



GREAT FORGE GRATING SDN BHD

Industrial Grating & Stair Tread



The Company

This catalogue has been compiled to provide Great Forge Grating customers with technical, design and practical datasheet necessary for optimum selection of grating type for wide range of application.

Great Forge Grating offers an engineering service in support of its product range, include the design of the most economical appropriate system for particular application together with shop drawings layout plan if needed. Great Forge Grating has the experience and resources to provide service to wide range of projects regardless of the complexity. Basing on management philosophy of customer orientation, good quality control and perseverance, we strive to provide superior customer service, product quality and on-time delivery in order to gain customers' support and mutual business interest.

General Information

Great Forge Grating are fabricated from various sizes of load/flat bars at various pitches, with square twisted rods forge welded to the upper edges. The constant application of high electrical current and hydraulic pressure in the welding process produces a grate of rigidity and strength capable of supporting load and giving optimum resistance to twisting, distortion and wear.

Great Forge Grating products are quick and easy to install at site as it can be cut into any require sizes, hence, providing time saving and efficiency to customers.

Great Forge Grating

Great Forge Grating is manufactured in various combination of load bar depth and thickness, load bar pitch and cross rod pitch. The full range of standard specification of grating are exhibit on the following pages of this brochure. The range are able to cover the requirement of any client.

The load bars incorporated in Great Forge Grating are produced from steel which conforms to ASTM A36, JIS SS400 and S275JR standard. However, if other grade are required, please contact our sales office.

Treatment

Great Forge Grating are generally supplied in either of two finishes :

1. Untreated – no rust protection which will allow for faster deliveries to customer who fabricate their own grating.
2. Galvanised – this finishing ensure entire surface area are coated by uniform layer of zinc. And as such, suitable for the majority application. Hot-dip Galvanising conforms to BS EN ISO 1461 : 2009 (E) and ASTM A123.



Great Forge Industrial Grating ... Engineered to a Standard

CONTENTS

MANUFACTURING TOLERANCES & TERMINOLOGY

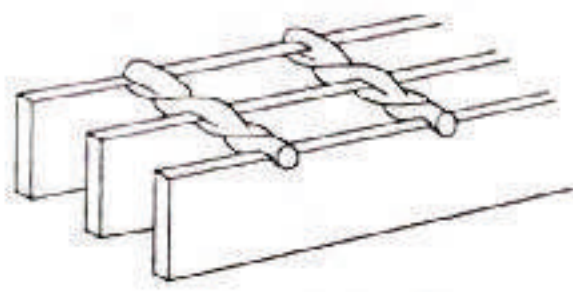
Terminology - Grating	4
Manufacturing Tolerances	8 - 9

FLOORING CONTENT

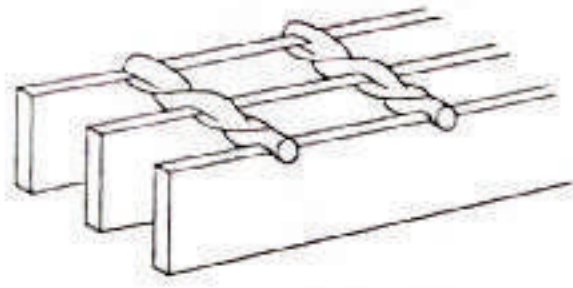
General Features	5
Floor Pattern	6
Application Selection	7
Series 1 - (A Pattern & B Pattern)	10 - 11
Series 2 - (C Pattern & D Pattern)	12 - 13
Stair Treads	14 - 15
FRP Grating	17 - 18

FLOORING ACCESSORIES

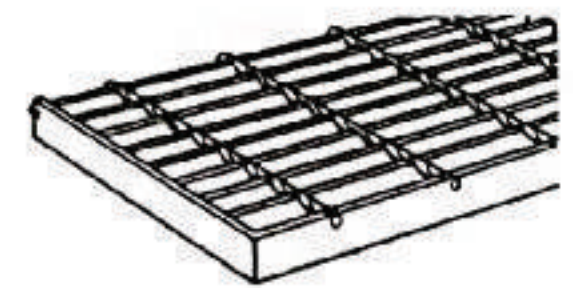
Fixing Clips	16
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Load Bar (Bearing Bar)
Flat Bar from which grating is made.



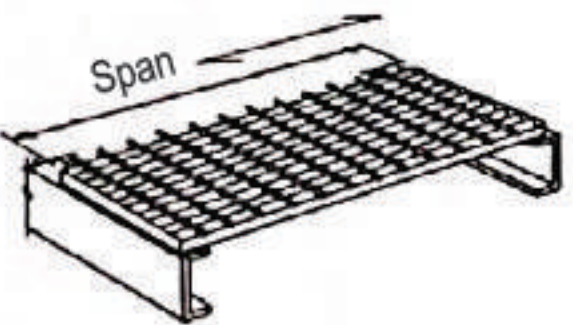
Cross Rod (Twist Bar)
In mild steel, this is a twisted square bar forged into the top of the Load Bar.



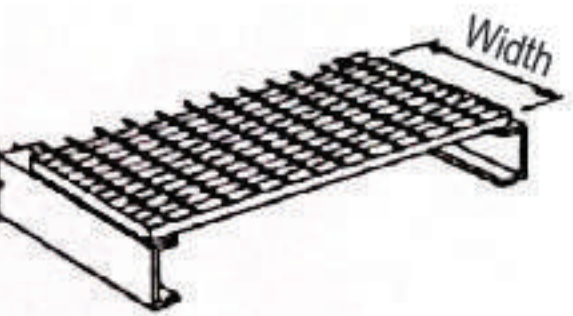
Banded
Refers to the process of welding a banding bar to the loadbars after they have been cut to size to provide a uniform appearance around all sides of a grating panel.



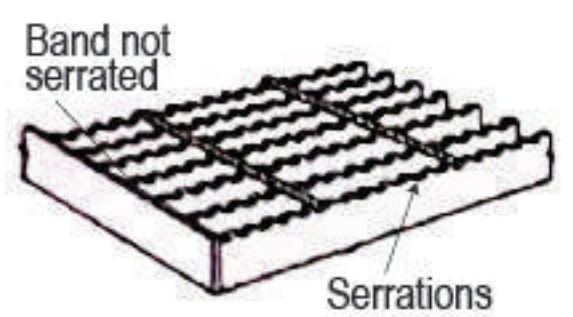
Open Ended
Refers to the process of leaving the panels with a raw cut edge and not banded as described above.



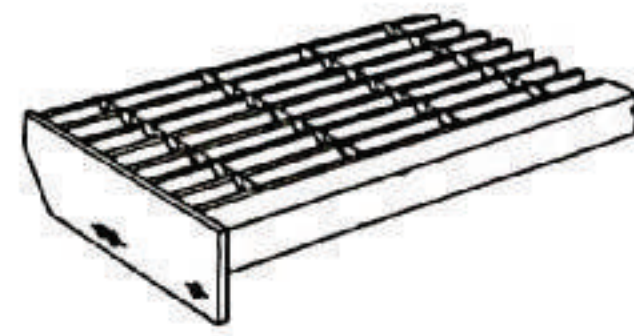
Span
Overall dimension of a panel measured parallel with load bar. Indicated by this symbol



Width
Overall dimension of a panel measured at tight angles to the Load Bars. Always called "Width" even if greater than the length.

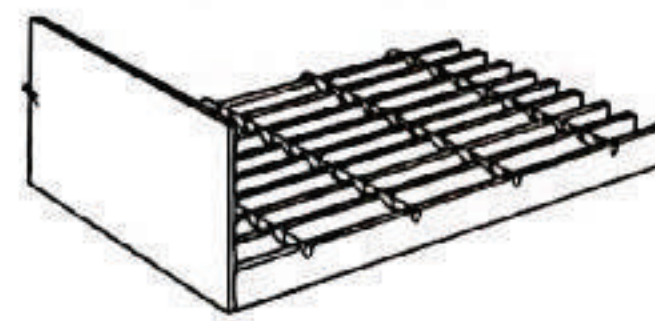


Serrations
Small notches made in the top edge of the Load Bars to assist in slip resistance.

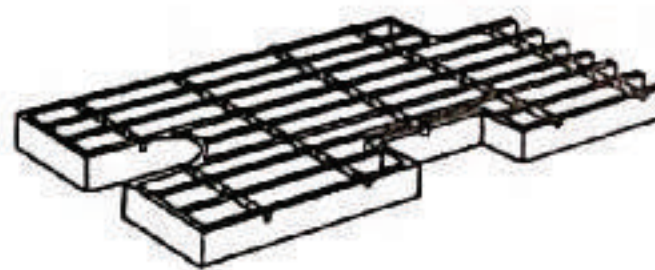


Nosing
A member attached to or on the leading edge of a Stair Tread or at the top of a flight or stairs to assist slip resistance and to give a clear visual indication of the edge of the stairtreads.

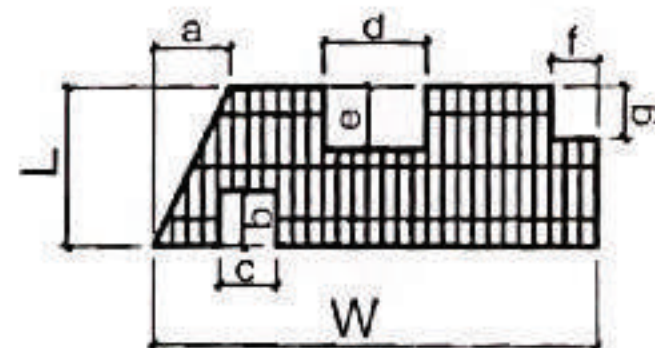
Can be :
• Abrasive
• Chequer Plate



Kick Plate
Heavy section Flat Bar welded to ends or sides of panels and around cut-outs, etc. when specified. Top edge to be 100mm above grating and is typically 125 x 6.

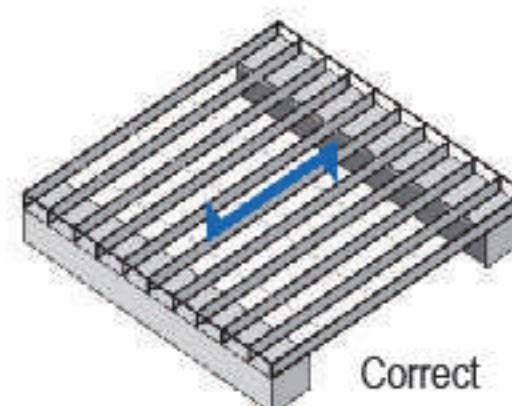


Cut-Out
Grating areas removed from panel to permit passage for installation of pipes, plants and structural, and handrail items.

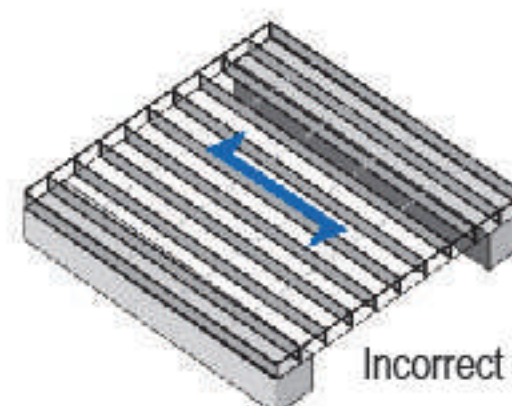


Penetrations
As for cut-out but typically within the grating panel and not on the edge.

Gross Area
The total area of grating as shown on drawings using overall width and length dimensions of grating i.e.: $W \times L$. The gross area is always the area calculated for invoicing purposes.



Correct



Incorrect

Load Bar Direction
The load bar is the flat bar from which the grating is made and the support of the grating has to be perpendicular to this direction. The direction of the load bar defines the span of the grating.

GENERAL FEATURES

Material

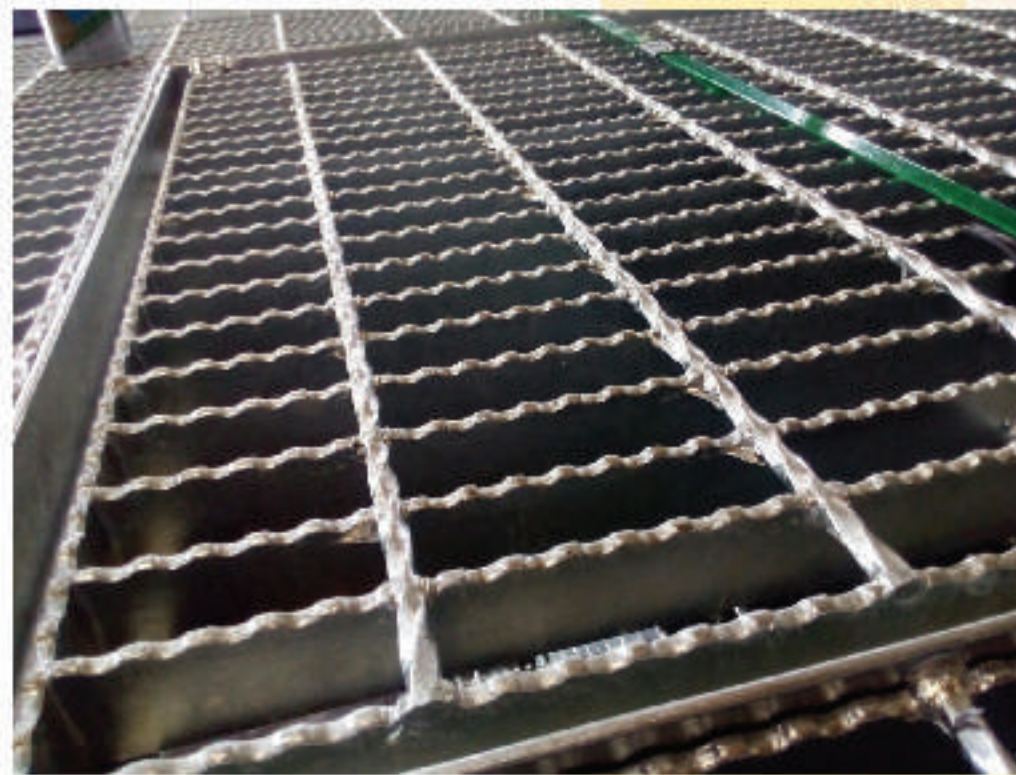
Mild Steel

Recommended for high impact, high load applications where economy and strength are paramount. Grades available include JIS SS400, S275 JR, ASTM A36 or equivalent.

