

LOAD TABLES | HEAVY DUTY, METRIC

HEAVY DUTY - METRIC

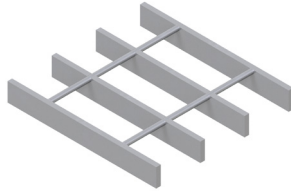
Load Tables - Extra-Wide-Gap

Grating Type: **60HW102**

Design Code: **NAAMM MBG 534-19**

Material: **ASTM A1011CS Grade 36**

Surface: **Smooth**



U = Safe Uniform Load (kPa)

D_u = Deflection Due to Safe Uniform Load (mm)

C = Safe Concentrated Load (kN/meter of grating width)

D_c = Deflection Due to Safe Concentrated Load (mm)

Allowable Extreme Fiber Stress = 137.9 MPa

Bearing Bar Size (mm)	Approx. Weight (kg/m ²)	Ped. Span (mm)	Load / Deflection	SPAN (mm)														Section Properties												
				305	457	610	762	915	1067	1219	1372	1524	1677	1829	1981	2134	2286	2438	S _x (mm ³)/m	I _x (mm ⁴)/m										
25 x 6	26.6	1,312.00	U	136.0	60.5	34.0	21.8	15.1	11.1	8.5	<div style="display: flex; justify-content: space-between;"> 6.7 10.6 4.6 8.5 </div>										11,470	145.66E+3								
			D _u	0.5	1.2	2.1	3.3	4.7	6.4	8.4																				
			C	20.7	13.8	10.4	8.3	6.9	5.9	5.2																				
			D _c	0.4	0.9	1.7	2.6	3.8	5.2	6.7																				
32 x 6	32.0	1,552.00	U	213.2	94.8	53.3	34.1	23.7	17.4	13.3	10.5	8.5	<div style="display: flex; justify-content: space-between;"> 7.1 12.7 5.9 10.2 </div>										17,980	285.84E+3						
			D _u	0.4	0.9	1.7	2.6	3.8	5.1	6.7	8.5	10.5																		
			C	32.5	21.7	16.3	13.0	10.8	9.3	8.1	7.2	6.5																		
			D _c	0.3	0.8	1.3	2.1	3.0	4.1	5.4	6.8	8.4																		
38 x 6	37.2	1,778.00	U	306.0	136.1	76.6	49.0	34.0	25.0	19.1	15.1	12.3	10.1	<div style="display: flex; justify-content: space-between;"> 8.5 12.6 7.8 10.1 </div>										25,810	491.61E+3					
			D _u	0.4	0.8	1.4	2.2	3.2	4.3	5.6	7.1	8.8	10.6																	
			C	46.7	31.1	23.3	18.7	15.6	13.3	11.7	10.4	9.3	8.5																	
			D _c	0.3	0.6	1.1	1.8	2.5	3.4	4.5	5.7	7.0	8.5																	
38 x 10	53.4	1,962.00	U	454.3	202.0	113.6	72.7	50.5	37.1	28.4	22.5	18.2	15.0	12.6	<div style="display: flex; justify-content: space-between;"> 10.8 14.8 10.7 11.8 </div>										38,310	729.74E+3				
