

LOAD TABLES - HD CLOSE-MESH

Grating Type: 15HW4
Design Code: NAAMM MBG 534-19
Material: ASTM A1011CS Grade 36
Surface: Smooth



U = Safe Uniform Load (lbs/ft²)
D_u = Deflection Due to Safe Uniform Load (in)
C = Safe Concentrated Load (lbs/ft of grating width)
D_c = Deflection Due to Safe Concentrated Load (in)
Allowable Extreme Fiber Stress = 20 ksi

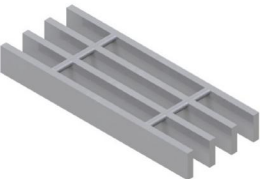
Bearing Bar Size (inches)	Approx. Weight (lbs/ft ²)	Ped. Span (inches)	Load / Deflection	Span (ft -in)														Section Properties	
				1' - 0"	1' - 6"	2' - 0"	2' - 6"	3' - 0"	3' - 6"	4' - 0"	4' - 6"	5' - 0"	5' - 6"	6' - 0"	6' - 6"	7' - 0"	7' - 6"	8' - 0"	S _x (in ³)/ft
																		I _x (in ⁴)/ft	
1" x ¼"	12.21	65	U	7,111	3,160	1,778	1,138	790	580	444	351	284	235						0.533
			D _u	0.02	0.05	0.08	0.13	0.19	0.25	0.33	0.42	0.52	0.63						
			C	3,556	2,370	1,778	1,422	1,185	1,016	889	790	711	646						0.267
			D _c	0.02	0.04	0.07	0.10	0.15	0.20	0.26	0.34	0.41	0.50						
1 ¼" x ¼"	14.93	77	U	11,111	4,938	2,778	1,778	1,235	907	694	549	444	367	309	263			0.833	
			D _u	0.02	0.04	0.07	0.10	0.15	0.20	0.26	0.34	0.41	0.50	0.60	0.70				
			C	5,556	3,704	2,778	2,222	1,852	1,587	1,389	1,235	1,111	1,010	926	855			0.521	
			D _c	0.01	0.03	0.05	0.08	0.12	0.16	0.21	0.27	0.33	0.40	0.48	0.56				
1 ½" x ¼"	17.65	88	U	16,000	7,111	4,000	2,560	1,778	1,306	1,000	790	640	529	444	379	327	284		1.200
			D _u	0.01	0.03	0.06	0.09	0.12	0.17	0.22	0.28	0.34	0.42	0.50	0.58	0.68	0.78		
			C	8,000	5,333	4,000	3,200	2,667	2,286	2,000	1,778	1,600	1,455	1,333	1,231	1,143	1,067		0.900
			D _c	0.01	0.02	0.04	0.07	0.10	0.14	0.18	0.22	0.28	0.33	0.40	0.47	0.54	0.62		
1 ½" x ¾"	25.98	97	U	24,000	10,667	6,000	3,840	2,667	1,959	1,500	1,185	960	793	667	568	490	427	375	1.800
			D _u	0.01	0.03	0.06	0.09	0.12	0.17	0.22	0.28	0.34	0.42	0.50	0.58	0.68	0.78	0.88	
			C	12,000	8,000	6,000	4,800	4,000	3,429	3,000	2,667	2,400	2,182	2,000	1,846	1,714	1,600	1,500	1.350
			D _c	0.01	0.02	0.04	0.07	0.10	0.14	0.18	0.22	0.28	0.33	0.40	0.47	0.54	0.62	0.71	
2" x ¼"	23.09	109	U	28,444	12,642	7,111	4,551	3,160	2,322	1,778	1,405	1,138	940	790	673	580	506	444	2.133
			D _u	0.01	0.02	0.04	0.06	0.09	0.13	0.17	0.21	0.26	0.31	0.37	0.44	0.51	0.58	0.66	
			C	14,222	9,481	7,111	5,689	4,741	4,063	3,556	3,160	2,844	2,586	2,370	2,188	2,032	1,896	1,778	2.133
			D _c	0.01	0.02	0.03	0.05	0.07	0.10	0.13	0.17	0.21	0.25	0.30	0.35	0.41	0.47	0.53	
2 ½" x ¼"	28.53	129	U	44,444	19,753	11,111	7,111	4,938	3,628	2,778	2,195	1,778	1,469	1,235	1,052	907	790	694	3.333
			D _u	0.01	0.02	0.03	0.05	0.07	0.10	0.13	0.17	0.21	0.25	0.30	0.35	0.41	0.47	0.53	
			C	22,222	14,815	11,111	8,889	7,407	6,349	5,556	4,938	4,444	4,040	3,704	3,419	3,175	2,963	2,778	4.167
			D _c	0.01	0.01	0.03	0.04	0.06	0.08	0.11	0.13	0.17	0.20	0.24	0.28	0.32	0.37	0.42	
3" x ¼"	33.97	148	U	64,000	28,444	16,000	10,240	7,111	5,224	4,000	3,160	2,560	2,116	1,778	1,515	1,306	1,138	1,000	4.800
			D _u	0.01	0.02	0.03	0.04	0.06	0.08	0.11	0.14	0.17	0.21	0.25	0.29	0.34	0.39	0.44	
			C	32,000	21,333	16,000	12,800	10,667	9,143	8,000	7,111	6,400	5,818	5,333	4,923	4,571	4,267	4,000	7.200
			D _c	0.01	0.01	0.02	0.03	0.05	0.07	0.09	0.11	0.14	0.17	0.20	0.23	0.27	0.31	0.35	
3" x ¾"	51.01	164	U	96,000	42,667	24,000	15,360	10,667	7,837	6,000	4,741	3,840	3,174	2,667	2,272	1,959	1,707	1,500	7.200
			D _u	0.01	0.02	0.03	0.04	0.06	0.08	0.11	0.14	0.17	0.21	0.25	0.29	0.34	0.39	0.44	
			C	48,000	32,000	24,000	19,200	16,000	13,714	12,000	10,667	9,600	8,727	8,000	7,385	6,857	6,400	6,000	10.800
			D _c	0.01	0.01	0.02	0.03	0.05	0.07	0.09	0.11	0.14	0.17	0.20	0.23	0.27	0.31	0.35	