Top Surface

Safety

Slip resistance for flooring and walkway products need to be considered, especially for sloping walkways. Standard grating comprises of plain square edged flat bars and serrated surface (small notches made in the top edge of the load bar), provide non-slip protection over all direction.



Surface Treatment / Colour

Mild Steel Grating

Available in Galvanised BS EN 1461 : 2009 (E), ASTM A123 or Untreated.

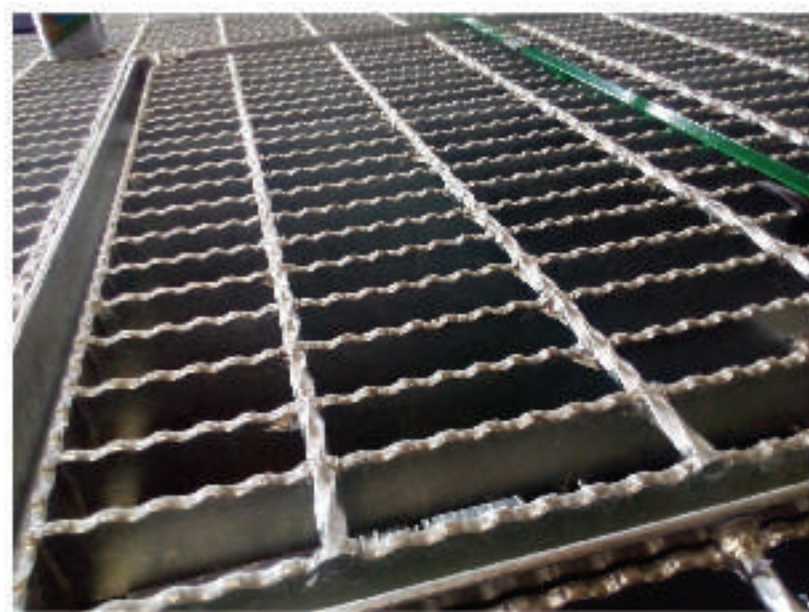
Panel Size

Mild Steel Grating

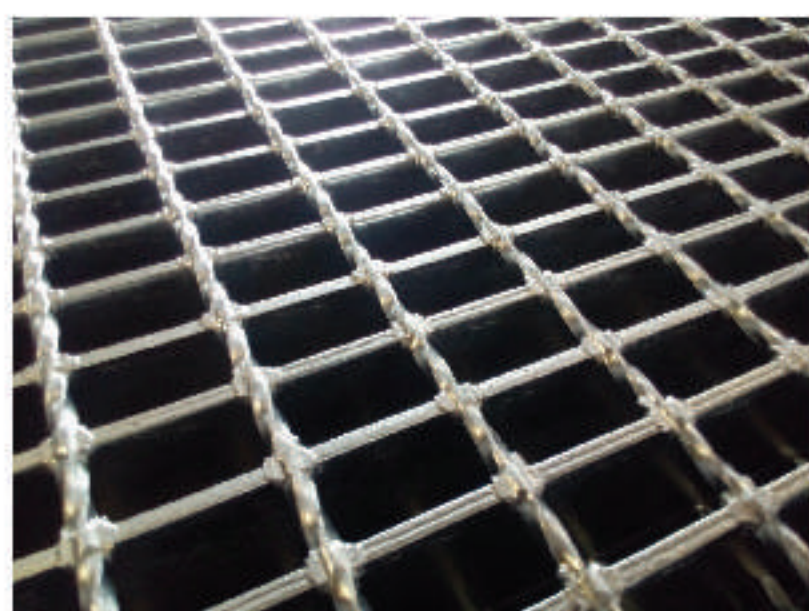
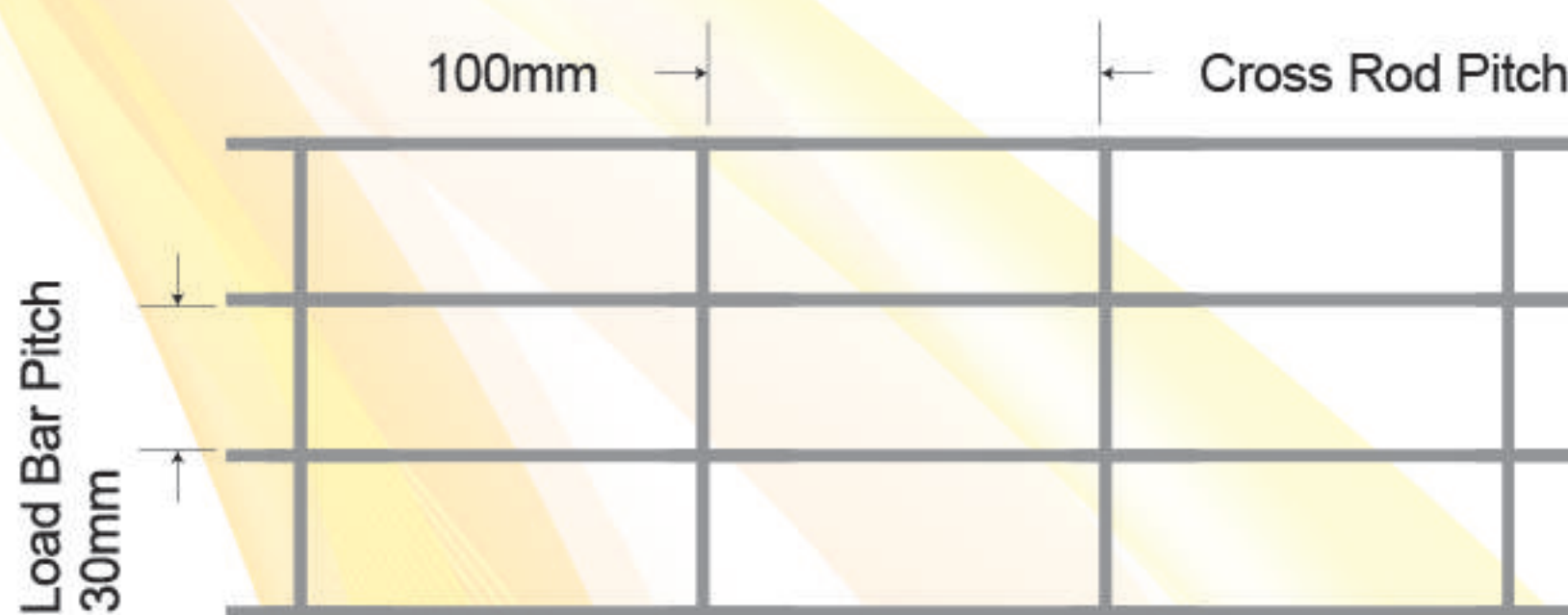
Smaller panel can be made on request or the above panels can be cut down as required. Panel sizes are nominal. Dimensions will vary slightly according to Load Bar thickness and the Pattern. Exact dimensions are shown in the table on page 10 for Series 1 or page 12 for Series 2.

FLOOR PATTERN

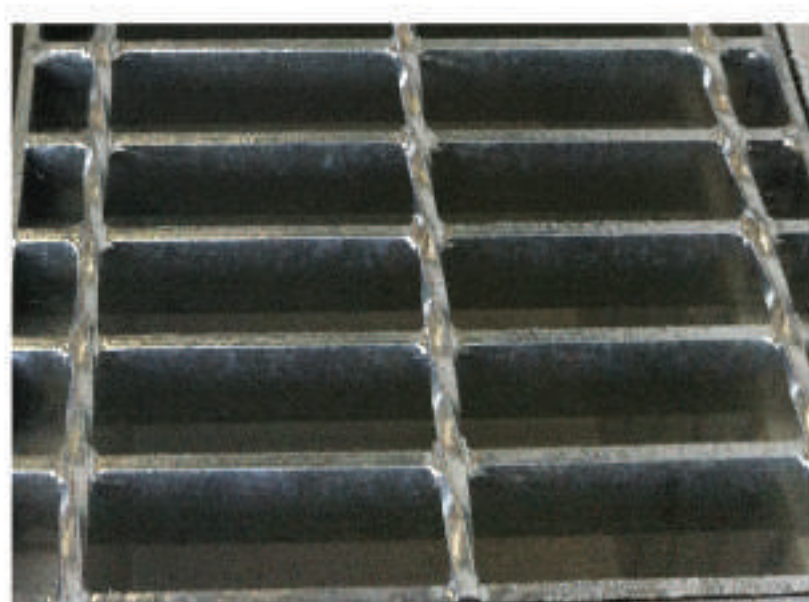
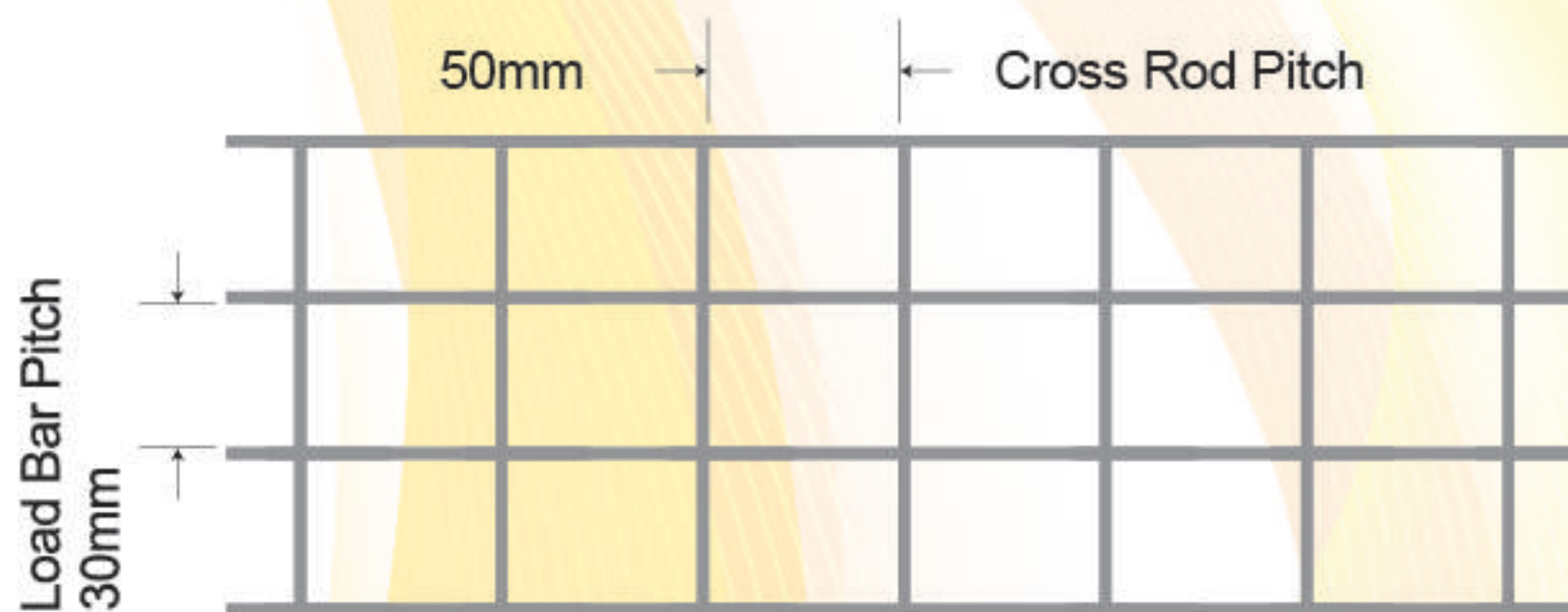
Steel Grating



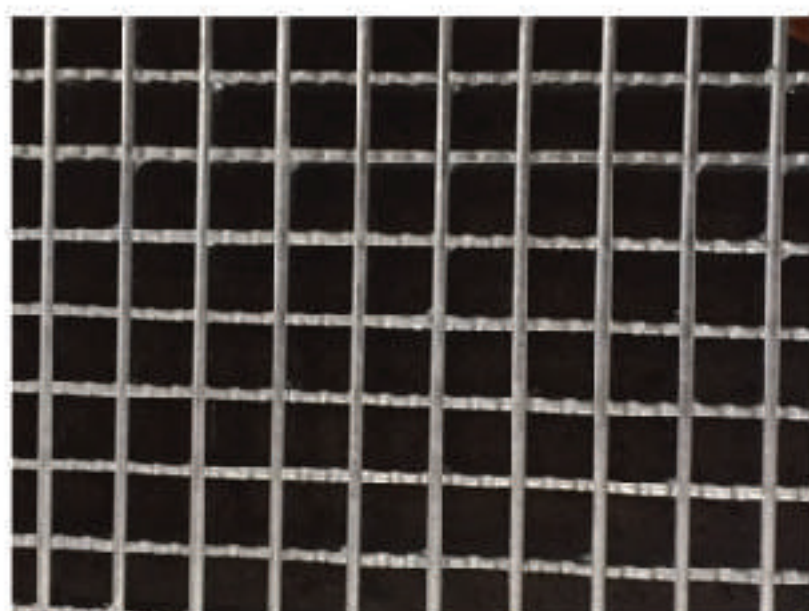
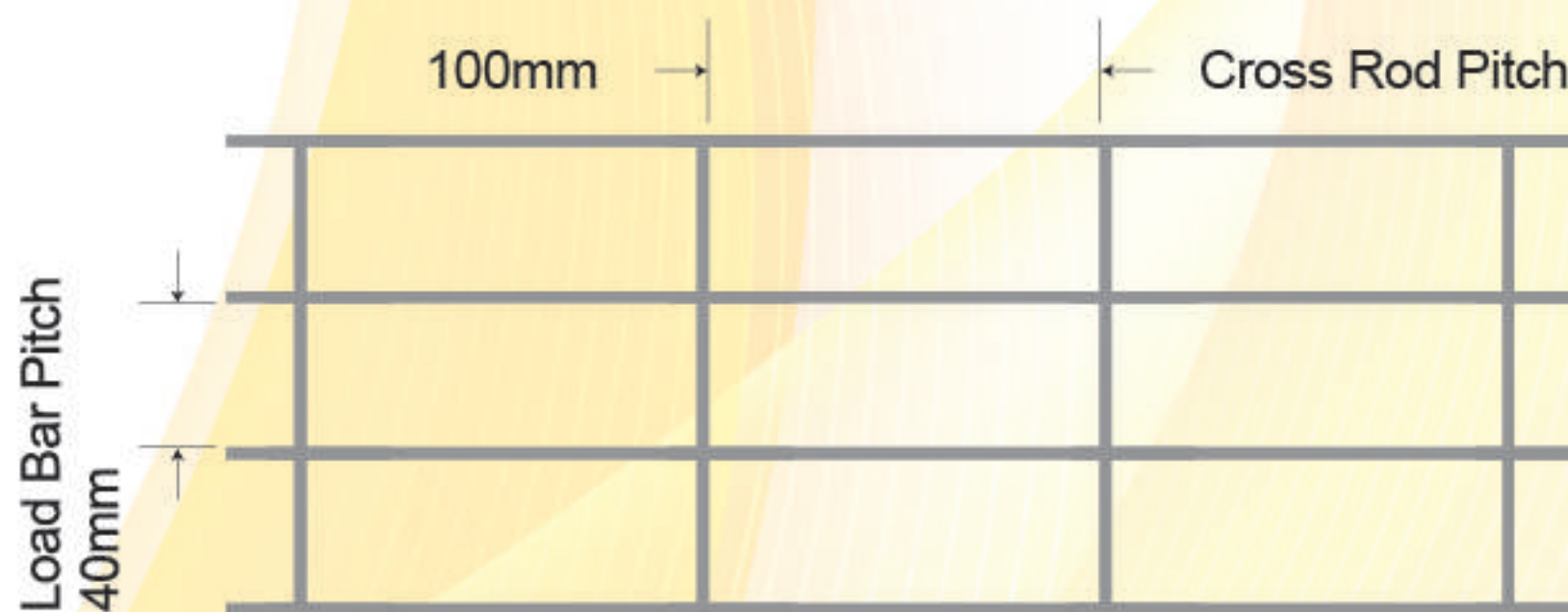
**GA / 1
A Pattern**



