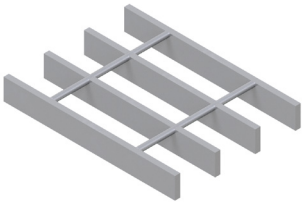
HEAVY DUTY

Load Tables - Wide-Gap

Grating Type: 30HW4
Design Code: NAAMM MBG 534-19
Material: ASTM A1011CS Grade 36
Surface: Smooth



U = Safe Uniform Load (lbs/ft^2)
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) 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"	Section Properties S_x (in^3)/ft / I_x (in^4)/ft
1" x ¼"	6.77	55	U	3,556	1,580	889	569	395	290	222	176	142							0.267
			D_u	0.02	0.05	0.08	0.13	0.19	0.25	0.33	0.42	0.52							
			C	1,778	1,185	889	711	593	508	444	395	356							0.133
			D_c	0.02	0.04	0.07	0.10	0.15	0.20	0.26	0.34	0.41							
1 ¼" x ¼"	8.13	65	U	5,556	2,469	1,389	889	617	454	347	274	222	184						0.417
			D_u	0.02	0.04	0.07	0.10	0.15	0.20	0.26	0.34	0.41	0.50						
			C	2,778	1,852	1,389	1,111	926	794	694	617	556	505						0.260
			D_c	0.01	0.03	0.05	0.08	0.12	0.16	0.21	0.27	0.33	0.40						
1 ½" x ¼"	9.49	74	U	8,000	3,556	2,000	1,280	889	653	500	395	320	264	222	189				0.600
			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				
			C	4,000	2,667	2,000	1,600	1,333	1,143	1,000	889	800	727	667	615				0.450
			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				
1 ½" x ⅜"	13.74	82	U	12,000	5,333	3,000	1,920	1,333	980	750	593	480	397	333	284	245			0.900
			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			
			C	6,000	4,000	3,000	2,400	2,000	1,714	1,500	1,333	1,200	1,091	1,000	923	857			0.675
			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			
2" x ¼"	12.21	92	U	14,222	6,321	3,556	2,276	1,580	1,161	889	702	569	470	395	337	290	253	222	1.067
			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	7,111	4,741	3,556	2,844	2,370	2,032	1,778	1,580	1,422	1,293	1,185	1,094	1,016	948	889	1.067
			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"	14.93	109	U	22,222	9,877	5,556	3,556	2,469	1,814	1,389	1,097	889	735	617	526	454	395	347	1.667
			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	11,111	7,407	5,556	4,444	3,704	3,175	2,778	2,469	2,222	2,020	1,852	1,709	1,587	1,481	1,389	2.083
			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"	17.65	125	U	32,000	14,222	8,000	5,120	3,556	2,612	2,000	1,580	1,280	1,058	889	757	653	569	500	2.400
			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	16,000	10,667	8,000	6,400	5,333	4,571	4,000	3,556	3,200	2,909	2,667	2,462	2,286	2,133	2,000	3.600
			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 ⅜"	26.53	138	U	48,000	21,333	12,000	7,680	5,333	3,918	3,000	2,370	1,920	1,587	1,333	1,136	980	853	750	3.600
			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	24,000	16,000	12,000	9,600	8,000	6,857	6,000	5,333	4,800	4,364	4,000	3,692	3,429	3,200	3,000	5.400
			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 ¼" for uniform loads of 100 lbs./sq. ft. Experience has shown that ¼" 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.