Spans and loads in red exceed a deflection of 1/4" for uniform loads of 100 lbs./sq. ft. Experience has shown that 1/4" deflection is the maximum deflection to give pedestrian comfort, but can be exceeded for other types of loads at the discretion of the specifying professional.

15HW4 (in)										
# of Bars	2	3	4	5	6	7	8	9	10	11
1/4" Bars	1-3/16	2-1/8	3-1/16	4	4-15/16	5-7/8	6-13/16	7-3/4	8-11/16	9-5/8
3/8" Bars	1-5/16	2-1/4	3-3/16	4-1/8	5-1/16	6	6-15/16	7-7/8	8-13/16	9-3/4
# of Bars	12	13	14	15	16	17	18	19	20	21
1/4" Bars	10-9/16	11-1/2	12-7/16	13-3/8	14-5/16	15-1/4	16-3/16	17-1/8	18-1/16	19
3/8" Bars	10-11/16	11-5/8	12-9/16	13-1/2	14-7/16	15-3/8	16-5/16	17-1/4	18-3/16	19-1/8
# of Bars	22	23	24	25	26	27	28	29	30	31
1/4" Bars	19-15/16	20-7/8	21-13/16	22-3/4	23-11/16	24-5/8	25-9/16	26-1/2	27-7/16	28-3/8
3/8" Bars	20-1/16	21	21-15/16	22-7/8	23-13/16	24-3/4	25-11/16	26-5/8	27-9/16	28-1/2

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Material: ASTM A1011CS Grade 36
Surface: Smooth

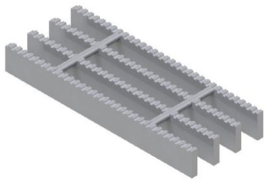


U = Safe Uniform Load (lbs/ft²)
D_u = Deflection Due to Safe Uniform Load (in)
C = Safe Concentrated Load (lbs/ft of grating width)
D_c = Deflection Due to Safe Concentrated Load (in)
Allowable Extreme Fiber Stress = 20 ksi