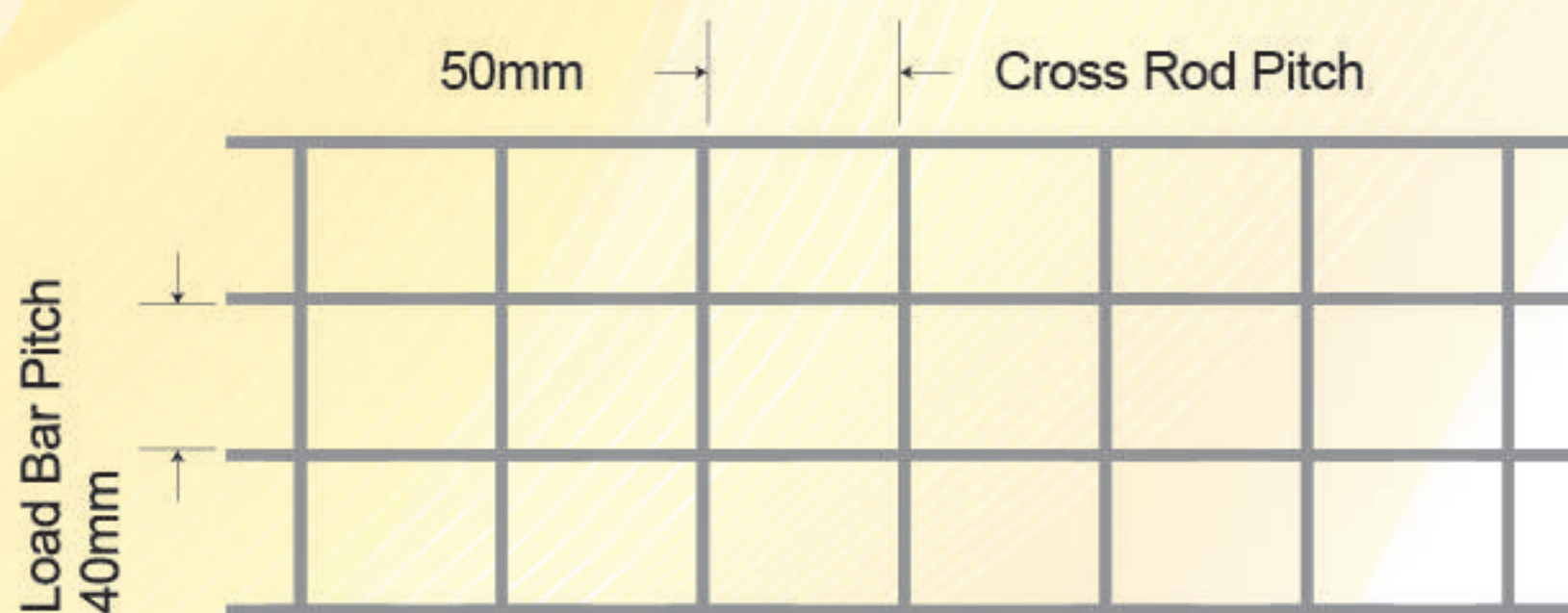
**GB / 1
B Pattern**



**GA / 2
C Pattern**



**GB / 2
D Pattern**



APPLICATION SELECTION

LIGHT & MEDIUM DUTY *Maximum recommended spans (in mm)*

Load Bar Size (mm)	Maintenance floors No Public Use		Pedestrian Traffic Public, Residential and Light Use		Pedestrian Traffic Public, Commercial and Crowd Use	
	UDL = 2.5 kPa Deflection = 5mm		UDL = 3 kPa Deflection = 5mm		UDL = 4 kPa Deflection = 5mm	
	Series 1	Series 2	Series 1	Series 2	Series 1	Series 2
25 x 3	1410	1310	1350	1250	1250	1170
32 x 3	1700	1580	1620	1510	1510	1400
40 x 3	2010	1870	1920	1780	1780	1660
25 x 4.5	1560	1450	1490	1390	1390	1290
32 x 4.5	1880	1750	1790	1670	1670	1550
38 x 4.5	2140	1990	2040	1900	1900	1770
20 x 5	1350	1260	1290	1200	1200	1120
25 x 5	1600	1490	1530	1420	1420	1320
32 x 5	1930	1790	1840	1710	1710	1590
35 x 5	2060	1920	1970	1830	1830	1710
38 x 5	2190	2040	2100	1950	1950	1820
40 x 5	2280	2120	2180	2030	2030	1890

HEAVY DUTY *Maximum recommended spans (in mm)*

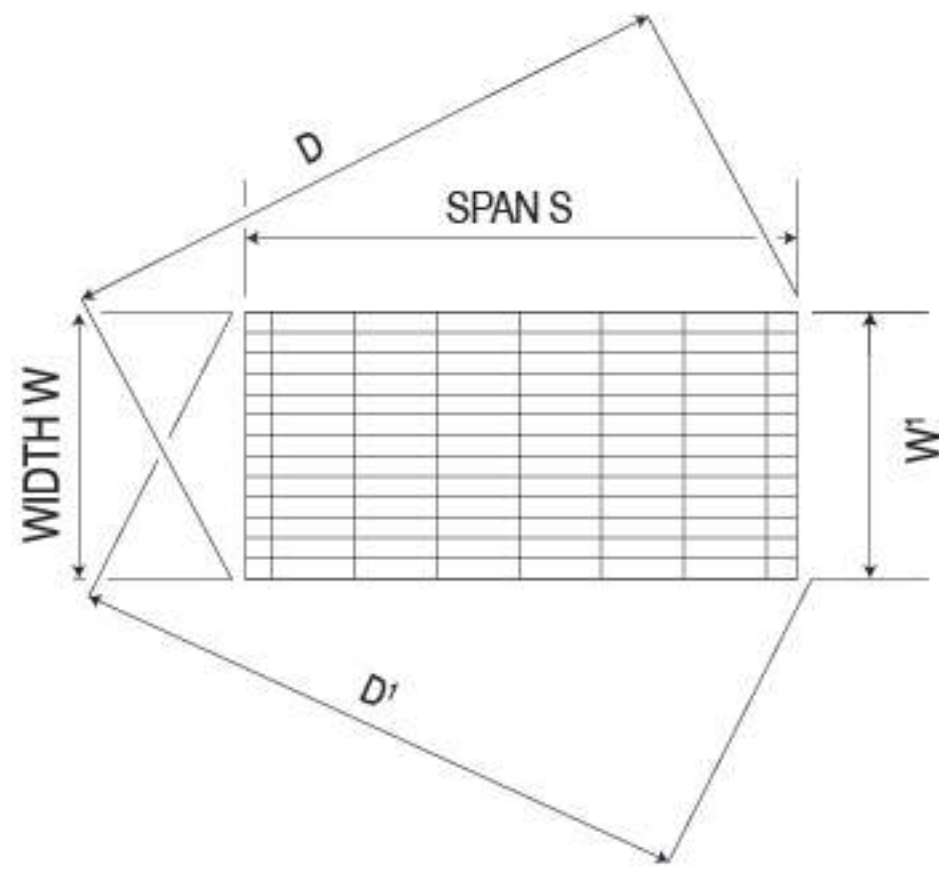
Load Bar Size (mm)	General Factories and Workshops, Motor Rooms, Wheel Trolleys				General Heavy Loading Areas, Boiler Equipments, Heavy Equipment Areas			
	UDL = 5 Kpa Deflection = 5mm Deflection = 10mm				UDL = 7.5 Kpa Deflection = 5mm Deflection = 10mm			
	Series 1	Series 2	Series 1	Series 2	Series 1	Series 2	Series 1	Series 2
25 x 4.5	1310	1220	1560	1450	1180	1100	1410	1310
32 x 4.5	1580	1470	1880	1750	1430	1330	1700	1580
38 x 4.5	1800	1670	2140	1990	1620	1510	1930	1800
25 x 5	1350	1250	1600	1490	1220	1130	1450	1350
32 x 5	1620	1510	1930	1790	1460	1360	1740	1620
35 x 5	1730	1610	2060	1920	1570	1460	1860	1730
38 x 5	1840	1720	2190	2040	1670	1550	1980	1840
40 x 5	1920	1780	2280	2120	1730	1610	2060	1920
45 x 5	2090	1950	2490	2320	1890	1760	2250	2090
50 x 5	2270	2110	2700	2510	2050	1910	2440	2270
55 x 5	2440	2270	2900	2700	2200	2050	2620	2440
65 x 5	2760	2570	3290	3060	2490	2320	2970	2760
75 x 5	3080	2860	3660	3400	2780	2590	3300	3080
75 x 6	3220	3000	3830	3560	2910	2710	3460	3220

NOTE:

U = Safe Superimposed Uniformly Distributed Load in Kilopascal (kPa or kN/2m)
D = Maximum Deflection in Millimeters (mm)
Span : See definition on page 28.
Concentrated Load : Details are available on request.

Other combinations of Pattern and Load Bar beyond those indicated on this Quick Guide are available. Refer to the Load/Deflection Table on pages 7, 9, 11 & 15.

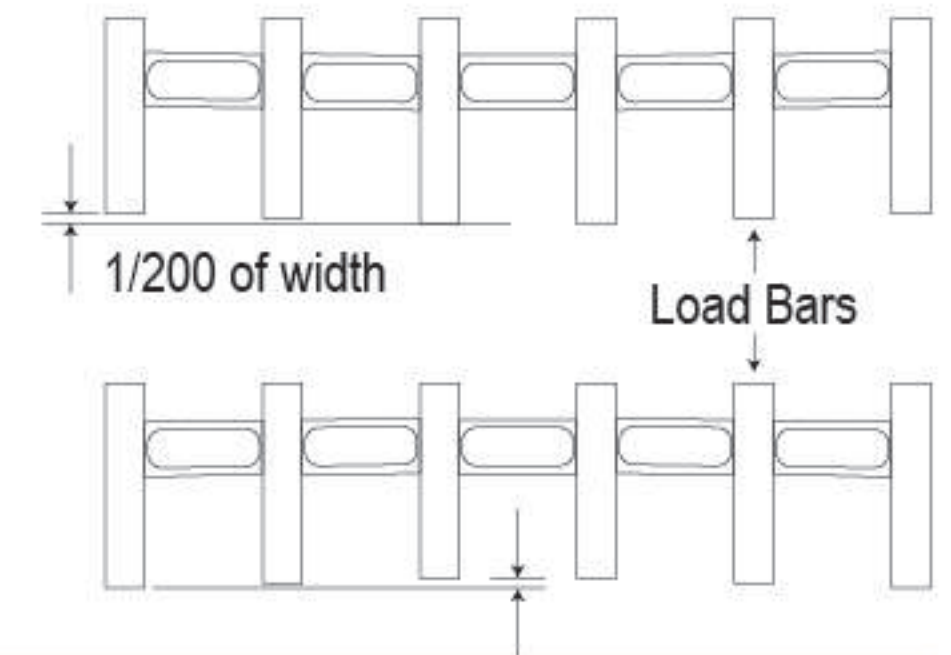
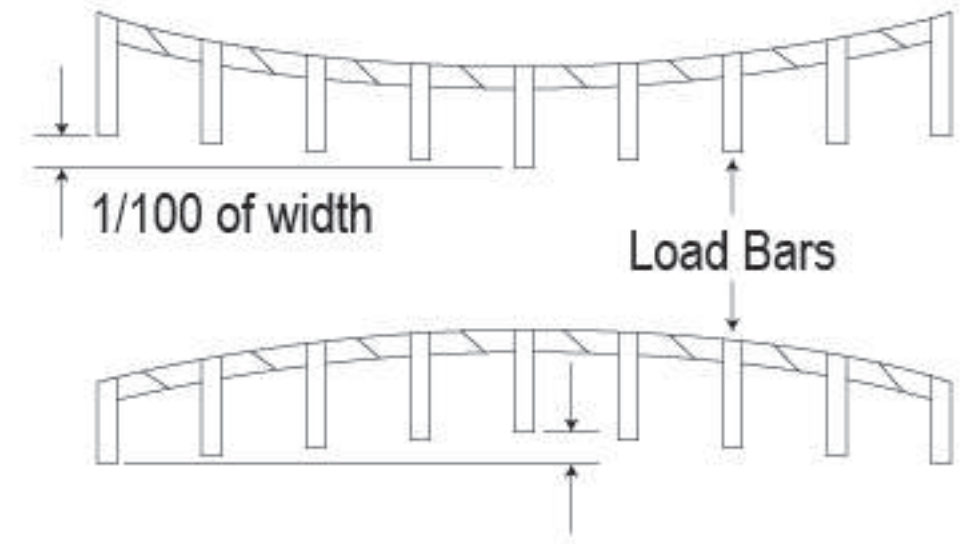
Mild Steel