30HW4 (in)

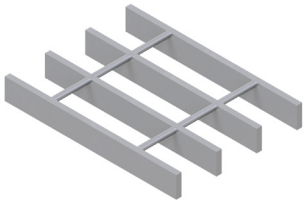
# of Bars	2	3	4	5	6	7	8	9	10	11
¼" Bars	2-⅛	4	5-⅞	7-¾	9-⅝	11-½	13-⅜	15-¼	17-⅛	19
⅜" Bars	2-¼	4-⅛	6	7-⅞	9-¾	11-⅝	13-½	15-⅜	17-¼	19-⅛
# of Bars	12	13	14	15	16	17	18	19	20	21
¼" Bars	20-⅞	22-¾	24-⅝	26-½	28-⅜	30-¼	32-⅛	34	35-⅞	37-¾
⅜" Bars	21	22-⅞	24-¾	26-⅝	28-½	30-⅜	32-¼	34-⅛	36	37-⅞

Load Table Continued on Next Page

HEAVY DUTY

Load Tables - Wide-Gap

Grating Type: 30HW4
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/ft²)	Ped. Span (inches)	Load / Deflection	Span (ft -in) 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"	Section Properties S_x (in³)/ft	I_x (in⁴)/ft
3 ½" x ¼"	20.37	140	U	43,556	19,358	10,889	6,969	4,840	3,556	2,722	2,151	1,742	1,440	1,210	1,031	889	774	681	3.267	
			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	21,778	14,519	10,889	8,711	7,259	6,222	5,444	4,840	4,356	3,960	3,630	3,350	3,111	2,904	2,722		5.717
			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 ⅜"	30.61	155	U	65,333	29,037	16,333	10,453	7,259	5,333	4,083	3,226	2,613	2,160	1,815	1,546	1,333	1,161	1,021	4.900	
			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	32,667	21,778	16,333	13,067	10,889	9,333	8,167	7,259	6,533	5,939	5,444	5,026	4,667	4,356	4,083		8.575
			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" x¼"	23.09	155	U	56,889	25,284	14,222	9,102	6,321	4,644	3,556	2,809	2,276	1,881	1,580	1,346	1,161	1,011	889	4.267	
			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	28,444	18,963	14,222	11,378	9,481	8,127	7,111	6,321	5,689	5,172	4,741	4,376	4,063	3,793	3,556		8.533
			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 ⅜"	34.69	171	U	85,333	37,926	21,333	13,653	9,481	6,966	5,333	4,214	3,413	2,821	2,370	2,020	1,741	1,517	1,333	6.400	
			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	42,667	28,444	21,333	17,067	14,222	12,190	10,667	9,481	8,533	7,758	7,111	6,564	6,095	5,689	5,333		12.800
			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 ⅜"	42.85	202	U	133,333	59,259	33,333	21,333	14,815	10,884	8,333	6,584	5,333	4,408	3,704	3,156	2,721	2,370	2,083	10.000	
			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	66,667	44,444	33,333	26,667	22,222	19,048	16,667	14,815	13,333	12,121	11,111	10,256	9,524	8,889	8,333		25.000
			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 ⅜"	51.01	232	U	192,000	85,333	48,000	30,720	21,333	15,673	12,000	9,481	7,680	6,347	5,333	4,544	3,918	3,413	3,000	14.400	
			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	96,000	64,000	48,000	38,400	32,000	27,429	24,000	21,333	19,200	17,455	16,000	14,769	13,714	12,800	12,000		43.200
			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		

Spans and loads in red exceed a deflection of ¼" for uniform loads of 100 lbs./sq. ft. Experience has shown that ¼" 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.

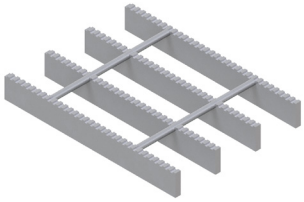
30HW4 (in)

# of Bars	2	3	4	5	6	7	8	9	10	11
¼" Bars	2-⅛	4	5-⅞	7-¾	9-⅝	11-½	13-⅜	15-¼	17-⅛	19
⅜" Bars	2-¼	4-⅛	6	7-⅞	9-¾	11-⅝	13-½	15-⅜	17-¼	19-⅛
# of Bars	12	13	14	15	16	17	18	19	20	21
¼" Bars	20-⅞	22-¾	24-⅝	26-½	28-⅜	30-¼	32-⅛	34	35-⅞	37-¾
⅜" Bars	21	22-⅞	24-¾	26-⅝	28-½	30-⅜	32-¼	34-⅛	36	37-⅞