Bearing Bar Size (inches)	Approx. Weight (lbs/ft²)	Ped. Span (inches)	Load / Deflection	Span (ft -in)														Section Properties	
				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"	S _x (in³)/ft
																		I _x (in⁴)/ft	
3 ½" x ¼"	39.41	166	U	87,111	38,716	21,778	13,938	9,679	7,111	5,444	4,302	3,484	2,880	2,420	2,062	1,778	1,549	1,361	6.533
			D _u	0.01	0.01	0.02	0.04	0.05	0.07	0.09	0.12	0.15	0.18	0.21	0.25	0.29	0.33	0.38	
			C	43,556	29,037	21,778	17,422	14,519	12,444	10,889	9,679	8,711	7,919	7,259	6,701	6,222	5,807	5,444	11.433
			D _c	0.00	0.01	0.02	0.03	0.04	0.06	0.08	0.10	0.12	0.14	0.17	0.20	0.23	0.27	0.30	
3 ½" x ¾"	59.17	184	U	130,667	58,074	32,667	20,907	14,519	10,667	8,167	6,453	5,227	4,320	3,630	3,093	2,667	2,323	2,042	9.800
			D _u	0.01	0.01	0.02	0.04	0.05	0.07	0.09	0.12	0.15	0.18	0.21	0.25	0.29	0.33	0.38	
			C	65,333	43,556	32,667	26,133	21,778	18,667	16,333	14,519	13,067	11,879	10,889	10,051	9,333	8,711	8,167	17.150
			D _c	0.00	0.01	0.02	0.03	0.04	0.06	0.08	0.10	0.12	0.14	0.17	0.20	0.23	0.27	0.30	
4" x ¼"	44.85	184	U	113,778	50,568	28,444	18,204	12,642	9,288	7,111	5,619	4,551	3,761	3,160	2,693	2,322	2,023	1,778	8.533
			D _u	0.01	0.01	0.02	0.03	0.05	0.06	0.08	0.10	0.13	0.16	0.19	0.22	0.25	0.29	0.33	
			C	56,889	37,926	28,444	22,756	18,963	16,254	14,222	12,642	11,378	10,343	9,481	8,752	8,127	7,585	7,111	17.067
			D _c	0.00	0.01	0.02	0.03	0.04	0.05	0.07	0.08	0.10	0.13	0.15	0.17	0.20	0.23	0.26	
4" x ¾"	67.33	203	U	170,667	75,852	42,667	27,307	18,963	13,932	10,667	8,428	6,827	5,642	4,741	4,039	3,483	3,034	2,667	12.800
			D _u	0.01	0.01	0.02	0.03	0.05	0.06	0.08	0.10	0.13	0.16	0.19	0.22	0.25	0.29	0.33	
			C	85,333	56,889	42,667	34,133	28,444	24,381	21,333	18,963	17,067	15,515	14,222	13,128	12,190	11,378	10,667	25.600
			D _c	0.00	0.01	0.02	0.03	0.04	0.05	0.07	0.08	0.10	0.13	0.15	0.17	0.20	0.23	0.26	
5" x ¾"	83.65	240	U	266,667	118,519	66,667	42,667	29,630	21,769	16,667	13,169	10,667	8,815	7,407	6,312	5,442	4,741	4,167	20.000
			D _u	0.00	0.01	0.02	0.03	0.04	0.05	0.07	0.08	0.10	0.13	0.15	0.17	0.20	0.23	0.26	
			C	133,333	88,889	66,667	53,333	44,444	38,095	33,333	29,630	26,667	24,242	22,222	20,513	19,048	17,778	16,667	50.000
			D _c	0.00	0.01	0.01	0.02	0.03	0.04	0.05	0.07	0.08	0.10	0.12	0.14	0.16	0.19	0.21	
6" x ¾"	99.97	276	U	384,000	170,667	96,000	61,440	42,667	31,347	24,000	18,963	15,360	12,694	10,667	9,089	7,837	6,827	6,000	28.800
			D _u	0.00	0.01	0.01	0.02	0.03	0.04	0.06	0.07	0.09	0.10	0.12	0.15	0.17	0.19	0.22	
			C	192,000	128,000	96,000	76,800	64,000	54,857	48,000	42,667	38,400	34,909	32,000	29,538	27,429	25,600	24,000	86.400
			D _c	0.00	0.01	0.01	0.02	0.02	0.03	0.04	0.06	0.07	0.08	0.10	0.12	0.14	0.16	0.18	

