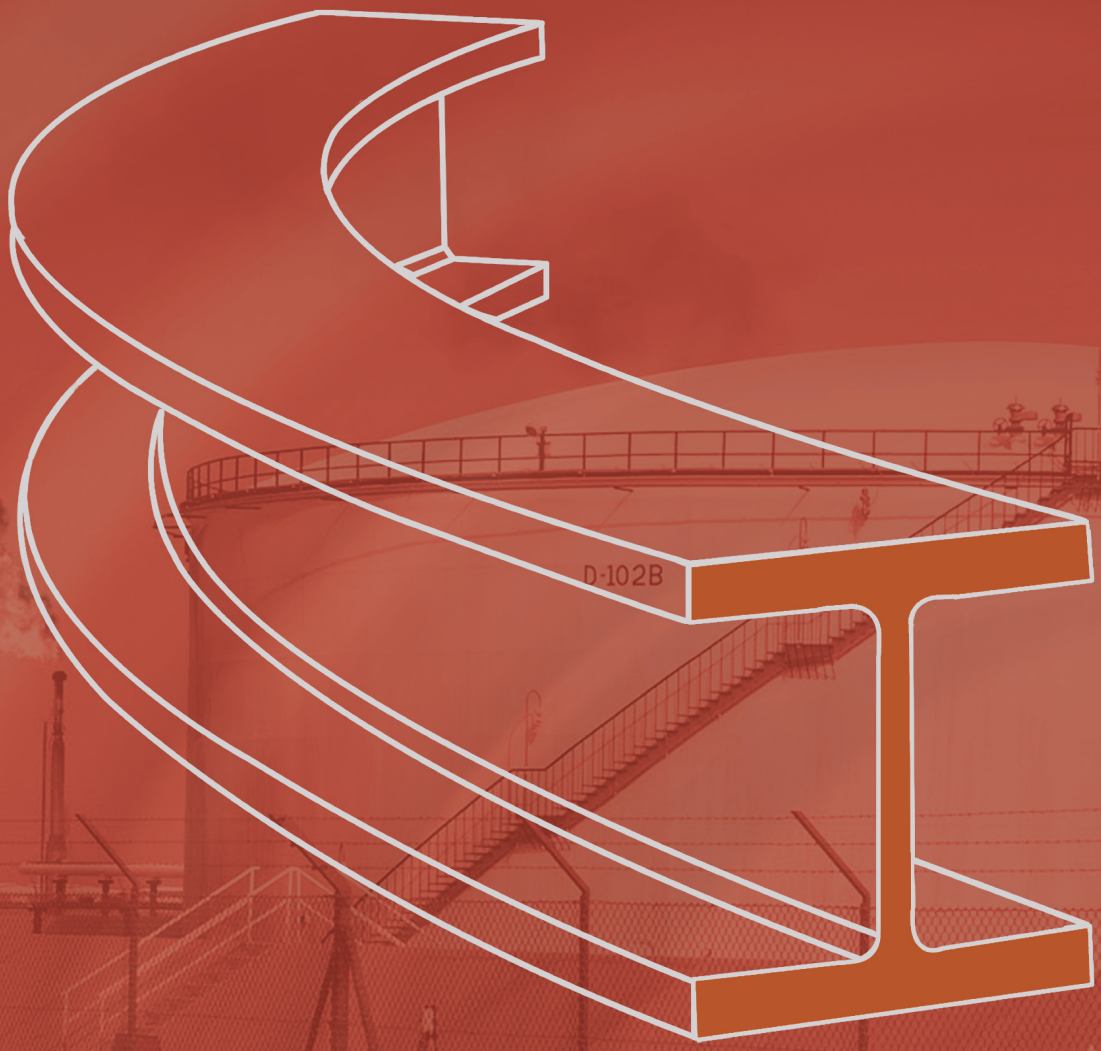
Steel Grating

شركة المشغولات والمباني المعدنية المحدودة

Steel Building & Structure Co. Ltd.