			D _u	0.4	0.8	1.4	2.2	3.2	4.3	5.6	7.1	8.8	10.6	12.6																
			C	69.3	46.2	34.7	27.7	23.1	19.8	17.3	15.4	13.9	12.6	11.6																
			D _c	0.3	0.6	1.1	1.8	2.5	3.4	4.5	5.7	7.0	8.5	10.1																
51 x 6	47.9	2,206.00	U	544.1	241.9	136.1	87.1	60.5	44.5	34.0	26.9	21.8	18.0	15.1	12.9	11.1	<div style="display: flex; justify-content: space-between;"> 9.7 14.8 11.1 11.8 </div>										45,880	1.17E+6		
			D _u	0.3	0.6	1.1	1.6	2.4	3.2	4.2	5.3	6.6	7.9	9.5	11.1	12.9														
			C	83.0	55.3	41.5	33.2	27.7	23.7	20.8	18.4	16.6	15.1	13.8	12.8	11.9														
			D _c	0.2	0.5	0.8	1.3	1.9	2.6	3.4	4.3	5.3	6.4	7.6	8.9	10.3														
64 x 6	58.5	2,608.00	U	850.1	378.0	212.7	136.1	94.5	69.5	53.2	42.0	34.0	28.1	23.6	20.1	17.4	15.1	13.3	<div style="display: flex; justify-content: space-between;"> 10.8 14.8 10.7 11.8 </div>										71,680	2.28E+6
			D _u	0.2	0.5	0.8	1.3	1.9	2.6	3.4	4.3	5.3	6.4	7.6	8.9	10.3	11.8	13.4												
			C	129.6	86.4	64.8	51.9	43.2	37.1	32.4	28.8	25.9	23.6	21.6	20.0	18.5	17.3	16.2												
			D _c	0.2	0.4	0.7	1.1	1.5	2.1	2.7	3.4	4.2	5.1	6.1	7.1	8.2	9.5	10.8												
76 x 6	69.1	2,990.00	U	1,224.2	544.3	306.2	196.0	136.1	100.0	76.6	60.5	49.0	40.5	34.0	29.0	25.0	21.8	19.2	<div style="display: flex; justify-content: space-between;"> 10.8 14.8 10.7 11.8 </div>										103,230	3.93E+6
			D _u	0.2	0.4	0.7	1.1	1.6	2.1	2.8	3.5	4.4	5.3	6.3	7.4	8.6	9.9	11.2												
			C	186.7	124.5	93.4	74.7	62.3	53.4	46.7	41.5	37.4	34.0	31.1	28.7	26.7	24.9	23.4												
			D _c	0.1	0.3	0.6	0.9	1.3	1.7	2.2	2.8	3.5	4.2	5.0	5.9	6.9	7.9	9.0												
76 x 10	102.9	3,300.00	U	1,817.1	808.0	454.6	291.0	202.1	148.5	113.7	89.8	72.8	60.1	50.5	43.1	37.1	32.3	28.4	<div style="display: flex; justify-content: space-between;"> 10.8 14.8 10.7 11.8 </div>										153,230	5.84E+6
			D _u	0.2	0.4	0.7	1.1	1.6	2.1	2.8	3.5	4.4	5.3	6.3	7.4	8.6	9.9	11.2												
			C	277.1	184.8	138.6	110.9	92.4	79.2	69.3	61.6	55.5	50.4	46.2	42.7	39.6	37.0	34.7												
			D _c	0.1	0.3	0.6	0.9	1.3	1.7	2.2	2.8	3.5	4.2	5.0	5.9	6.9	7.9	9.0												