HEAVY DUTY

Load Tables - Wide-Gap

Grating Type: 30HW4
Design Code: NAAMM MBG 534-19
Material: ASTM A1011CS Grade 36
Surface: Serrated



U = Safe Uniform Load (lbs/ft^2)
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) 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"	Section Properties S_x (in^3)/ft / I_x (in^4)/ft
1" x ¼"	5.41	44	U	2,000	889	500	320	222	163	125									0.150
			D_u	0.03	0.06	0.11	0.17	0.25	0.34	0.44									
			C	1,000	667	500	400	333	286	250									0.056
			D_c	0.02	0.05	0.09	0.14	0.20	0.27	0.35									
1 ¼" x ¼"	6.77	55	U	3,556	1,580	889	569	395	290	222	176	142							0.267
			D_u	0.02	0.05	0.08	0.13	0.19	0.25	0.33	0.42	0.52							
			C	1,778	1,185	889	711	593	508	444	395	356							0.133
			D_c	0.02	0.04	0.07	0.10	0.15	0.20	0.26	0.34	0.41							
1 ½" x ¼"	8.13	65	U	5,556	2,469	1,389	889	617	454	347	274	222	184						0.417
			D_u	0.02	0.04	0.07	0.10	0.15	0.20	0.26	0.34	0.41	0.50						
			C	2,778	1,852	1,389	1,111	926	794	694	617	556	505						0.260
			D_c	0.01	0.03	0.05	0.08	0.12	0.16	0.21	0.27	0.33	0.40						
1 ½" x ⅜"	11.70	71	U	8,333	3,704	2,083	1,333	926	680	521	412	333	275	231					0.625
			D_u	0.02	0.04	0.07	0.10	0.15	0.20	0.26	0.34	0.41	0.50	0.60					
			C	4,167	2,778	2,083	1,667	1,389	1,190	1,042	926	833	758	694					0.391
			D_c	0.01	0.03	0.05	0.08	0.12	0.16	0.21	0.27	0.33	0.40	0.48					
2" x ¼"	10.85	83	U	10,889	4,840	2,722	1,742	1,210	889	681	538	436	360	302	258	222			0.817
			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			
			C	5,444	3,630	2,722	2,178	1,815	1,556	1,361	1,210	1,089	990	907	838	778			0.715
			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			
2 ½" x ¼"	13.57	100	U	18,000	8,000	4,500	2,880	2,000	1,469	1,125	889	720	595	500	426	367	320	281	1.350
			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	9,000	6,000	4,500	3,600	3,000	2,571	2,250	2,000	1,800	1,636	1,500	1,385	1,286	1,200	1,125	1.519
			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"	16.29	117	U	26,889	11,951	6,722	4,302	2,988	2,195	1,681	1,328	1,076	889	747	636	549	478	420	2.017
			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	13,444	8,963	6,722	5,378	4,481	3,841	3,361	2,988	2,689	2,444	2,241	2,068	1,921	1,793	1,681	2.773
			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 ⅜"	23.94	129	U	40,333	17,926	10,083	6,453	4,481	3,293	2,521	1,992	1,613	1,333	1,120	955	823	717	630	3.025
			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	20,167	13,444	10,083	8,067	6,722	5,762	5,042	4,481	4,033	3,667	3,361	3,103	2,881	2,689	2,521	4.159
			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	

Spans and loads in red exceed a deflection of ¼" for uniform loads of 100 lbs./sq. ft. Experience has shown that ¼" 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.