LOAD TABLES - HD CLOSE-MESH

Grating Type: 15HW4
Design Code: NAAMM MBG 534-19
Material: ASTM A1011CS Grade 36
Surface: Serrated



U = Safe Uniform Load (lbs/ft²)
D_u = Deflection Due to Safe Uniform Load (in)
C = Safe Concentrated Load (lbs/ft of grating width)
D_c = Deflection Due to Safe Concentrated Load (in)
Allowable Extreme Fiber Stress = 20 ksi

Bearing Bar Size (inches)	Approx. Weight (lbs/ft ³)	Ped. Span (inches)	Load / Deflection	Span (ft -in)																Section Properties
				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"	S _x (in ³)/ft	
																				I _x (in ⁴)/ft
1" x ¼"	12.21	52	U	4,000	1,778	1,000	640	444	327	250	198								0.300	
			D _u	0.03	0.06	0.11	0.17	0.25	0.34	0.44	0.56									
			C	2,000	1,333	1,000	800	667	571	500	444								0.113	
			D _c	0.02	0.05	0.09	0.14	0.20	0.27	0.35	0.45									
1 ½" x ¼"	14.93	65	U	7,111	3,160	1,778	1,138	790	580	444	351	284	235				0.533			
			D _u	0.02	0.05	0.08	0.13	0.19	0.25	0.33	0.42	0.52	0.63							
			C	3,556	2,370	1,778	1,422	1,185	1,016	889	790	711	646				0.267			
			D _c	0.02	0.04	0.07	0.10	0.15	0.20	0.26	0.34	0.41	0.50							
1 ½" x ½"	17.65	77	U	11,111	4,938	2,778	1,778	1,235	907	694	549	444	367	309	263		0.833			
			D _u	0.02	0.04	0.07	0.10	0.15	0.20	0.26	0.34	0.41	0.50	0.60	0.70					
			C	5,556	3,704	2,778	2,222	1,852	1,587	1,389	1,235	1,111	1,010	926	855		0.521			
			D _c	0.01	0.03	0.05	0.08	0.12	0.16	0.21	0.27	0.33	0.40	0.48	0.56					
1 ½" x ¾"	25.98	85	U	16,667	7,407	4,167	2,667	1,852	1,361	1,042	823	667	551	463	394	340	296		1.250	
			D _u	0.02	0.04	0.07	0.10	0.15	0.20	0.26	0.34	0.41	0.50	0.60	0.70	0.81	0.93			
			C	8,333	5,556	4,167	3,333	2,778	2,381	2,083	1,852	1,667	1,515	1,389	1,282	1,190	1,111		0.781	
			D _c	0.01	0.03	0.05	0.08	0.12	0.16	0.21	0.27	0.33	0.40	0.48	0.56	0.65	0.74			
2" x ¼"	23.09	99	U	21,778	9,679	5,444	3,484	2,420	1,778	1,361	1,075	871	720	605	515	444	387	340	1.633	
			D _u	0.01	0.03	0.05	0.07	0.11	0.14	0.19	0.24	0.30	0.36	0.43	0.50	0.58	0.67	0.76		
			C	10,889	7,259	5,444	4,356	3,630	3,111	2,722	2,420	2,178	1,980	1,815	1,675	1,556	1,452	1,361	1.429	
			D _c	0.01	0.02	0.04	0.06	0.09	0.12	0.15	0.19	0.24	0.29	0.34	0.40	0.46	0.53	0.61		
2 ½" x ¼"	28.53	119	U	36,000	16,000	9,000	5,760	4,000	2,939	2,250	1,778	1,440	1,190	1,000	852	735	640	563	2.700	
			D _u	0.01	0.02	0.04	0.06	0.08	0.11	0.15	0.19	0.23	0.28	0.33	0.39	0.45	0.52	0.59		
			C	18,000	12,000	9,000	7,200	6,000	5,143	4,500	4,000	3,600	3,273	3,000	2,769	2,571	2,400	2,250	3.038	
			D _c	0.01	0.02	0.03	0.05	0.07	0.09	0.12	0.15	0.18	0.22	0.26	0.31	0.36	0.41	0.47		
3" x ¼"	33.97	139	U	53,778	23,901	13,444	8,604	5,975	4,390	3,361	2,656	2,151	1,778	1,494	1,273	1,098	956	840	4.033	
			D _u	0.01	0.02	0.03	0.05	0.07	0.09	0.12	0.15	0.19	0.23	0.27	0.32	0.37	0.42	0.48		
			C	26,889	17,926	13,444	10,756	8,963	7,683	6,722	5,975	5,378	4,889	4,481	4,137	3,841	3,585	3,361	5.546	
			D _c	0.01	0.01	0.02	0.04	0.05	0.07	0.10	0.12	0.15	0.18	0.22	0.25	0.29	0.34	0.39		

