

22-H-4 & 22-H-2 Heavy-Duty Steel Grating

Heavy-Duty Welded

1-3/8" Center to Center of Bearing Bars



22-H-4
Cross Rods 4" C/C



22-H-2
Cross Rods 2" C/C

Material: ASTM A-36

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

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

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

U= safe uniform load, psf
C= safe concentrated load, pfw

Load & Deflection Table

Bar Size	Symbol	Approx. Weight psf	Sec mod Per Ft of Width	SPAN (Length of Bearing Bar)	SPAN (Length of Bearing Bar)											
					2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"	
1" x 1/4"	22-4-44	8.3	0.364	U	1,212	776	539	396	303	239	194	160	135	99	76	
	22-2-44	8.9		C	1,212	970	808	693	606	539	485	441	404	346	303	
1" x 5/16"	22-4-45	11.0	0.455	U	1,515	970	673	495	379	299	242	200	168	124	95	
	22-2-45	12.6		C	1,515	1,212	1,010	866	758	673	606	551	505	433	379	
1" x 3/8"	22-4-46	12.9	0.545	U	1,818	1,164	808	594	455	359	291	240	202	148	114	
	22-2-46	14.4		C	1,818	1,455	1,212	1,039	909	808	727	661	606	519	455	
1-1/4" x 1/4"	22-4-54	10.2	0.568	U	1,894	1,212	842	618	473	374	303	250	210	155	118	
	22-2-54	10.8		C	1,894	1,515	1,263	1,082	947	842	758	689	631	541	473	
1-1/4" x 5/16"	22-4-55	13.4	0.710	U	2,367	1,515	1,052	773	592	468	379	313	263	193	148	
	22-2-55	14.9		C	2,367	1,894	1,578	1,353	1,184	1,052	947	861	789	676	592	
1-1/4" x 3/8"	22-4-56	15.8	0.852	U	2,841	1,818	1,263	928	710	561	455	376	316	232	178	
	22-2-56	17.3		C	2,841	2,273	1,894	1,623	1,420	1,263	1,136	1,033	947	812	710	
1-1/2" x 1/4"	22-4-64	12.0	0.818	U	2,727	1,745	1,212	891	682	539	436	361	303	223	170	
	22-2-64	12.6		C	2,727	2,182	1,818	1,558	1,364	1,212	1,091	992	909	779	682	
1-1/2" x 5/16"	22-4-65	15.8	1.023	U	3,409	2,182	1,515	1,113	852	673	545	451	379	278	213	
	22-2-65	17.3		C	3,409	2,727	2,273	1,948	1,705	1,515	1,364	1,240	1,136	974	852	
1-1/2" x 3/8"	22-4-66	18.7	1.227	U	4,091	2,618	1,818	1,336	1,023	808	655	541	455	334	256	
	22-2-66	20.2		C	4,091	3,273	2,727	2,338	2,045	1,818	1,636	1,488	1,364	1,169	1,023	
1-3/4" x 1/4"	22-4-74	14.0	1.114	U	3,712	2,376	1,650	1,212	928	733	594	491	412	303	232	
	22-2-74	14.6		C	3,712	2,970	2,475	2,121	1,856	1,650	1,485	1,350	1,237	1,061	928	
1-3/4" x 5/16"	22-4-75	18.2	1.392	U	4,640	2,970	2,062	1,515	1,160	917	742	614	516	379	290	
	22-2-75	19.7		C	4,640	3,712	3,093	2,652	2,320	2,062	1,856	1,687	1,547	1,326	1,160	