Spans and loads in red exceed a deflection of 6mm for uniform loads of 5kPa. Experience has shown that 6mm 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.

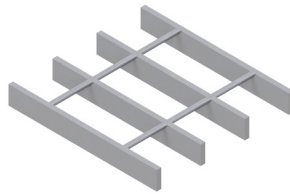
60HW102 (mm)

# of Bars	2	3	4	5	6	7	8	9	10	11
6mm Bars	66	126	186	246	306	366	426	486	546	606
10mm Bars	70	130	190	250	310	370	430	490	550	610
# of Bars	12	13	14	15	16	17	18	19	20	21
6mm Bars	666	726	786	846	906	966	1026	1086	1146	1206
10mm Bars	670	730	790	850	910	970	1030	1090	1150	1210

HEAVY DUTY - METRIC

Load Tables - Extra-Wide-Gap

Grating Type: **60HW102**
 Design Code: **NAAMM MBG 534-19**
 Material: **ASTM A1011CS Grade 36**
 Surface: **Smooth**



U = Safe Uniform Load (kPa)
 D_u = Deflection Due to Safe Uniform Load (mm)
 C = Safe Concentrated Load (kN/meter of grating width)
 D_c = Deflection Due to Safe Concentrated Load (mm)
 Allowable Extreme Fiber Stress = 137.9 MPa