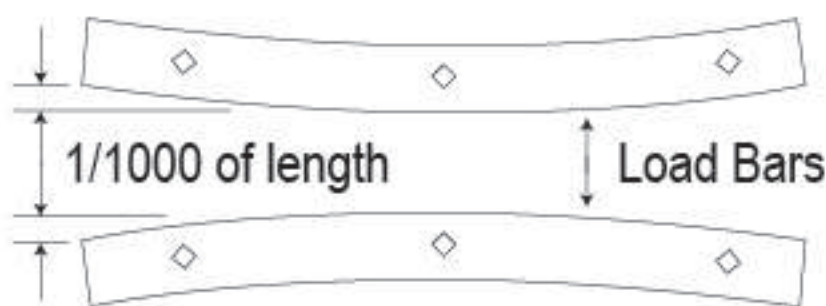
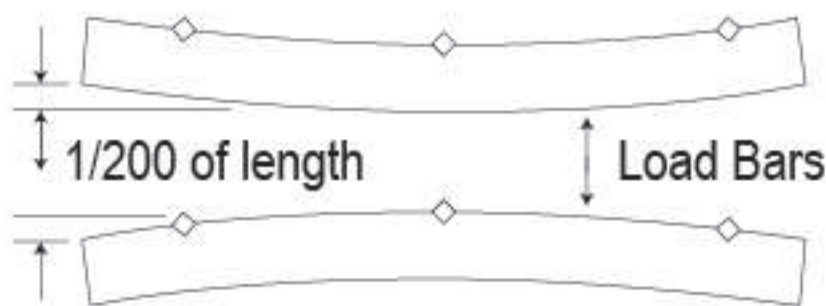
Panel Size mm	S mm	W ₁ mm	D ₁ mm
S ≤ 3000	± 3	W ± 3	D ± 5.5
S ≥ 3000 S ≤ 6000	± S/1000	W ± 3	D ± S/500

Panel Size mm	S mm	W ₁ mm	D ₁ mm
S ≤ 3000	± 3	W ± 3	D ± 3.5
S ≥ 3000 S ≤ 6000	± S/1000	W ± 3	D ± S/500

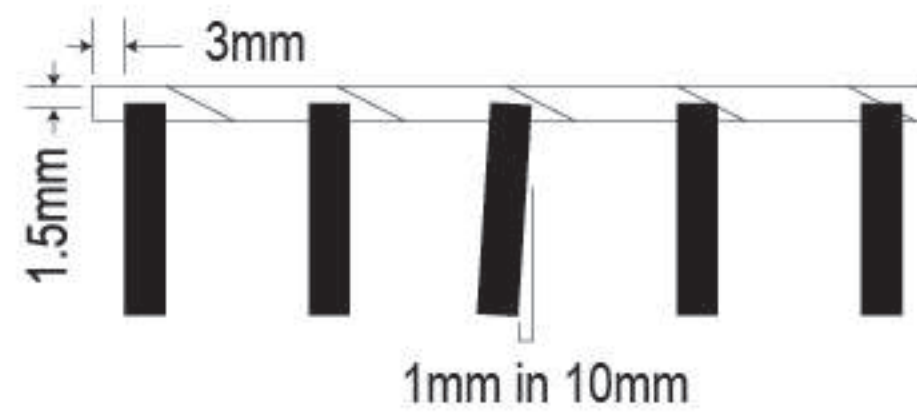
Transverse Bow



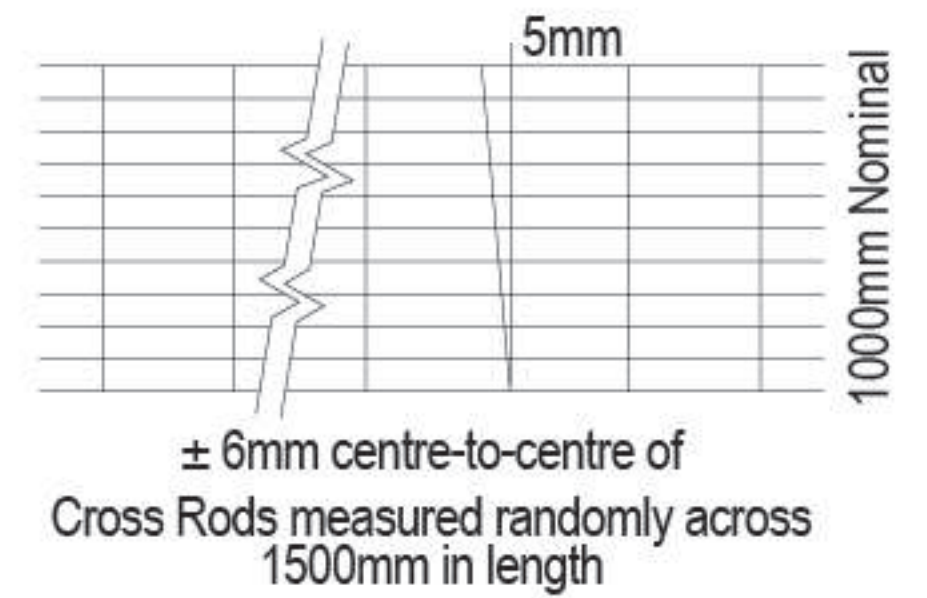
Longitudinal Bow



Cross Rod Location Load Bar Lean



Cross Rod Alignment and Spacing



Fabrication welding

Banding bars and attachments are welded with minimum 3mm fillet to one side of :

- every 5th Load Bar on A & B pattern grating
- every 4th Load Bar on C & D pattern grating

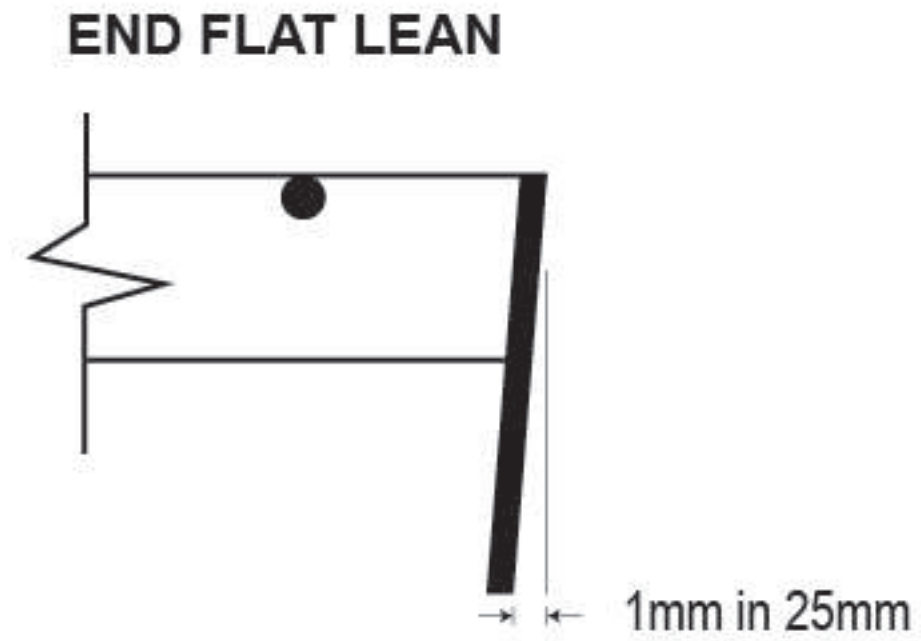
Other welding is applied to cut-outs, splays or circles as appropriate or as requested.

Stair Treads



Fabrication welding

Banding bars and end plates are welded on one side of every Load Bar with a minimum of 3mm fillet weld.



Note : Length of tread is distance between outer faces of the End Flats.

Installation Clearances

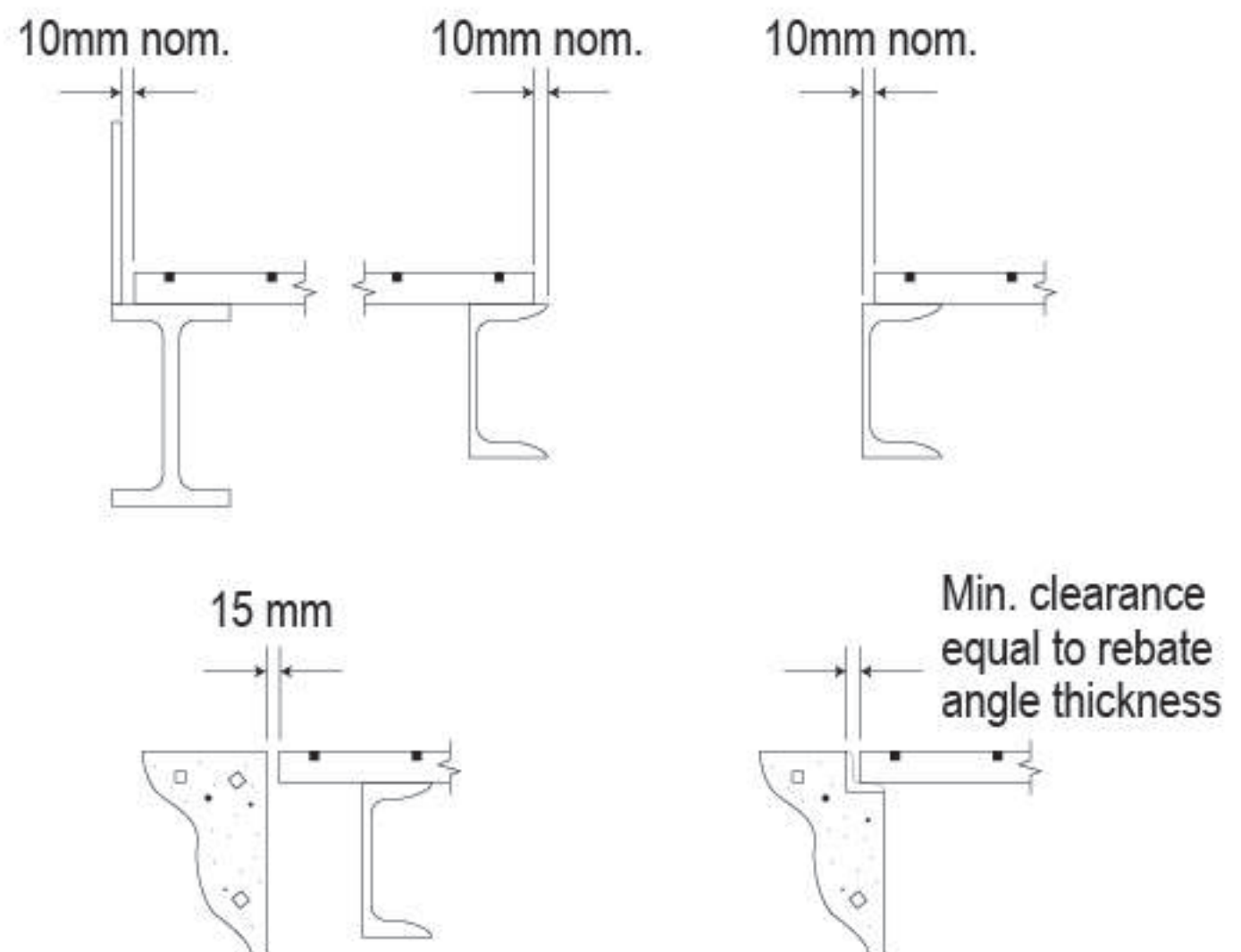
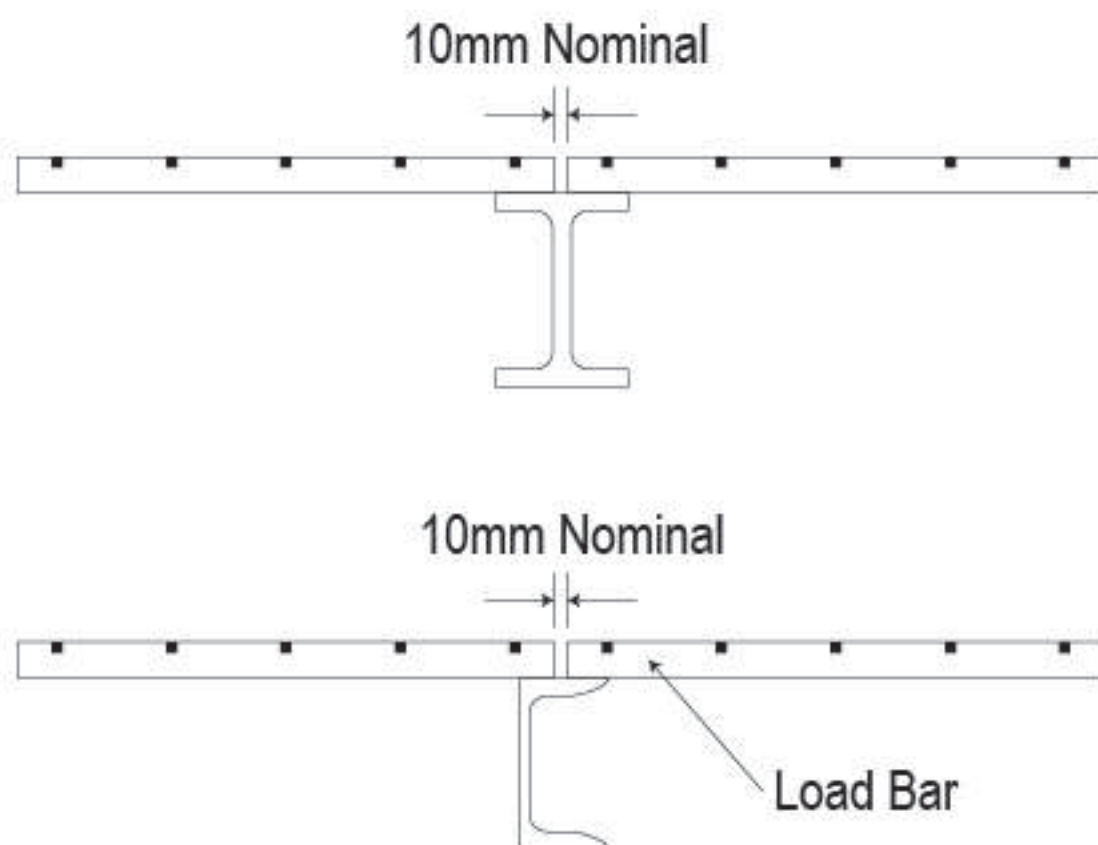
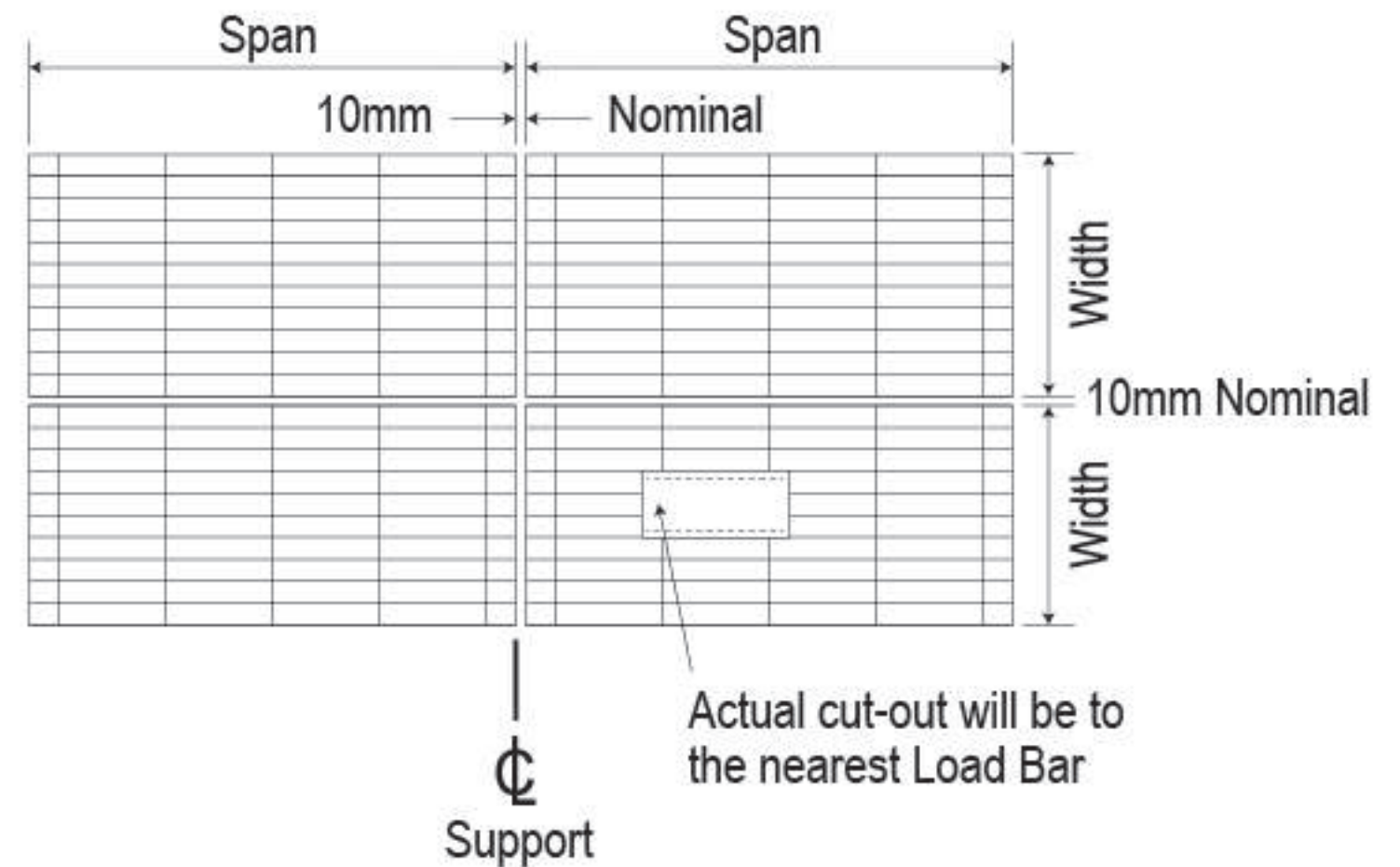
Installation Note