1-3/4" x 3/8"	22-4-76	21.5	1.670	U	5,568	3,564	2,475	1,818	1,392	1,100	891	736	619	455	348	
	22-2-76	23.0		C	5,568	4,455	3,712	3,182	2,784	2,475	2,227	2,025	1,856	1,591	1,392	
2" x 1/4"	22-4-84	15.9	1.455	U	4,848	3,103	2,155	1,583	1,212	958	776	641	539	396	303	
	22-2-84	16.5		C	4,848	3,879	3,232	2,771	2,424	2,155	1,939	1,763	1,616	1,385	1,212	
2" x 5/16"	22-4-85	20.6	1.818	U	6,061	3,879	2,694	1,979	1,515	1,197	970	801	673	495	379	
	22-2-85	22.1		C	6,061	4,848	4,040	3,463	3,030	2,694	2,424	2,204	2,020	1,732	1,515	
2" x 3/8"	22-4-86	24.4	2.182	U	7,273	4,655	3,232	2,375	1,818	1,437	1,164	962	808	594	455	
	22-2-86	25.9		C	7,273	5,818	4,848	4,156	3,636	3,232	2,909	2,645	2,424	2,078	1,818	
2-1/4" x 1/4"	22-4-94	17.8	1.841	U	6,136	3,927	2,727	2,004	1,534	1,212	982	811	682	501	384	
	22-2-94	18.4		C	6,136	4,909	4,091	3,506	3,068	2,727	2,455	2,231	2,045	1,753	1,534	
2-1/4" x 5/16"	22-4-95	23.0	2.301	U	7,670	4,909	3,409	2,505	1,918	1,515	1,227	1,014	852	626	479	
	22-2-95	24.5		C	7,670	6,136	5,114	4,383	3,835	3,409	3,068	2,789	2,557	2,192	1,918	
2-1/4" x 3/8"	22-4-96	27.2	2.761	U	9,205	5,891	4,091	3,006	2,301	1,818	1,473	1,217	1,023	751	575	
	22-2-96	28.7		C	9,205	7,364	6,136	5,260	4,602	4,091	3,682	3,347	3,068	2,630	2,301	
2-1/2" x 1/4"	22-4-104	19.7	2.273	U	7,576	4,848	3,367	2,474	1,894	1,494	1,212	1,002	842	618	473	
	22-2-104	20.3		C	7,576	6,061	5,051	4,329	3,788	3,367	3,030	2,755	2,525	2,165	1,894	
2-1/2" x 5/16"	22-4-105	25.4	2.841	U	9,470	6,061	4,209	3,092	2,367	1,871	1,515	1,252	1,052	773	592	
	22-2-105	26.9		C	9,470	7,576	6,313	5,411	4,735	4,209	3,788	3,444	3,157	2,706	2,367	
2-1/2" x 3/8"	22-4-106	30.1	3.409	U	11,364	7,273	5,051	3,711	2,841	2,245	1,818	1,503	1,263	928	710	
	22-2-106	31.6		C	11,364	9,091	7,576	6,494	5,682	5,051	4,545	4,132	3,788	3,247	2,841	
2-3/4" x 1/4"	22-4-114	22.5	2.750	U	9,167	5,867	4,074	2,993	2,292	1,811	1,467	1,212	1,019	748	573	
	22-2-114	24.0		C	9,167	7,333	6,111	5,238	4,583	4,074	3,667	3,333	3,056	2,619	2,292	
2-3/4" x 5/16"	22-4-115	28.3	3.438	U	11,458	7,333	5,093	3,741	2,865	2,263	1,833	1,515	1,273	935	716	
	22-2-115	30.3		C	11,458	9,167	7,639	6,548	5,729	5,093	4,583	4,167	3,819	3,274	2,865	
2-3/4" x 3/8"	22-4-116	33.5	4.125	U	13,750	8,800	6,111	4,490	3,438	2,716	2,200	1,818	1,528	1,122	859	
	22-2-116	35.5		C	13,750	11,000	9,167	7,857	6,875	6,111	5,500	5,000	4,583	3,929	3,438	