3" x ¾"	50.46	154	U	80,667	35,852	20,167	12,907	8,963	6,585	5,042	3,984	3,227	2,667	2,241	1,909	1,646	1,434	1,260			6.050
			D _u	0.01	0.02	0.03	0.05	0.07	0.09	0.12	0.15	0.19	0.23	0.27	0.32	0.37	0.42	0.48			
			C	40,333	26,889	20,167	16,133	13,444	11,524	10,083	8,963	8,067	7,333	6,722	6,205	5,762	5,378	5,042			
			D _c	0.01	0.01	0.02	0.04	0.05	0.07	0.10	0.12	0.15	0.18	0.22	0.25	0.29	0.34	0.39			8.319

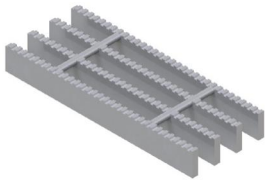
Spans and loads in red exceed a deflection of 1/4" for uniform loads of 100 lbs./sq. ft. Experience has shown that 1/4" deflection is the maximum deflection to give pedestrian comfort, but can be exceeded for other types of loads at the discretion of the specifying professional.

15HW4(in)

# of Bars	2	3	4	5	6	7	8	9	10	11
1/4" Bars	2001/3/16	2002/1/8	2003/1/16	4	4-15/16	2005/7/8	6-13/16	2007/3/4	2008/11/16	2009/5/8
3/8" Bars	2001/5/16	2002/1/4	2003/3/16	2004/1/8	2005/1/16	6	6-15/16	2007/7/8	8-13/16	2009/3/4
# of Bars	12	13	14	15	16	17	18	19	20	21
1/4" Bars	2010/9/16	2011/1/2	2012/7/16	2013/3/8	2014/5/16	2015/1/4	2016/3/16	2017/1/8	2018/1/16	19
3/8" Bars	2010/11/16	2011/5/8	2012/9/16	2013/1/2	2014/7/16	2015/3/8	2016/5/16	2017/1/4	2018/3/16	2019/1/8
# of Bars	22	23	24	25	26	27	28	29	30	31
1/4" Bars	19-15/16	2020/7/8	21-13/16	2022/3/4	2023/11/16	2024/5/8	2025/9/16	2026/1/2	2027/7/16	2028/3/8
3/8" Bars	2020/1/16	21	21-15/16	2022/7/8	23-13/16	2024/3/4	2025/11/16	2026/5/8	2027/9/16	2028/1/2

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D_u = Deflection Due to Safe Uniform Load (in)
C = Safe Concentrated Load (lbs/ft of grating width)
D_c = Deflection Due to Safe Concentrated Load (in)
Allowable Extreme Fiber Stress = 20 ksi