Minimum support dimension :

A minimum of 25mm for Load Boars up to 50mm deep and a minimum of 50mm for Load Bars $> 50\text{mm}$ deep. Great Forge recommends that the land on the support should be equal to the height of the Load Bar.

Grating cantilevers :

Grating cantilevers up to 250mm in the Load Bar direction are acceptable as long as the grating is securely anchored to the supports (not clips). Cantilevers in the Cross Rod direction are not acceptable.



SERIES 1 (A & B Pattern)

This type of grating known as Series 1 grating. Its 30mm load bar centers provide excellent resistance to surface impact, making it ideal for heavy-duty industrial application. The serrated form of Series 1 grating is particularly well-suited for use in wet and greasy areas, where slip resistance is a major concern. As such, it finds widespread use in facilities like refineries, sewerage treatment plants, power stations, and chemical plants, as well on stair treads and offshore production platforms. Overall, Series 1 grating is durable and reliable solution for demanding industrial environments.



Table of Loads and Deflections

Fittings, attachments and treatments will increase the weight of fabricated grating by approximately 12%.

TYPE	PRODUCT CODE	CROSS ROD PITCH (mm)	Mass ² (Kg/m ²)	Load Bar ² Size (mm)	SPAN (mm)																			
					150	300	450	600	750	900	1050	1200	1500	1800	2100	2400	2700	3000	3300	3600				
GA253/1	A253M**	100	22.8	25 x 3	U	629	157	70	39	25	17	13	10	6	4	3	2							
GB253/1	B253M**	50	25.7		D	0.16	0.64	1.45	2.57	4.02	5.80	7.88	10.30	16.09	23.17	31.53	41.18							
GA254.5/1	A254.5M**	100	32.9	25 X 4.5	U	953	238	106	59	38	26	19	15	9	6	5	3							
GB254.5/1	B254.5M**	50	35.8		D	0.16	0.64	1.45	2.57	4.02	5.79	7.88	10.30	16.09	23.17	31.53	41.18							
GA255/1	A255M**	100	36.2	25 X 5	U	1048	262	115	65	42	29	21	16	10	7	5	4							
GB255/1	B255M**	50	39.0		D	0.16	0.64	1.45	2.57	4.02	5.79	7.88	10.30	16.09	23.17	31.53	41.18							
GA323/1	A323M**	100	28.4	32 X 3	U	1031	257	114	64	41	28	21	16	10	7	5	4	3						
GB323/1	B323M**	50	31.3		D	0.13	0.50	1.13	2.01	3.14	4.52	6.16	8.04	12.57	18.10	24.63	32.18	40.72						
GA324.5/1	A324.5M**	100	41.3	32 X 4.5	U	1562	390	173	97	62	43	31	24	15	10	8	6	4						
GB324.5/1	B324.5M**	50	44.2		D	0.13	0.50	1.13	2.01	3.14	4.52	6.16	8.04	12.57	18.10	24.63	32.18	40.72						
GA325/1	A325M**	100	45.5	32 X 5	U	1718	429	190	107	68	47	35	26	17	11	8	6	5						
GB325/1	B325M**	50	48.4		D	0.13	0.50	1.13	2.01	3.14	4.52	6.16	8.04	12.57	18.10	24.63	32.18	40.72						
GA403/1	A403M**	100	34.9	40 X 3	U	1610	402	179	100	64	44	33	25	16	11	8	6	5	4					
GB403/1	B403M**	50	37.7		D	0.10	0.40	0.90	1.61	2.51	3.62	4.93	6.44	10.05	14.48	19.71	25.74	32.58	40.22					
GA355/1	A355M**	100	49.6	35 X 5	U	2076	519	230	129	83	57	42	32	20	14	10	8	6						
GB355/1	B355M**	50	52.5		D	0.11	0.46	1.03	1.84	2.87	4.14	5.63	7.35	11.49	16.55	22.52	29.42	37.23						
GA384.5/1	A384.5M**	100	48.5	38 X 4.5	U	2202	550	244	137	88	61	44	34	22	15	11	8	6						
GB384.5/1	B384.5M**	50	51.4		D	0.11	0.42	0.95	1.69	2.65	3.81	5.19	6.77	10.58	15.24	20.74	27.09	34.29						
GA385/1	A385M**	100	53.6	38 X 5	U	2447	611	271	152	97	67	49	38	24	16	12	9	7	6					
GB385/1	B385M**	50	56.5		D	0.11	0.42	0.95	1.69	2.65	3.81	5.19	6.77	10.58	15.24	20.74	27.09	34.29	42.34					
GA405/1	A405M**	100	56.2	40 X 5	U	2684	671	298	167	107	74	54	41	26	18	13	10	8	6					
GB405/1	B405M**	50	59.0		D	0.10	0.40	0.90	1.16	2.51	3.62	4.93	6.44	10.05	14.48	19.71	25.74	32.58	40.22					
GA455/1	A455M**	100	62.9	45 X 5	U	3397	849	377	212	135	94	69	52	33	23	17	13	10	8	6				
GB455/1	B455M**	50	65.7		D	0.09	0.34	0.80	1.43	2.23	3.22	4.38	5.72	8.94	12.87	17.52	22.88	28.96	35.75	43.26				
GA505/1	A505M**	100	69.6	50 X 5	U	4194	1048	465	261	167	116	85	65	41	28	21	16	12	10	8	7			
GB505/1	B505M**	50	72.4		D	0.08	0.32	0.72	1.29	2.01	2.90	3.94	5.15	8.04	11.58	15.77	20.59	26.06	32.18	38.93	46.33			
GA655/1	A655M**	100	89.6	65 X 5	U	7088	1771	787	442	283	196	144	110	70	48	35	27	21	17	14	11			
GB655/1	B655M**	50	92.4		D	0.06	0.25	0.56	0.99	1.55	2.23	3.03	3.96	6.19	8.91	12.13	15.84	20.05	24.75	29.95	35.64			

Spans to the left of the **RED LINE** in the Table have a deflection, $D < 5\text{mm}$ for $U = 4\text{kPa}$, which is a limiting deflection for pedestrian comfort.

- Note:**
- 1) The full product code is shown on page 6 of this brochure. (e.g. A255MSG).
 - 2) Mass calculated are for untreated gratings.
 - 3) Other load bar sizes are available upon request - Stainless Steel will be provided in either 30 x 5 or 32 x 5 depending on availability.

U = Safe Superimposed Uniformly Distributed Load in Kilopascals (kPa or kN/m²).
D - Maximum Deflection in Millimeters (mm).

Nominal O/A Dimension of Bars (in mm)

No. of Bars	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
5mm Load Bars	95	125	155	185	215	245	275	305	335	365	395	425	455	485	515	545
No. of Bars	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	
5mm Load Bars	575	605	635	665	695	725	755	785	815	845	875	905	935	965	995	

- Note:**
- For 3mm load bars subtract 2mm from widths.
 - Width dimensions can vary due to manufacturing process.

Serrated Conversion Factors

Load Bar	20 x 3	20 x 5	25 x 3	25 x 4.5	25 x 5	32 x 3	32 x 4.5	32 x 5	35 x 4.5	35 x 5	38 x 5	40 x 3	40 x 5
Load	Not Recommended		0.79	0.79	0.79	0.83	0.83	0.83	0.85	0.85	0.86	0.87	0.87
Deflection	Not Recommended		1.12	1.12	1.12	1.09	1.09	1.09	1.08	1.08	1.07	1.07	1.07
Load Bar	45 x 5	50 x 5	65 x 5										
Load	0.88	0.89	0.92										
Deflection	1.07	1.06	1.04										

SERIES 2 (C & D Pattern)

The design of series 2 grating with 40mm load bar centers making it lighter and more affordable than series 1 grating.

Series 2 grating is ideal for use in industrial and commercial settings, where there is a need for a strong and durable flooring material that can withstand heavy loads and constant foot traffic. It can be used in both indoor and outdoor applications, and is resistant to corrosion and weathering.

Overall, series 2 grating is a versatile and cost-effective solution for a variety of flooring and structural applications. Its lightweight construction and ease of fabrication make it an attractive choice for architects, engineers, and contractors looking for a reliable and affordable grating material.



Table of Loads and Deflections

Fittings, attachments and treatments will increase the weight of fabricated gratings by approximately 14%.

TYPE	PRODUCT CODE	CROSS ROD PITCH (mm)	Mass ² (Kg/m ²)	Load Bar ² Size (mm)		SPAN (mm)																	
						150	300	450	600	750	900	1050	1200	1500	1800	2100	2400	2700	3000	3300	3600		
GA253/2	C253M**	100	17.5	25 x 3	U	476	119	53	30	19	13	10	7	5	3	2	2						
GB253/2	D253M**	50	20.4		D	0.16	0.64	1.44	2.57	4.02	5.79	7.88	10.29	16.08	23.16	31.53	41.18						
GA254.5/2	C254.5M**	100	25.4	25 X 4.5	U	715	178	79	44	28	20	14	11	7	5	3	3						
GB254.5/2	D254.5M**	50	28.3		D	0.16	0.64	1.45	2.57	4.02	5.79	7.88	10.30	16.09	23.17	31.53	41.18						
GA255/2	C255M**	100	27.4	25 X 5	U	794	198	88	49	31	22	16	12	8	5	4	3						
GB255/2	D255M**	50	30.2		D	0.16	0.64	1.44	2.57	4.02	5.79	7.88	10.29	16.08	23.16	31.53	41.18						
GA323/2	C323M**	100	21.7	32 X 3	U	781	195	87	49	31	21	16	12	8	5	4	3	2					
GB323/2	D323M**	50	24.5		D	0.12	0.50	1.13	2.01	3.14	4.52	6.16	8.04	12.56	18.90	24.63	32.17	40.72					
GA324.5/2	C324.5M**	100	31.7	32 X 4.5	U	1171	293	130	73	47	32	24	18	11	8	6	4	3					
GB324.5/2	D324.5M**	50	34.6		D	0.13	0.50	1.13	2.01	3.14	4.52	6.15	8.04	12.57	18.10	24.63	32.18	40.72					
GA325/2	C325M**	100	34.2	32 X 5	U	1301	325	144	81	52	36	26	20	13	9	6	5	4					
GB325/2	D325M**	50	37.1		D	0.12	0.50	1.13	2.01	3.14	4.52	6.15	8.04	12.56	18.09	24.63	32.17	40.72					
GA403/2	C403M**	100	26.4	40 X 3	U	1220	305	135	76	49	34	25	19	12	8	6	4	3	3				
GB403/2	D403M**	50	29.2		D	0.10	0.40	0.90	1.61	2.51	3.62	4.93	6.44	10.05	14.48	19.71	25.74	32.58	40.22				
GA355/2	C355M**	100	37.9	35 X 5	U	1557	389	173	97	62	43	31	24	15	10	8	6	4					
GB355/2	D355M**	50	40.8		D	0.11	0.46	1.03	1.84	2.87	4.14	5.63	7.35	11.49	16.55	22.52	29.42	37.23					
GA384.5/2	C384.5M**	100	37.1	38 X 4.5	U	1652	413	183	103	66	45	33	25	16	11	8	6	5					
GB384.5/2	D384.5M**	50	40.0		D	0.11	0.42	0.95	1.69	2.65	3.81	5.19	6.77	10.58	15.24	20.74	27.09	34.29					
GA385/2	C385M**	100	40.9	38 X 5	U	1835	458	204	114	73	51	37	28	18	12	9	7	5	4				
GB385/2	D385M**	50	43.8		D	0.11	0.42	0.95	1.69	2.65	3.81	5.19	6.77	10.58	15.24	20.74	27.09	34.29	42.34				
GA405/2	C405M**	100	42.1	40 X 5	U	2033	508	226	127	81	56	41	31	20	14	10	8	6	5				
GB405/2	D405M**	50	44.9		D	0.10	0.40	0.90	1.60	2.51	3.61	4.92	6.43	10.05	14.47	19.70	25.74	32.57	40.21				
GA455/2	C455M**	100	47.0	45 X 5	U	2574	643	286	160	102	71	52	40	25	17	13	10	7	6	5			
GB455/2	D455M**	50	49.8		D	0.08	0.35	0.80	1.43	2.23	3.21	4.37	5.72	8.93	12.87	17.51	22.88	28.95	35.75	43.25			
GA505/2	C505M**	100	51.9	50 X 5	U	3177	794	353	198	127	88	64	49	31	22	16	12	9	7	6	5		
GB505/2	D505M**	50	54.7		D	0.08	0.32	0.72	1.28	2.01	2.89	3.94	5.14	8.04	11.58	15.76	20.59	26.06	32.17	38.93	46.33		
GA655/2	C655M**	100	66.6	65 X 5	U	5370	1342	596	335	214	149	109	83	53	37	27	20	16	13	10	9		
GB655/2	D655M**	50	69.4		D	0.06	0.25	0.56	0.99	1.55	2.23	3.03	3.96	6.19	8.91	12.13	15.84	20.05	24.75	29.95	35.64		

Spans to the left of the **RED LINE** in the Table have a deflection, D < 5mm for U = 4kPa, which is a limiting deflection for pedestrian comfort.