22-H-4 & 22-H-2 Heavy-Duty Steel Grating

22-H-4 & 22-H-2 (continued)

1-3/8" Center to Center of Bearing Bars

Load & Deflection Table

Bar Size	Symbol	Approx. Weight psf	Sec mod Per Ft of Width	SPAN (Length of Bearing Bar)											
				2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	7'-0"	8'-0"	
3" x 1/4"	22-4-124	24.5	3.273	U	10,909	6,982	4,848	3,562	2,727	2,155	1,745	1,443	1,212	891	682
	22-2-124	26.0		C	10,909	8,727	7,273	6,234	5,455	4,848	4,364	3,967	3,636	3,117	2,727
3" x 5/16"	22-4-125	30.7	4.091	U	13,636	8,727	6,061	4,453	3,409	2,694	2,182	1,803	1,515	1,113	852
	22-2-125	32.7		C	13,636	10,909	9,091	7,792	6,818	6,061	5,455	4,959	4,545	3,896	3,409
3" x 3/8"	22-4-126	36.4	4.909	U	16,364	10,473	7,273	5,343	4,091	3,232	2,618	2,164	1,818	1,336	1,023
	22-2-126	38.4		C	16,364	13,091	10,909	9,351	8,182	7,273	6,545	5,950	5,455	4,675	4,091
3-1/4" x 1/4"	22-4-134	26.4	3.841	U	12,803	8,194	5,690	4,181	3,201	2,529	2,048	1,693	1,423	1,045	800
	22-2-134	27.9		C	12,803	10,242	8,535	7,316	6,402	5,690	5,121	4,656	4,268	3,658	3,201
3-1/4" x 5/16"	22-4-135	33.1	4.801	U	16,004	10,242	7,113	5,226	4,001	3,161	2,561	2,116	1,778	1,306	1,000
	22-2-135	35.1		C	16,004	12,803	10,669	9,145	8,002	7,113	6,402	5,820	5,335	4,573	4,001
3-1/4" x 3/8"	22-4-136	39.2	5.761	U	19,205	12,291	8,535	6,271	4,801	3,793	3,073	2,539	2,134	1,568	1,200
	22-2-136	41.3		C	19,205	15,364	12,803	10,974	9,602	8,535	7,682	6,983	6,402	5,487	4,801
3-1/2" x 1/4"	22-4-144	28.3	4.455	U	14,848	9,503	6,599	4,848	3,712	2,933	2,376	1,963	1,650	1,212	928
	22-2-144	29.8		C	14,848	11,879	9,899	8,485	7,424	6,599	5,939	5,399	4,949	4,242	3,712
3-1/2" x 5/16"	22-4-145	35.5	5.568	U	18,561	11,879	8,249	6,061	4,640	3,666	2,970	2,454	2,062	1,515	1,160
	22-2-145	37.5		C	18,561	14,848	12,374	10,606	9,280	8,249	7,424	6,749	6,187	5,303	4,640
3-1/2" x 3/8"	22-4-146	42.1	6.682	U	22,273	14,255	9,899	7,273	5,568	4,400	3,564	2,945	2,475	1,818	1,392
	22-2-146	44.1		C	22,273	17,818	14,848	12,727	11,136	9,899	8,909	8,099	7,424	6,364	5,568
4" x 1/4"	22-4-164	32.1	5.818	U	19,394	12,412	8,620	6,333	4,848	3,831	3,103	2,564	2,155	1,583	1,212
	22-2-164	33.6		C	19,394	15,515	12,929	11,082	9,697	8,620	7,758	7,052	6,465	5,541	4,848
4" x 5/16"	22-4-165	40.2	7.273	U	24,242	15,515	10,774	7,916	6,061	4,789	3,879	3,206	2,694	1,979	1,515
	22-2-165	42.3		C	24,242	19,394	16,162	13,853	12,121	10,774	9,697	8,815	8,081	6,926	6,061
4" x 3/8"	22-4-166	47.8	8.727	U	29,091	18,618	12,929	9,499	7,273	5,746	4,655	3,847	3,232	2,375	1,818
	22-2-166	49.8		C	29,091	23,273	19,394	16,623	14,545	12,929	11,636	10,579	9,697	8,312	7,273
4-1/2" x 1/4"	22-4-184	35.9	7.364	U	24,545	15,709	10,909	8,015	6,136	4,848	3,927	3,246	2,727	2,004	1,534
	22-2-184	37.4		C	24,545	19,636	16,364	14,026	12,273	10,909	9,818	8,926	8,182	7,013	6,136
4-1/2" x 5/16"	22-4-185	45.0	9.205	U	30,682	19,636	13,636	10,019	7,670	6,061	4,909	4,057	3,409	2,505	1,918
	22-2-185	47.0		C	30,682	24,545	20,455	17,532	15,341	13,636	12,273	11,157	10,227	8,766	7,670
4-1/2" x 3/8"	22-4-186	53.5	11.045	U	36,818	23,564	16,364	12,022	9,205	7,273	5,891	4,869	4,091	3,006	2,301
	22-2-186	55.5		C	36,818	29,455	24,545	21,039	18,409	16,364	14,727	13,388	12,273	10,519	9,205
5" x 1/4"	22-4-204	39.8	9.091	U	30,303	19,394	13,468	9,895	7,576	5,986	4,848	4,007	3,367	2,474	1,894
	22-2-204	41.3		C	30,303	24,242	20,202	17,316	15,152	13,468	12,121	11,019	10,101	8,658	7,576
5" x 5/16"	22-4-205	49.8	11.364	U	37,879	24,242	16,835	12,369	9,470	7,482	6,061	5,009	4,209	3,092	2,367
	22-2-205	51.8		C	37,879	30,303	25,253	21,645	18,939	16,835	15,152	13,774	12,626	10,823	9,470
5" x 3/8"	22-4-206	59.2	13.636	U	45,455	29,091	20,202	14,842	11,364	8,979	7,273	6,011	5,051	3,711	2,841
	22-2-206	61.3		C	45,455	36,364	30,303	25,974	22,727	20,202	18,182	16,529	15,152	12,987	11,364
6" x 1/4"	22-4-244	47.4	13.091	U	43,636	27,927	19,394	14,249	10,909	8,620	6,982	5,770	4,848	3,562	2,727
	22-2-244	48.9		C	43,636	34,909	29,091	24,935	21,818	19,394	17,455	15,868	14,545	12,468	10,909
6" x 5/16"	22-4-245	59.3	16.364	U	54,545	34,909	24,242	17,811	13,636	10,774	8,727	7,213	6,061	4,453	3,409
	22-2-245	61.4		C	54,545	43,636	36,364	31,169	27,273	24,242	21,818	19,835	18,182	15,584	13,636
6" x 3/8"	22-4-246	70.7	19.636	U	65,455	41,891	29,091	21,373	16,364	12,929	10,473	8,655	7,273	5,343	4,091
	22-2-246	72.7		C	65,455	52,364	43,636	37,403	32,727	29,091	26,182	23,802	21,818	18,701	16,364

U= safe uniform load, psf - C= safe concentrated load, pfw - D= deflection, inches - E= modulus of elasticity, 29,000,000 psi - F= fiber stress, 20,000 psi

HP-22 PANEL WIDTH (inches) Note: H-Heavy-Duty cross rods may extend 1/8" each side. Panel widths do not include these extensions.

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