Bearing Bar Size (mm)	Approx. Weight (kg/m ²)	Ped. Span (mm)	Load / Deflection	SPAN (mm)														Section Properties	
				305	457	610	762	915	1067	1219	1372	1524	1677	1829	1981	2134	2286	2438	S _x (mm ³)/m
89 x 6	79.8	3,356.00	U	1,666.2	740.9	416.8	266.8	185.3	136.1	104.2	82.4	66.7	55.1	46.3	39.5	34.0	29.7	26.1	140,500
			D _u	0.2	0.3	0.6	0.9	1.4	1.8	2.4	3.0	3.8	4.5	5.4	6.3	7.4	8.4	9.6	
			C	254.1	169.4	127.1	101.7	84.7	72.6	63.6	56.5	50.8	46.2	42.4	39.1	36.3	33.9	31.8	6.25E+6
			D _c	0.1	0.3	0.5	0.8	1.1	1.5	1.9	2.4	3.0	3.6	4.3	5.1	5.9	6.8	7.7	
89 x 10	118.7	3,705.00	U	2,473.3	1,099.7	618.7	396.0	275.1	202.1	154.7	122.3	99.0	81.9	68.8	58.6	50.5	44.0	38.7	208560
			D _u	0.2	0.3	0.6	0.9	1.4	1.8	2.4	3.0	3.8	4.5	5.4	6.3	7.4	8.4	9.6	
			C	377.2	251.5	188.7	150.9	125.8	107.8	94.3	83.9	75.5	68.6	62.9	58.1	53.9	50.3	47.2	9.27E+6
			D _c	0.1	0.3	0.5	0.8	1.1	1.5	1.9	2.4	3.0	3.6	4.3	5.1	5.9	6.8	7.7	
102 x 6	90.4	3,710.00	U	2,176.3	967.7	544.4	348.5	242.0	177.8	136.2	107.6	87.1	72.0	60.5	51.6	44.5	38.7	34.1	183,510
			D _u	0.1	0.3	0.5	0.8	1.2	1.6	2.1	2.7	3.3	4.0	4.7	5.6	6.4	7.4	8.4	
			C	331.9	221.3	166.0	132.8	110.7	94.9	83.0	73.8	66.4	60.4	55.3	51.1	47.4	44.3	41.5	9.32E+6
			D _c	0.1	0.2	0.4	0.7	0.9	1.3	1.7	2.1	2.6	3.2	3.8	4.4	5.1	5.9	6.7	
102 x 10	134.5	4,095.00	U	3,230.5	1,436.4	808.3	517.3	359.3	264.0	202.1	159.7	129.4	106.9	89.8	76.5	66.0	57.5	50.6	272,400
			D _u	0.1	0.3	0.5	0.8	1.2	1.6	2.1	2.7	3.3	4.0	4.7	5.6	6.4	7.4	8.4	
			C	492.6	328.5	246.4	197.1	164.3	140.8	123.2	109.5	98.6	89.6	82.2	75.8	70.4	65.7	61.6	13.84E+6
			D _c	0.1	0.2	0.4	0.7	0.9	1.3	1.7	2.1	2.6	3.2	3.8	4.4	5.1	5.9	6.7	
127 x 10	166.1	4,841.00	U	5,047.6	2,244.3	1,262.7	808.2	561.3	412.4	315.8	249.5	202.1	167.0	140.4	119.6	103.1	89.8	79.0	425,630
			D _u	0.1	0.2	0.4	0.7	0.9	1.3	1.7	2.1	2.6	3.2	3.8	4.4	5.1	5.9	6.7	
			C	769.8	513.3	385.0	308.0	256.7	220.0	192.5	171.1	154.0	140.0	128.4	118.5	110.0	102.7	96.3	27.03E+6
			D _c	0.1	0.2	0.3	0.5	0.8	1.0	1.3	1.7	2.1	2.5	3.0	3.6	4.1	4.7	5.4	
152 x 10	197.7	5,550.00	U	7,268.5	3,231.9	1,818.3	1,163.9	808.3	593.9	454.7	359.3	291.0	240.5	202.1	172.2	148.5	129.4	113.8	612,900
			D _u	0.1	0.2	0.4	0.5	0.8	1.1	1.4	1.8	2.2	2.6	3.2	3.7	4.3	4.9	5.6	
			C	1,108.4	739.1	554.4	443.6	369.6	316.8	277.2	246.4	221.8	201.6	184.8	170.6	158.4	147.9	138.7	46.70E+6
			D _c	0.1	0.2	0.3	0.4	0.6	0.9	1.1	1.4	1.8	2.1	2.5	3.0	3.4	3.9	4.5	

Spans and loads in red exceed a deflection of 6mm for uniform loads of 5kPa. Experience has shown that 6mm 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.