- Note:**
- 1) The full product code is shown on page 6 of this brochure. (e.g. A255MSG).
 - 2) Mass calculated are for untreated gratings.
 - 3) Other load bar sizes are available upon request - Stainless Steel will be provided in either 30 x 5 or 32 x 5 depending on availability.

U = Safe Superimposed Uniformly Distributed Load in Kilopascals (kPa or kN/m²).
 D - Maximum Deflection in Millimeters (mm).

Nominal O/A Dimension of Bars (in mm)

No. of Bars	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
5mm Load Bars	125	165	205	245	285	325	365	405	445	485	525	565	605	645	685	725
No. of Bars	20	21	22	23	24	25	26									
5mm Load Bars	765	805	845	885	925	965	1005									

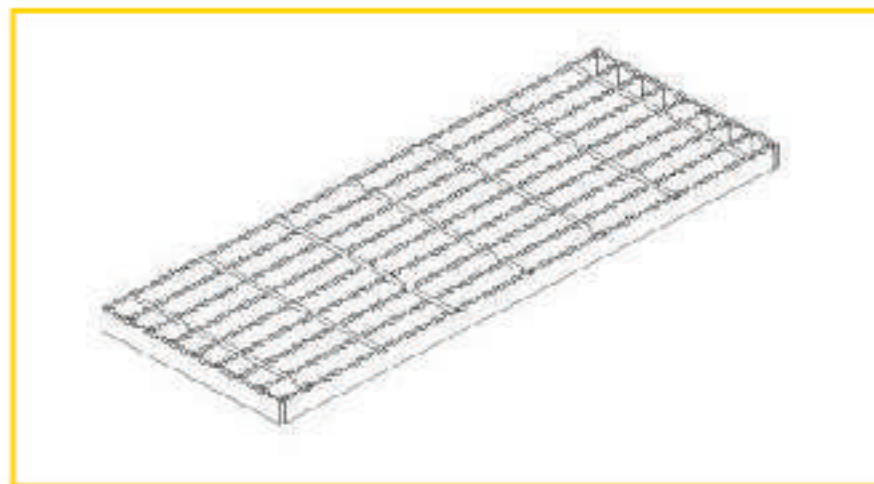
- Note:**
- For 3mm load bars subtract 2mm from widths.
 - Width dimensions can vary due to manufacturing process.

Serrated Conversion Factors

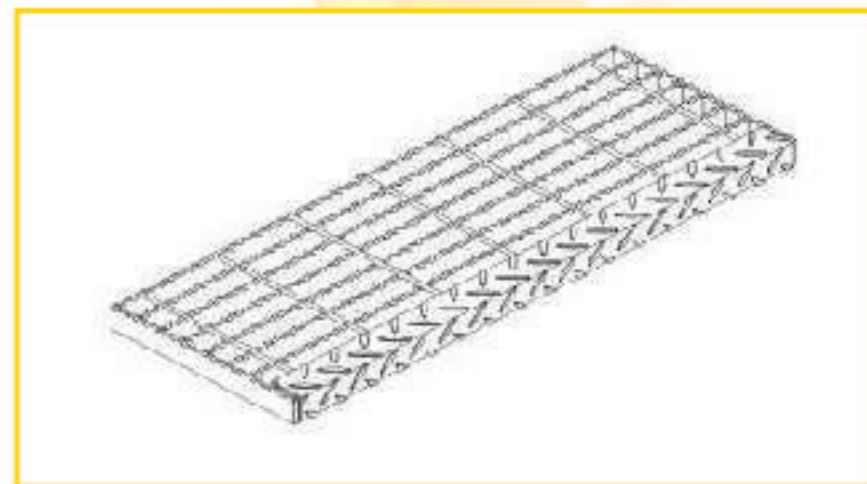
Load Bar	20x3	20x5	25x3	25x4.5	25x5	32x3	32x4.5	32x5	35x4.5	35x5	38x5	40x3	40x5
Load	Not Recommended		0.79	0.79	0.79	0.83	0.83	0.83	0.85	0.85	0.86	0.87	0.87
Deflection			1.12	1.12	1.12	1.09	1.09	1.09	1.08	1.08	1.07	1.07	1.07
Load Bar	45x5	50x5	65x5										
Load	0.88	0.89	0.92										
Deflection	1.07	1.06	1.04										

MILD STEEL

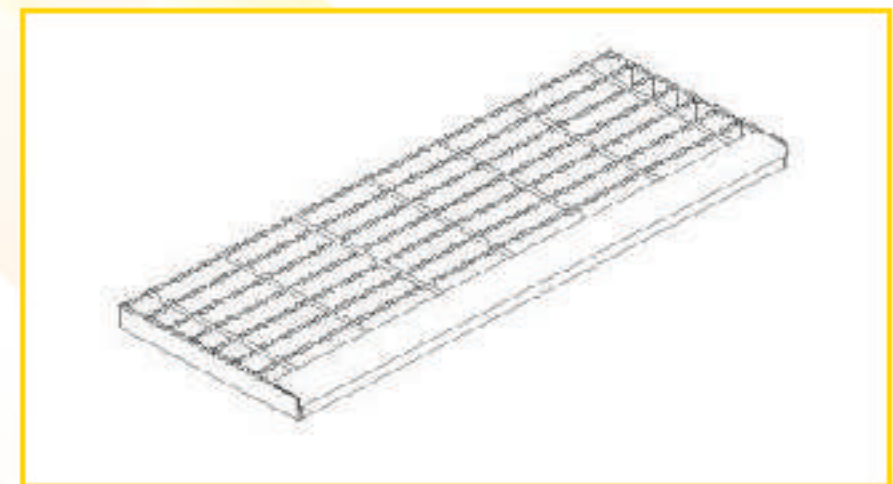
Stair treads can be made from any type of grating and with any dimensions which suit the relevant stairway. In the interest of economy, we suggest that the recommended widths and lengths be used wherever possible.



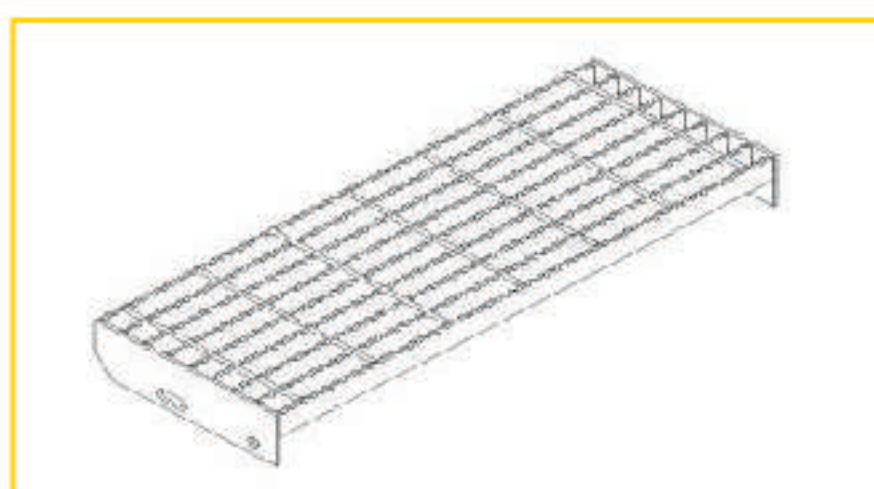
GT1
WELDED Fixing, Banded Ends,
No Nosing.



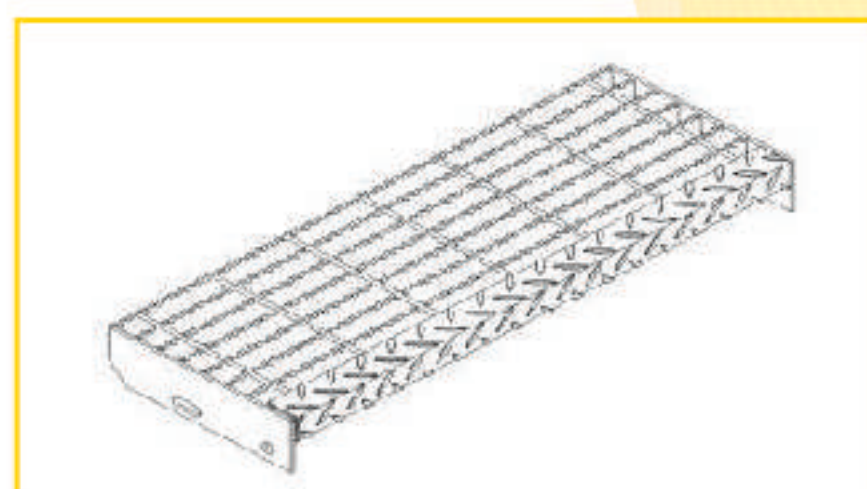
GT3
WELDED Fixing, Banded Ends,
Floor Plate Nosing.



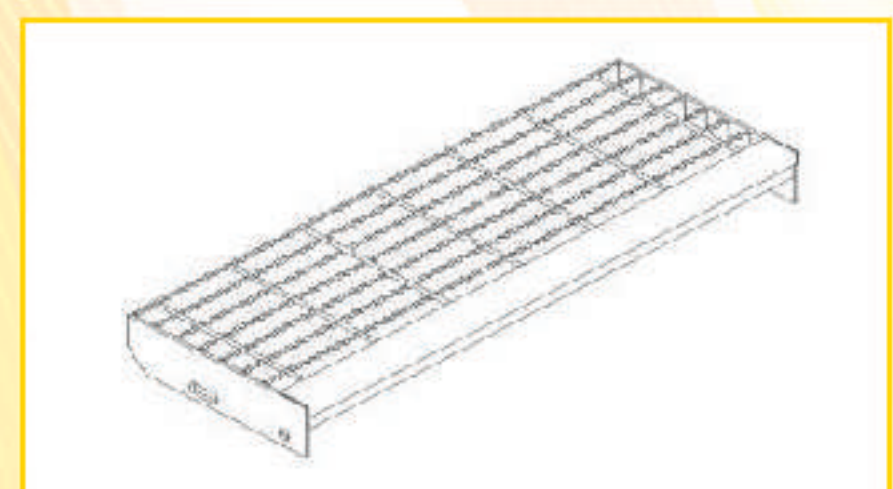
GT5
WELDED Fixing, Banded Ends,
Abrasive Nosing.



GT2
BOLTED Fixing, Holed Ends
Plate, No Nosing.



GT4
BOLTED Fixing, Holed Ends
Plate, Floor Plate Nosing.



GT6
BOLTED Fixing, Holed Ends
Plate, Abrasive Nosing.

Recommended Maximum Lengths For Grating Patterns

Steel

Load Bar Size	25 x 5	32 x 5	40 x 5
A / B Pattern	900	1300	1600
C / D Pattern	750	1200	1500
F Pattern	550	850	1350
G Pattern	-	-	-

Recommended Tread Widths For Grating Patterns

A / B Pattern	125	155	185	215	245	275	305
C / D Pattern	125	165	-	205	245	285	325
F Pattern	125	-	185	-	245	275	305
G Pattern	-	-	-	-	234	272	310

Bolted Connection

Bolt Hole 'A'	45	75	75	100	100	125	125
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HOW TO ORDER

How to Order Mild Steel Treads

1. Choose the standard tread shown or design your own as follows :
2. Select the tread type from the pictures on the opposite page.
3. Select the required pattern, bar size and width by referring to the tables on page 14.
4. Select the options of Material, Top Surface, and Treatment from page 5.
5. Nominate the required quantity and dimensions.