Bearing Bar Size (inches)	Approx. Weight (lbs/ft²)	Ped. Span (inches)	Load / Deflection	Span (ft -in)																Section Properties
				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"	S _x (in³)/ft	
																				I _x (in⁴)/ft
3 ½" x ¼"	39.41	157	U	75,111	33,383	18,778	12,018	8,346	6,132	4,694	3,709	3,004	2,483	2,086	1,778	1,533	1,335	1,174	5.633	
			D _u	0.01	0.01	0.03	0.04	0.06	0.08	0.10	0.13	0.16	0.19	0.23	0.27	0.31	0.36	0.41		
			C	37,556	25,037	18,778	15,022	12,519	10,730	9,389	8,346	7,511	6,828	6,259	5,778	5,365	5,007	4,694	9.154	
			D _c	0.01	0.01	0.02	0.03	0.05	0.06	0.08	0.10	0.13	0.15	0.18	0.22	0.25	0.29	0.33		
3 ½" x ¾"	59.17	174	U	112,667	50,074	28,167	18,027	12,519	9,197	7,042	5,564	4,507	3,725	3,130	2,667	2,299	2,003	1,760	8.450	
			D _u	0.01	0.01	0.03	0.04	0.06	0.08	0.10	0.13	0.16	0.19	0.23	0.27	0.31	0.36	0.41		
			C	56,333	37,556	28,167	22,533	18,778	16,095	14,083	12,519	11,267	10,242	9,389	8,667	8,048	7,511	7,042	13.731	
			D _c	0.01	0.01	0.02	0.03	0.05	0.06	0.08	0.10	0.13	0.15	0.18	0.22	0.25	0.29	0.33		
4" x¼"	44.85	175	U	100,000	44,444	25,000	16,000	11,111	8,163	6,250	4,938	4,000	3,306	2,778	2,367	2,041	1,778	1,563	7.500	
			D _u	0.01	0.01	0.02	0.03	0.05	0.07	0.09	0.11	0.14	0.17	0.20	0.23	0.27	0.31	0.35		
			C	50,000	33,333	25,000	20,000	16,667	14,286	12,500	11,111	10,000	9,091	8,333	7,692	7,143	6,667	6,250	14.063	
			D _c	0.00	0.01	0.02	0.03	0.04	0.05	0.07	0.09	0.11	0.13	0.16	0.19	0.22	0.25	0.28		
4" x ¾"	67.33	194	U	150,000	66,667	37,500	24,000	16,667	12,245	9,375	7,407	6,000	4,959	4,167	3,550	3,061	2,667	2,344	11.250	
			D _u	0.01	0.01	0.02	0.03	0.05	0.07	0.09	0.11	0.14	0.17	0.20	0.23	0.27	0.31	0.35		
			C	75,000	50,000	37,500	30,000	25,000	21,429	18,750	16,667	15,000	13,636	12,500	11,538	10,714	10,000	9,375	21.094	
			D _c	0.00	0.01	0.02	0.03	0.04	0.05	0.07	0.09	0.11	0.13	0.16	0.19	0.22	0.25	0.28		
5" x ¾"	83.65	231	U	240,667	106,963	60,167	38,507	26,741	19,646	15,042	11,885	9,627	7,956	6,685	5,696	4,912	4,279	3,760	18.050	
			D _u	0.00	0.01	0.02	0.03	0.04	0.05	0.07	0.09	0.11	0.13	0.16	0.18	0.21	0.25	0.28		
			C	120,333	80,222	60,167	48,133	40,111	34,381	30,083	26,741	24,067	21,879	20,056	18,513	17,190	16,044	15,042	42.869	
			D _c	0.00	0.01	0.01	0.02	0.03	0.04	0.06	0.07	0.09	0.11	0.13	0.15	0.17	0.20	0.22		
6" x ¾"	99.97	267	U	352,667	156,741	88,167	56,427	39,185	28,789	22,042	17,416	14,107	11,658	9,796	8,347	7,197	6,270	5,510	26.450	
			D _u	0.00	0.01	0.01	0.02	0.03	0.04	0.06	0.07	0.09	0.11	0.13	0.15	0.18	0.20	0.23		
			C	176,333	117,556	88,167	70,533	58,778	50,381	44,083	39,185	35,267	32,061	29,389	27,128	25,190	23,511	22,042	76.044	
			D _c	0.00	0.01	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.09	0.10	0.12	0.14	0.16	0.18		