30HW4 (in)

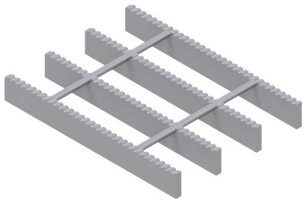
# of Bars	2	3	4	5	6	7	8	9	10	11
¼" Bars	2-⅛	4	5-⅞	7-¾	9-⅝	11-½	13-⅜	15-¼	17-⅛	19
⅜" Bars	2-¼	4-⅛	6	7-⅞	9-¾	11-⅝	13-½	15-⅜	17-¼	19-⅛
# of Bars	12	13	14	15	16	17	18	19	20	21
¼" Bars	20-⅞	22-¾	24-⅝	26-½	28-⅜	30-¼	32-⅛	34	35-⅞	37-¾
⅜" Bars	21	22-⅞	24-¾	26-⅝	28-½	30-⅜	32-¼	34-⅛	36	37-⅞

Load Table Continued on Next Page

HEAVY DUTY

Load Tables - Wide-Gap

Grating Type: 30HW4
Design Code: NAAMM MBG 534-19
Material: ASTM A1011CS Grade 36
Surface: Serrated



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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) 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"	Section Properties S_x (in³)/ft	I_x (in⁴)/ft
3 ½" x ¼"	19.01	132	U	37,556	16,691	9,389	6,009	4,173	3,066	2,347	1,855	1,502	1,242	1,043	889	766	668	587	2.817	
			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	18,778	12,519	9,389	7,511	6,259	5,365	4,694	4,173	3,756	3,414	3,130	2,889	2,683	2,504	2,347	4.577	
			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 ⅜"	28.57	146	U	56,333	25,037	14,083	9,013	6,259	4,599	3,521	2,782	2,253	1,862	1,565	1,333	1,150	1,001	880	4.225	
			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	28,167	18,778	14,083	11,267	9,389	8,048	7,042	6,259	5,633	5,121	4,694	4,333	4,024	3,756	3,521	6.866	
			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"	21.73	147	U	50,000	22,222	12,500	8,000	5,556	4,082	3,125	2,469	2,000	1,653	1,389	1,183	1,020	889	781	3.750	
			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	25,000	16,667	12,500	10,000	8,333	7,143	6,250	5,556	5,000	4,545	4,167	3,846	3,571	3,333	3,125	7.031	
			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 ⅜"	32.65	163	U	75,000	33,333	18,750	12,000	8,333	6,122	4,688	3,704	3,000	2,479	2,083	1,775	1,531	1,333	1,172	5.625	
			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	37,500	25,000	18,750	15,000	12,500	10,714	9,375	8,333	7,500	6,818	6,250	5,769	5,357	5,000	4,688	10.547	
			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 ⅜"	40.81	195	U	120,333	53,481	30,083	19,253	13,370	9,823	7,521	5,942	4,813	3,978	3,343	2,848	2,456	2,139	1,880	9.025	
			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	60,167	40,111	30,083	24,067	20,056	17,190	15,042	13,370	12,033	10,939	10,028	9,256	8,595	8,022	7,521	21.434	
			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 ⅜"	48.97	225	U	176,333	78,370	44,083	28,213	19,593	14,395	11,021	8,708	7,053	5,829	4,898	4,174	3,599	3,135	2,755	13.225	
			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	88,167	58,778	44,083	35,267	29,389	25,190	22,042	19,593	17,633	16,030	14,694	13,564	12,595	11,756	11,021	38.022	
			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		

Spans and loads in red exceed a deflection of ¼" for uniform loads of 100 lbs./sq. ft. Experience has shown that ¼" 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.

30HW4 (in)

# of Bars	2	3	4	5	6	7	8	9	10	11
¼" Bars	2-⅛	4	5-⅞	7-¾	9-⅝	11-½	13-⅜	15-¼	17-⅛	19
⅜" Bars	2-¼	4-⅛	6	7-⅞	9-¾	11-⅝	13-½	15-⅜	17-¼	19-⅛
# of Bars	12	13	14	15	16	17	18	19	20	21
¼" Bars	20-⅞	22-¾	24-⅝	26-½	28-⅜	30-¼	32-⅛	34	35-⅞	37-¾
⅜" Bars	21	22-⅞	24-¾	26-⅝	28-½	30-⅜	32-¼	34-⅛	36	37-⅞