60HW102 (mm)

# of Bars	2	3	4	5	6	7	8	9	10	11
6mm Bars	66	126	186	246	306	366	426	486	546	606
10mm Bars	70	130	190	250	310	370	430	490	550	610
# of Bars	12	13	14	15	16	17	18	19	20	21
6mm Bars	666	726	786	846	906	966	1026	1086	1146	1206
10mm Bars	670	730	790	850	910	970	1030	1090	1150	1210

LOAD TABLES | HEAVY DUTY, METRIC

HEAVY DUTY - METRIC

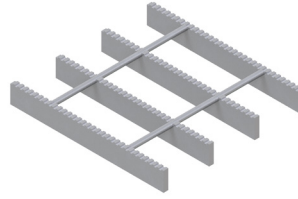
Load Tables - Extra-Wide-Gap

Grating Type: 60HW102

Design Code: NAAMM MBG 534-19

Material: ASTM A1011CS Grade 36

Surface: Serrated



U = Safe Uniform Load (kPa)

D_u = Deflection Due to Safe Uniform Load (mm)

C = Safe Concentrated Load (kN/meter of grating width)

D_c = Deflection Due to Safe Concentrated Load (mm)

Allowable Extreme Fiber Stress = 137.9 MPa

Bearing Bar Size (mm)	Approx. Weight (kg/m ²)	Ped. Span (mm)	Load / Deflection	SPAN (mm)														Section Properties			
				305	457	610	762	915	1067	1219	1372	1524	1677	1829	1981	2134	2286	2438	S _x (mm ³)/m	I _x (mm ⁴)/m	
25 x 6	21.6	1,072.00	U	79.3	35.3	19.8	12.7	8.8	6.5	5.0										6,690	
			D _u	0.7	1.5	2.8	4.3	6.2	8.4	11.0											
			C	12.1	8.1	6.1	4.8	4.0	3.5	3.0											64.90E+3
			D _c	0.6	1.2	2.2	3.4	5.0	6.7	8.8											
32 x 6	26.9	1,327.00	U	140.3	62.4	35.1	22.5	15.6	11.5	8.8	6.9									11,830	
			D _u	0.5	1.2	2.1	3.2	4.7	6.3	8.3	10.5										
			C	21.4	14.3	10.7	8.6	7.1	6.1	5.4	4.8										152.65E+3
			D _c	0.4	0.9	1.7	2.6	3.7	5.1	6.6	8.4										
38 x 6	32.2	1,563.00	U	217.2	96.6	54.3	34.8	24.2	17.8	13.6	10.7	8.7	7.2							18,320	
			D _u	0.4	0.9	1.7	2.6	3.7	5.1	6.7	8.4	10.4	12.6								
			C	33.1	22.1	16.6	13.3	11.0	9.5	8.3	7.4	6.6	6.0								294.01E+3
			D _c	0.3	0.7	1.3	2.1	3.0	4.1	5.3	6.7	8.3	10.1								
38 x 10	45.9	1,726.00	U	322.5	143.4	80.7	51.6	35.9	26.3	20.2	15.9	12.9	10.7	9.0						27,190	
			D _u	0.4	0.9	1.7	2.6	3.7	5.1	6.7	8.4	10.4	12.6	15.0							
			C	49.2	32.8	24.6	19.7	16.4	14.1	12.3	10.9	9.8	8.9	8.2							436.42E+3
			D _c	0.3	0.7	1.3	2.1	3.0	4.1	5.3	6.7	8.3	10.1	12.0							
51 x 6	42.8	2,007.00	U	423.1	188.1	105.9	67.8	47.1	34.6	26.5	20.9	16.9	14.0	11.8	10.0	8.6				35,680	
			D _u	0.3	0.7	1.2	1.9	2.7	3.7	4.8	6.0	7.4	9.0	10.7	12.6	14.6					
			C	64.5	43.0	32.3	25.8	21.5	18.4	16.1	14.3	12.9	11.7	10.8	9.9	9.2					799.25E+3
			D _c	0.2	0.5	1.0	1.5	2.1	2.9	3.8	4.8	6.0	7.2	8.6	10.1	11.7					
64 x 6	53.5	2,421.00	U	697.1	309.9	174.4	111.6	77.5	57.0	43.6	34.5	27.9	23.1	19.4	16.5	14.2	12.4	10.9		58,780	
			D _u	0.2	0.5	0.9	1.5	2.1	2.8	3.7	4.7	5.8	7.0	8.4	9.8	11.4	13.1	14.8			
			C	106.3	70.9	53.2	42.5	35.4	30.4	26.6	23.6	21.3	19.3	17.7	16.4	15.2	14.2	13.3			1.69E+6
			D _c	0.2	0.4	0.7	1.2	1.7	2.3	3.0	3.8	4.6	5.6	6.7	7.8	9.1	10.4	11.9			
76 x 6	64.1	2,812.00	U	1,039.0	462.0	259.9	166.4	115.5	84.9	65.0	51.4	41.6	34.4	28.9	24.6	21.2	18.5	16.3		87,610	
			D _u	0.2	0.4	0.8	1.2	1.7	2.3	3.0	3.9	4.8	5.8	6.8	8.0	9.3	10.7	12.2			
			C	158.4	105.7	79.2	63.4	52.8	45.3	39.6	35.2	31.7	28.8	26.4	24.4	22.6	21.1	19.8			3.08E+6
			D _c	0.2	0.3	0.6	1.0	1.4	1.9	2.4	3.1	3.8	4.6	5.5	6.4	7.5	8.6	9.7			
76 x 10	93.3	3,103.00	U	1,542.2	685.7	385.8	247.0	171.5	126.0	96.5	76.2	61.8	51.0	42.9	36.5	31.5	27.4	24.1		130,050	
			D _u	0.2	0.4	0.8	1.2	1.7	2.3	3.0	3.9	4.8	5.8	6.8	8.0	9.3	10.7	12.2			
			C	235.2	156.8	117.6	94.1	78.4	67.2	58.8	52.3	47.1	42.8	39.2	36.2	33.6	31.4	29.4			4.56E+6
			D _c	0.2	0.3	0.6	1.0	1.4	1.9	2.4	3.1	3.8	4.6	5.5	6.4	7.5	8.6	9.7			