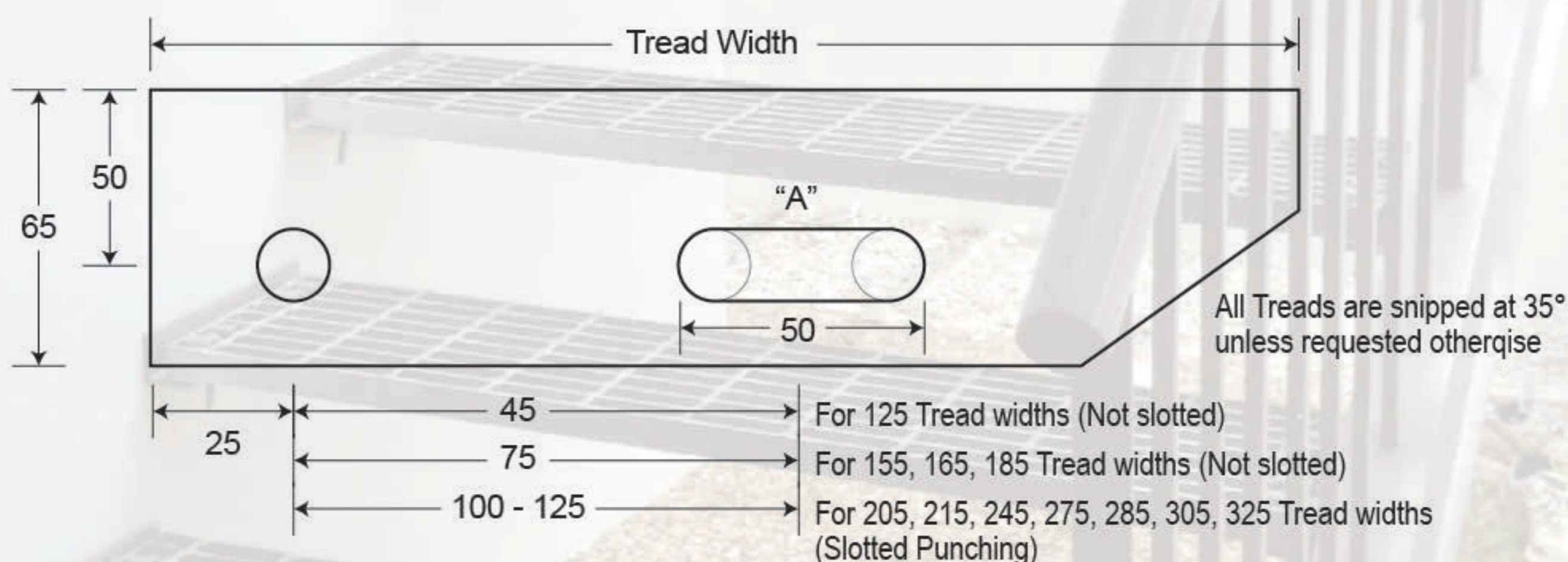
Example :

T4 / GC255MSG
245 x 750

T3 / GA 325 MPG
245 x 1250

T1 / GB 255 MPU
275 x 550

Standard Tread Type : T2 or T4
 Standard Material : GA255MPG
 Standard Length : 750mm
 Standard Widths : 245mm
 E.g. T2 / GA 255MPG

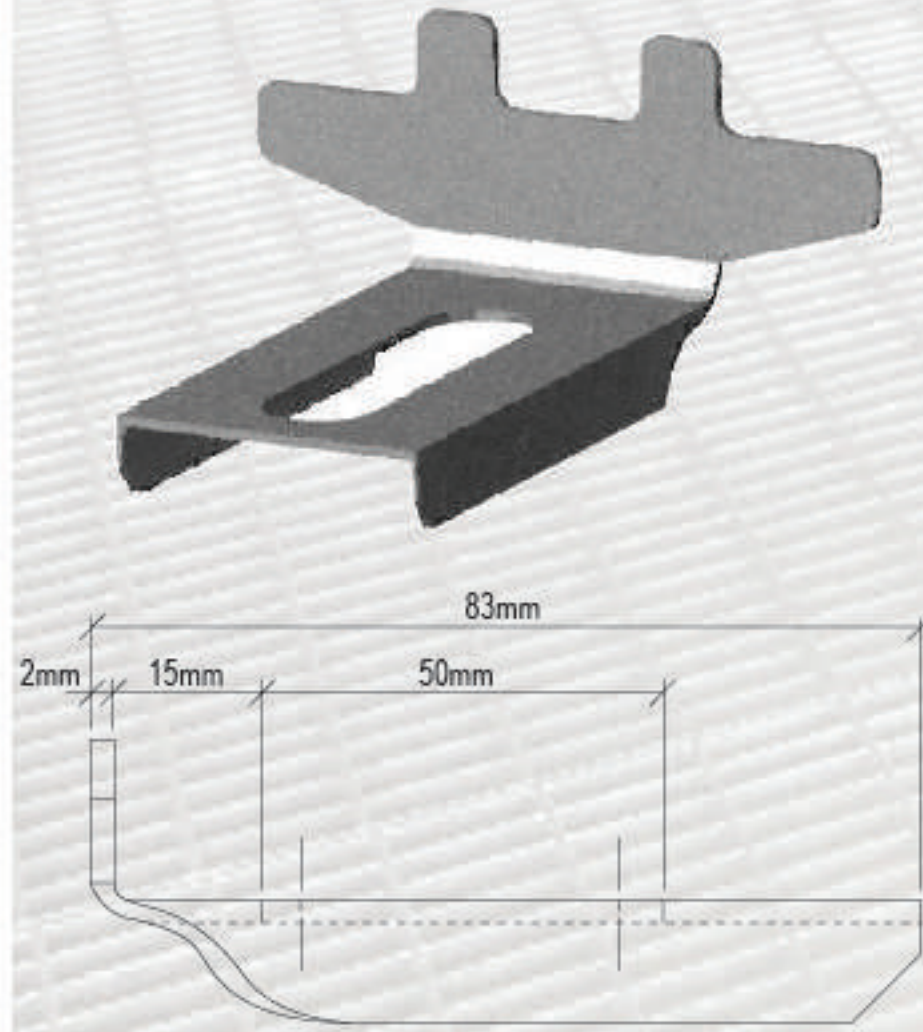


Compliance with AS1657 requires width = > 215

FIXING CLIPS

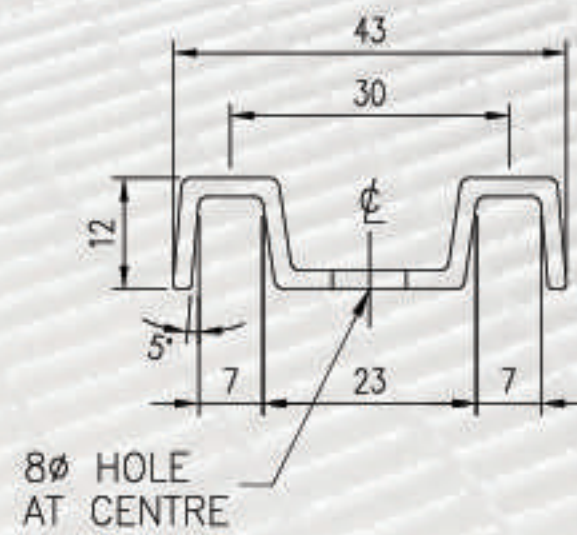
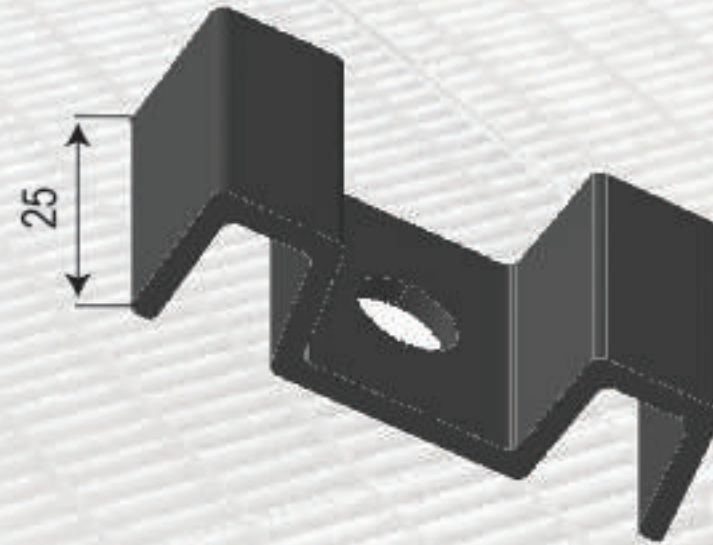
The Great Forge Clip is a Galvanised clip that consists of a pre-assembled “clip top” and a M8 bolt (either hexagonal or round head). The bottom bracket is uniquely designed to help secure the nut to enable rapid and secure connection of grate to the steel support section.

Bottom Clip

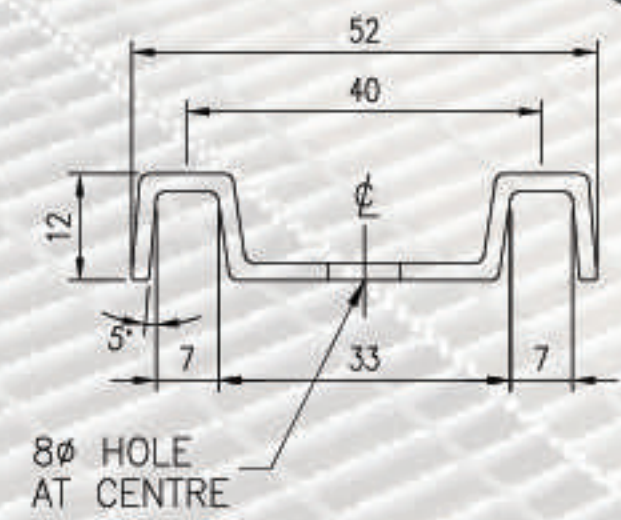
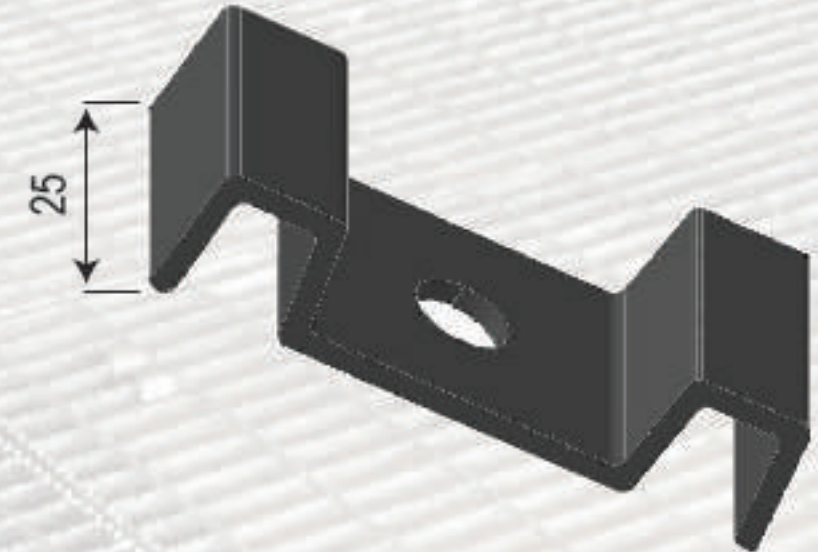


Side Left & Right
C01MG

Top Clip

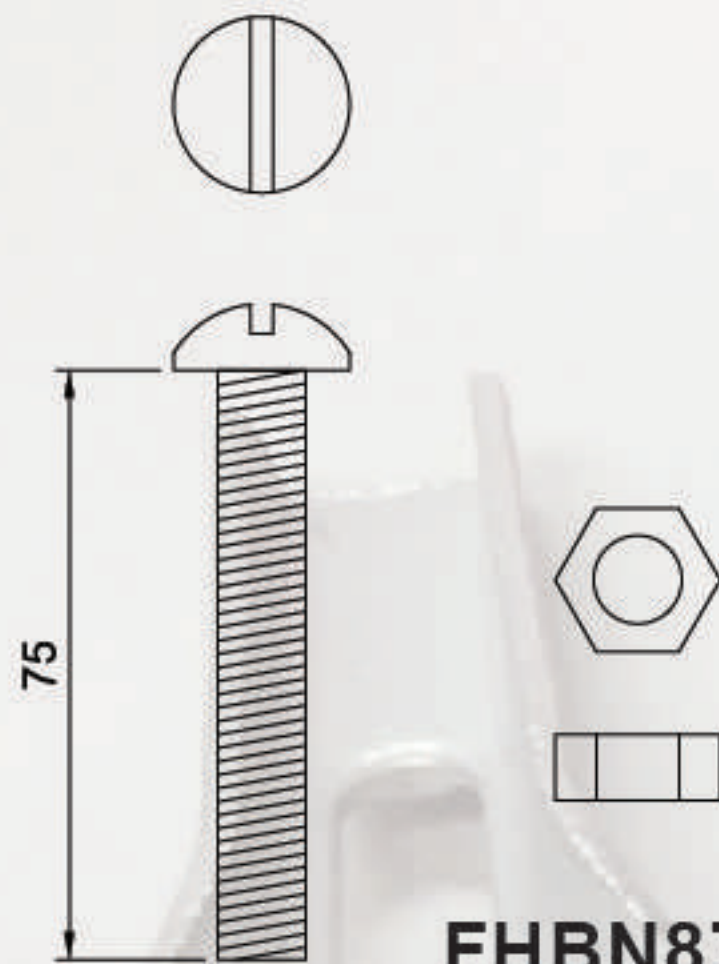


Side Left & Right
C04MG



Side Left & Right
C05MG

Nuts and Bolts



FHBN875 (M8 x 75)



