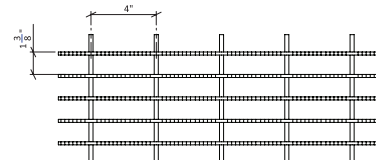
U - Safe Uniform Load, in lbs. per sq. ft.

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	2706	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	

TABLE OF SAFE LOADS

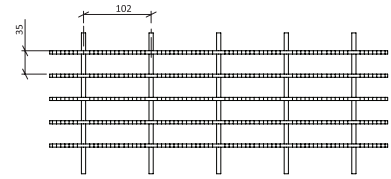
U - Safe Uniform Load, in kPa

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

Maximum allowable fiber stress of 124 M.P.A



BAR GRATING - HD 30

30-4

30/16"

TABLE OF SAFE LOADS

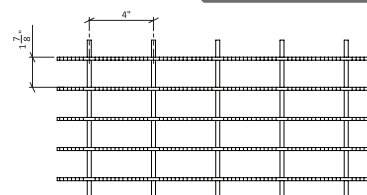
U - Safe Uniform Load, in lbs. per sq. ft.

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		



BAR GRATING - HD 48

48-102

48mm

1
BAR
GRATING

TABLE OF SAFE LOADS

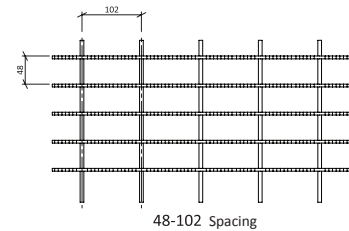
U - Safe Uniform Load, in kPa

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.



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

Maximum allowable fiber stress of 124 M.P.A