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60HW102 (mm)

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10mm Bars	670	730	790	850	910	970	1030	1090	1150	1210

HEAVY DUTY - METRIC

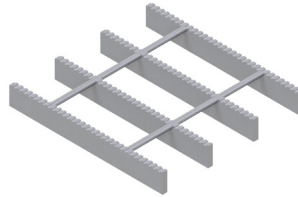
Load Tables - Extra-Wide-Gap

Grating Type: **60HW102**

Design Code: **NAAMM MBG 534-19**

Material: **ASTM A1011CS Grade 36**

Surface: **Serrated**



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C = Safe Concentrated Load (kN/meter of grating width)

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Allowable Extreme Fiber Stress = 137.9 MPa

Bearing Bar Size (mm)	Approx. Weight (kg/m ²)	Ped. Span (mm)	Load / Deflection	SPAN (mm)															Section Properties	
				305	457	610	762	915	1067	1219	1372	1524	1677	1829	1981	2134	2286	2438	S _x (mm ³)/m	I _x (mm ⁴)/m
89 x 6	74.8	3,185.00	U	1,448.9	644.2	362.5	232.0	161.1	118.4	90.6	71.6	58.0	47.9	40.3	34.3	29.6	25.8	22.7	122,180	5.06E+6
			D _u	0.2	0.4	0.6	1.0	1.4	2.0	2.6	3.3	4.0	4.9	5.8	6.8	7.9	9.1	10.3		
			C	221.0	147.3	110.5	88.4	73.7	63.2	55.3	49.1	44.2	40.2	36.8	34.0	31.6	29.5	27.6		
			D _c	0.1	0.3	0.5	0.8	1.2	1.6	2.1	2.6	3.2	3.9	4.6	5.4	6.3	7.2	8.2		
89 x 10	111.3	3,516.00	U	2,150.7	956.3	538.0	344.4	239.2	175.7	134.6	106.3	86.1	71.2	59.8	51.0	43.9	38.3	33.7	181,360	7.52E+6
			D _u	0.2	0.4	0.6	1.0	1.4	2.0	2.6	3.3	4.0	4.9	5.8	6.8	7.9	9.1	10.3		
			C	328.0	218.7	164.0	131.2	109.4	93.8	82.0	72.9	65.6	59.7	54.7	50.5	46.9	43.8	41.0		
			D _c	0.1	0.3	0.5	0.8	1.2	1.6	2.1	2.6	3.2	3.9	4.6	5.4	6.3	7.2	8.2		
102 x 6	85.4	3,544.00	U	1,926.9	856.8	482.0	308.5	214.3	157.4	120.5	95.3	77.2	63.8	53.6	45.7	39.4	34.3	30.2	162,480	7.77E+6
			D _u	0.1	0.3	0.6	0.9	1.3	1.7	2.2	2.8	3.5	4.2	5.0	5.9	6.8	7.9	8.9		
			C	293.8	195.9	147.0	117.6	98.0	84.0	73.5	65.3	58.8	53.5	49.0	45.2	42.0	39.2	36.8		
			D _c	0.1	0.3	0.4	0.7	1.0	1.4	1.8	2.3	2.8	3.4	4.0	4.7	5.5	6.3	7.1		
102 x 10	127.1	3,912.00	U	2,860.2	1,271.7	715.5	458.0	318.1	233.7	178.9	141.4	114.5	94.7	79.5	67.8	58.4	50.9	44.8	241,180	11.53E+6
			D _u	0.1	0.3	0.6	0.9	1.3	1.7	2.2	2.8	3.5	4.2	5.0	5.9	6.8	7.9	8.9		
			C	436.2	290.8	218.2	174.5	145.5	124.7	109.1	97.0	87.3	79.3	72.7	67.1	62.3	58.2	54.6		
			D _c	0.1	0.3	0.4	0.7	1.0	1.4	1.8	2.3	2.8	3.4	4.0	4.7	5.5	6.3	7.1		
127 x 10	158.6	4,668.00	U	4,581.9	2,037.3	1,146.2	733.7	509.5	374.4	286.7	226.5	183.5	151.6	127.4	108.6	93.6	81.5	71.7	386,360	23.37E+6
			D _u	0.1	0.2	0.4	0.7	1.0	1.4	1.8	2.2	2.8	3.3	4.0	4.7	5.4	6.2	7.1		
			C	698.7	465.9	349.5	279.6	233.0	199.7	174.8	155.4	139.8	127.1	116.5	107.6	99.9	93.2	87.4		
			D _c	0.1	0.2	0.4	0.6	0.8	1.1	1.4	1.8	2.2	2.7	3.2	3.7	4.3	5.0	5.6		
152 x 10	190.2	5,386.00	U	6,707.5	2,982.4	1,678.0	1,074.0	745.9	548.1	419.6	331.6	268.6	222.0	186.5	158.9	137.0	119.4	105.0	565,590	41.40E+6
			D _u	0.1	0.2	0.4	0.6	0.8	1.1	1.5	1.8	2.3	2.8	3.3	3.9	4.5	5.1	5.8		
			C	1,022.9	682.1	511.6	409.3	341.1	292.4	255.8	227.4	204.7	186.1	170.6	157.5	146.2	136.5	128.0		
			D _c	0.1	0.2	0.3	0.5	0.7	0.9	1.2	1.5	1.8	2.2	2.6	3.1	3.6	4.1	4.7		

Spans and loads in red exceed a deflection of 6mm for uniform loads of 5kPa. Experience has shown that 6mm 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.

60HW102 (mm)

# of Bars	2	3	4	5	6	7	8	9	10	11
6mm Bars	66	126	186	246	306	366	426	486	546	606
10mm Bars	70	130	190	250	310	370	430	490	550	610
# of Bars	12	13	14	15	16	17	18	19	20	21
6mm Bars	666	726	786	846	906	966	1026	1086	1146	1206
10mm Bars	670	730	790	850	910	970	1030	1090	1150	1210