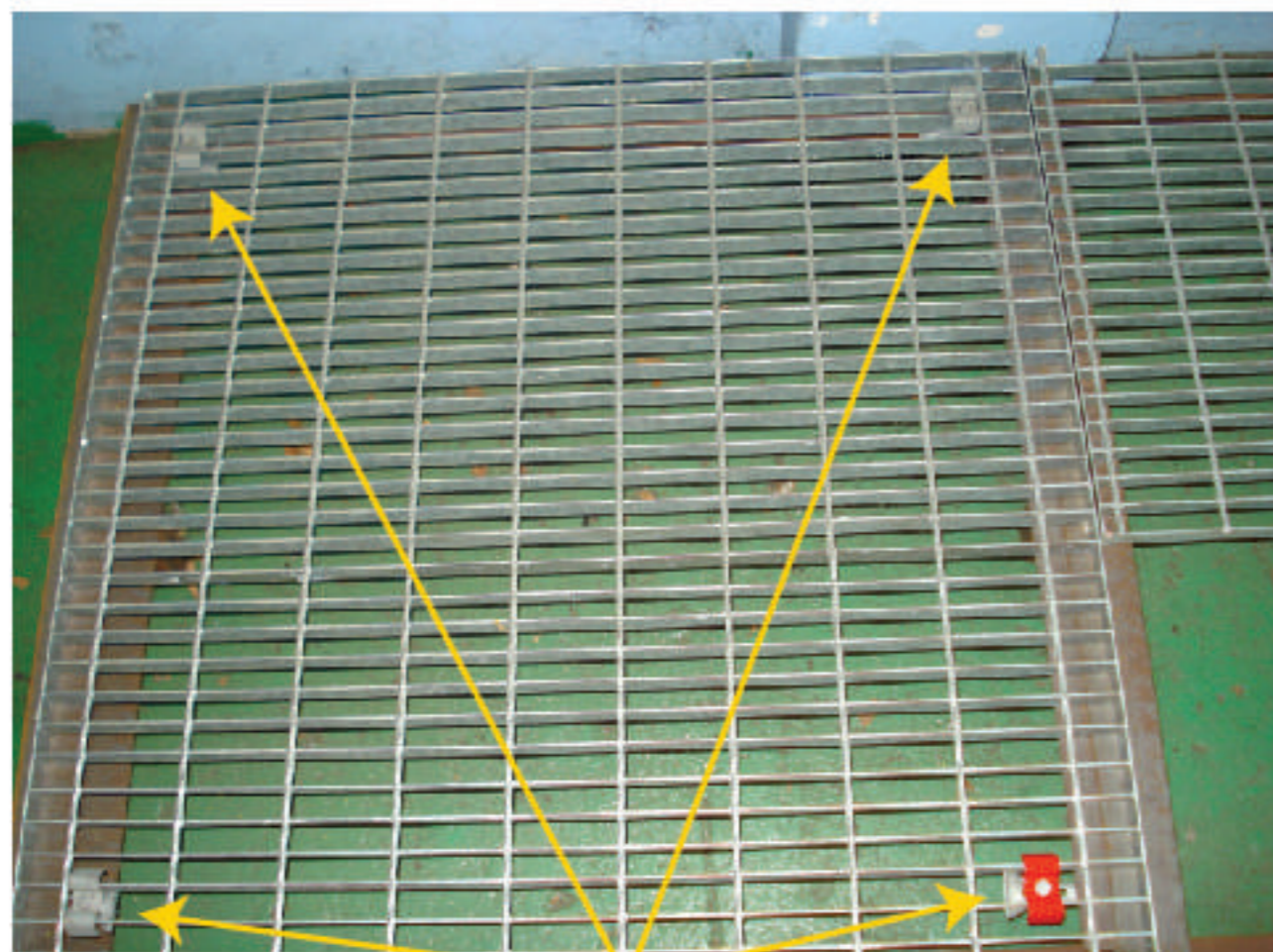
INSTALLATION GUIDE

Installation of Grating

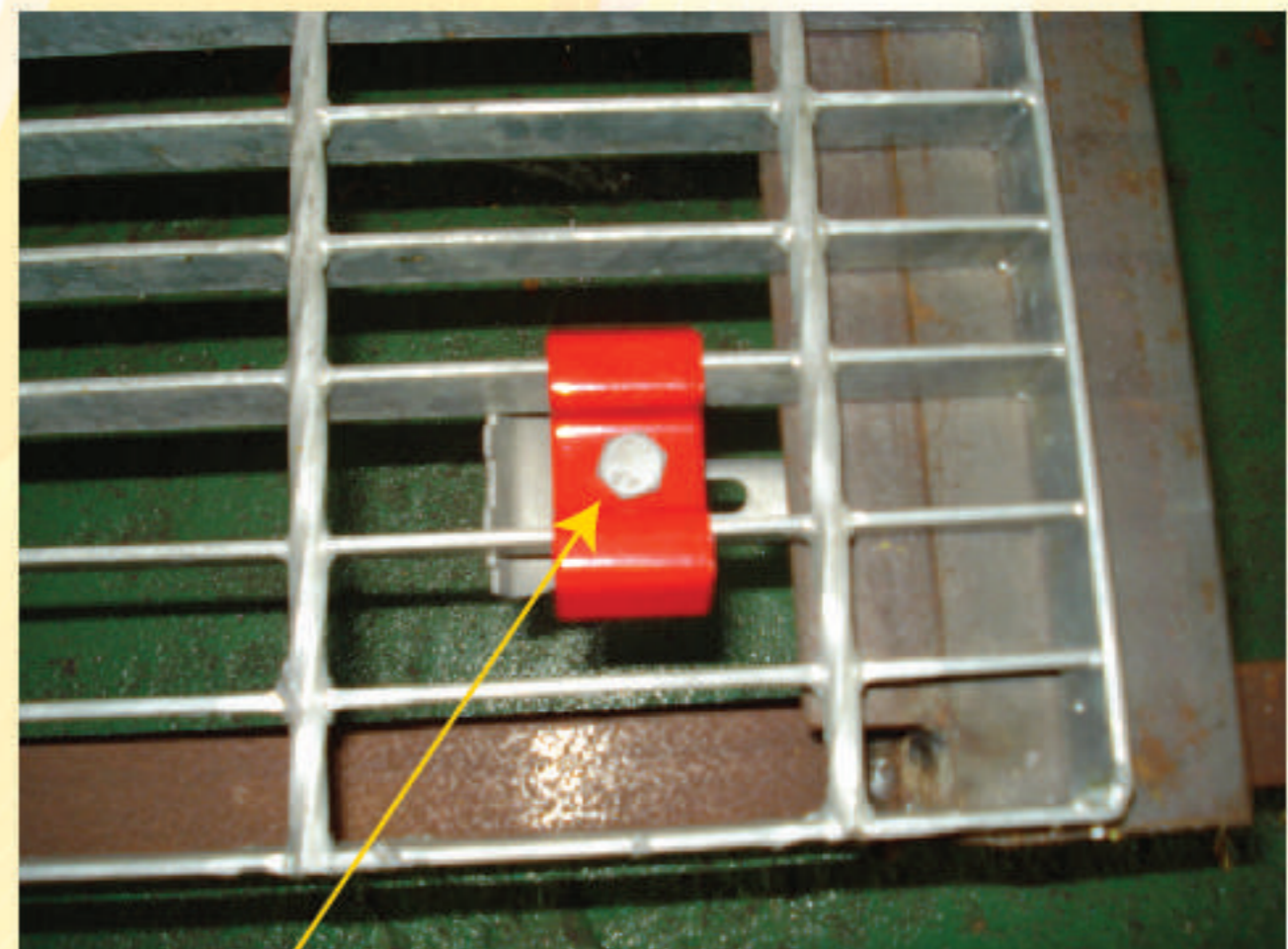
- a.** Once grating bundles are hoisted to position, it should not be un-tied until the actual installation take place. To un-tied the bundles, use a steel cutter to cut the strapping belt. Extra precaution should be taken during this process as the strapping belt might “spring” and cause injury to workers.
- b.** Gratings are then put into installation position by referring to the “grating layout plan” as a guide. All gratings are “piece mark” as reference for installation.
- c.** Piece by piece grating could be put into position either by hoisting using mobile crane or man carried (at least 2 workers per panel). If the gratings are carried by workers, do wear hand glove to prevent injury. All workers should wear safety harness to prevent from falling.
- d.** Once the gratings are put in position, gratings should be re-aligned to ensure it is straight and gap between gratings is consistent and according to Great Forge guideline.

Fixing of Clips

- a.** Once the gratings are aligned, grating clip sets should be fixed to ensure the grating are secured to the structure. Each panel of grating should be secured with at least 4 sets of fixing clips (as picture below).
- b.** Bolts and nuts of the clip sets should be tighten to ensure the top clips and bottom clip are firmly secured.



Fixing Clips



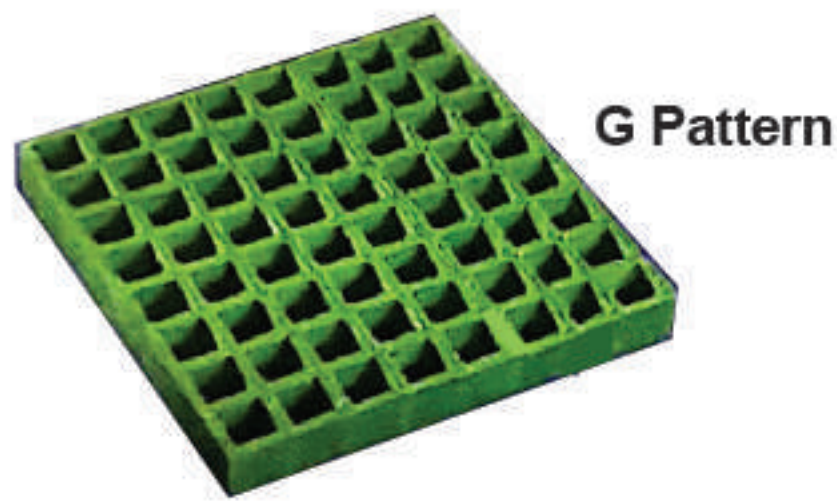
To be tighten and ensured is secured.

Note:

It is important to ensure the direction of load bearing bars are sitting on the support as according to drawing.

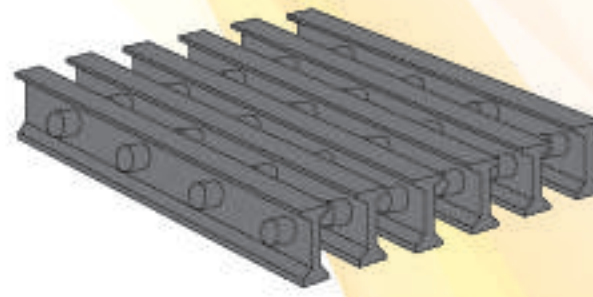
FRP QUICK GUIDE

Moulded Grating

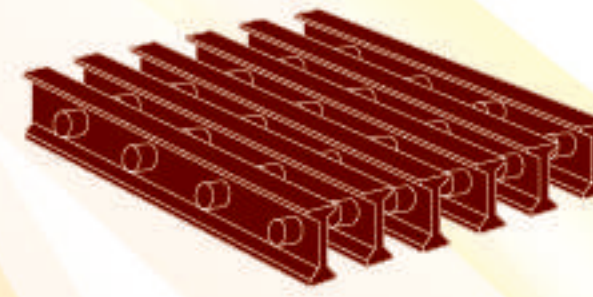


Pultruded Grating

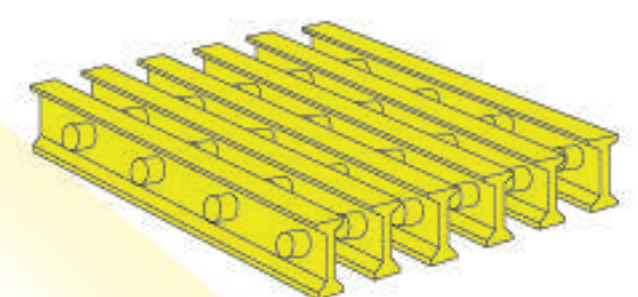
Isophathalic



Vinylester



ISO / VE FR



Material

Vinylester CHEMICAL RESISTANT

VE is VINYLESTER system specifically engineered to provide premium chemical resistance in highly corrosive environments. It utilizes an advanced resin system which delivers outstanding resistance to a wide range of harsh corrosive environments ranging from acidic to caustic, plus a high degree of solvent resistance.

ISO / VE FR FIRE RETARDANT

GFR has all the characteristics of ISO or VE, and offers superior fire retardant rating conform to ASTM E84 and BS476 Part7. It is low smoke and halogen free during combustion and designed for application where fire retardancy is required.

Isophathalic GENERAL APPLICATION

ISOPHATHALIC resin system designed to meet corrosive conditions for sewerage, construction, offshore and most of the industrial applications. It is excellent for weathering resistance and moderate resistance to caustic & solvent environments.

Top Surface

FRP Grating

Normally provided with anti-skid surface.
This is a coarse grit embedded into the resin.
Plain top surface is available.

Codes:

G = Grit
P = Plain

Treatment / Colour

FRP Grating

Available in a variety of colours.
We recommend:
Green - Isophthalic Polyester Resin
Yellow - Vinyl Ester Resin

Codes:

G = Green
Y = Yellow
D = Dark Grey

Panel Size

FRP Grating

Available in a variety of sizes suitable for cutting to suit the application.

Codes:

1 = 1220 x 3660

Features / Benefits

1. Integral, one-piece construction increase load-bearing capabilities.
2. Load applied to a Great Forge FRP bar is transferred to adjoining bearing bars, assisting in load distribution on the grating as well as on the support structure.
3. Smooth resin-rich vertical surfaces and tapered bars allow debris to fall through.

4. Continuous glass fibre strand in alternating layers thoroughly wetted with the appropriate resin for excellent corrosion resistance.
5. Open area 60%.

RECOMMENDED LOADING

Recommended Design Loading Pultruded Gratings

Item No. model	Span (mm)	Deflection (mm)	Uniform Load (kg/sqm)	Concentrated Load (kg)
01 PG - 25	450	2.25	975	450
02 PG - 25	600	3.00	750	350
03 PG - 25	750	3.75	600	300
04 PG - 38	600	3.00	1500	1050
05 PG - 38	750	3.75	1125	800
06 PG - 38	900	4.50	950	600
07 PG - 38	1200	6.00	625	400
08 PG - 50	600	3.00	2500	1650
09 PG - 50	750	3.75	1550	1000
10 PG - 50	900	4.50	1025	800
11 PG - 50	1200	6.00	800	550
12 PG - 50	1500	7.50	550	400

*Span is based on simple supported method.

Deflection is based on Engineering design 1/200 from span according to BS 4952.

Recommended Design Loading Molded Gratings

Item No. model	Span (mm)	Deflection (mm)	Uniform Load (kg/sqm)	Concentrated Load (kg)
01 SM - 25x38	450	2.25	950	330
02 SM - 25x38	600	3.00	680	250
03 SM - 25x38	750	3.75	350	150
04 SM - 38x38	600	3.00	1380	700
05 SM - 38x38	750	3.75	1000	500
06 SM - 38x38	900	4.50	650	350
07 SM - 38x38	1200	6.00	250	200
08 SM - 50x50	600	3.00	2350	800
09 SM - 50x50	750	3.75	1600	680
10 SM - 50x50	900	4.50	980	550
11 SM - 50x50	1200	6.00	600	400
12 SM - 50x50	1500	7.50	280	220

*Span is based on simple supported method.

Deflection is based on Engineering design 1/200 from span according to BS 4952.

Above loading table shows the common mash sizes of molded grating only.

Note: FRP Grating is not designed for vehicle load but it can be custom-made for certain heavy duty applications. FRP Grating is suitable for most of the chemical environment. Please contact us for further information.



GREAT FORGE GRATING SDN BHD.

NO. 3, JALAN ANGERIK MOKARA 31/46, KOTA KEMUNING, 40460 SHAH ALAM, SELANGOR.



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