سبسكو
SBSCO



SBSCO Industrial Services

سبسكو للخدمات الصناعية

CERT
QMSCERT
Cert. No.310809/2031

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STEEL BUILDING & STRUCTURE CO. LTD.
شركة ذات مسؤولية محدودة رأس المال 1.5 مليون ريال سعودي
Dammam 34331 - 4199 - Building No. 7083 - Second Industrial Area
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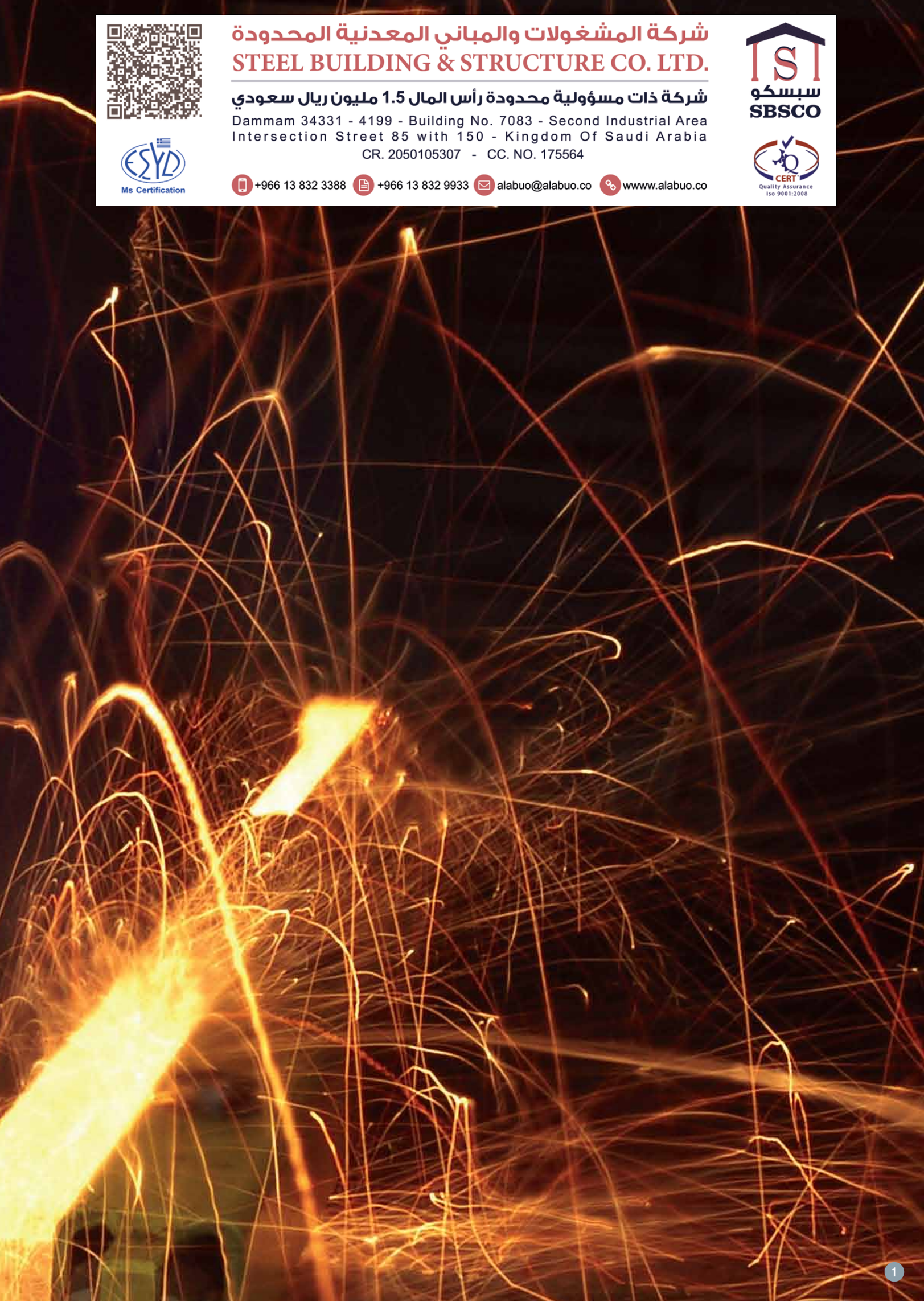

Strength through Performance



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Terminology

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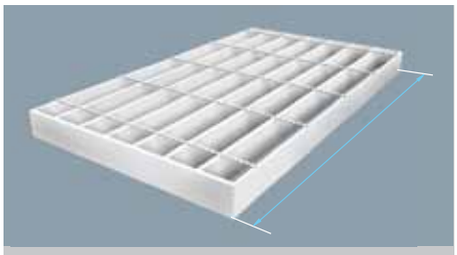
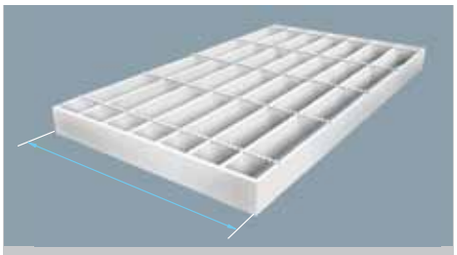
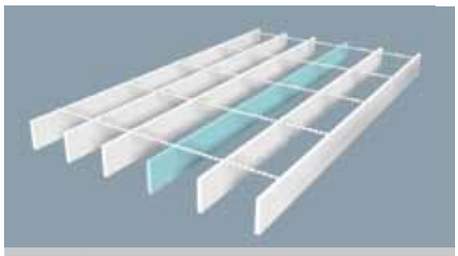
1. Grating
A steel grid formed from load bearing bars and cross bars through resistance welding.



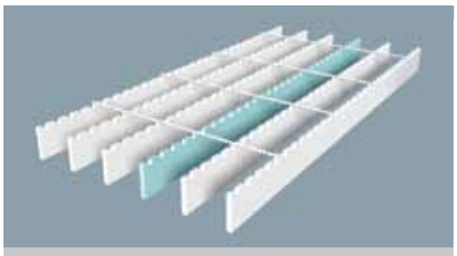
2. Span (Length) of grating
Direction of the load bearing bars.



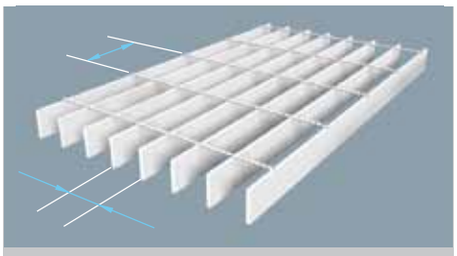
3. Width of grating
Direction of the cross bars.



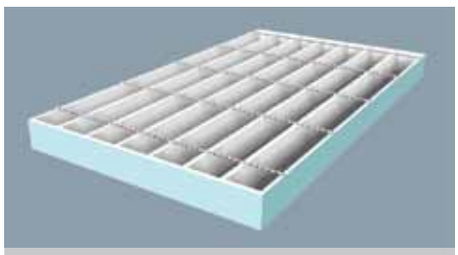
4. Plain load bearing bar
Flat load bearing bar with plain top surface



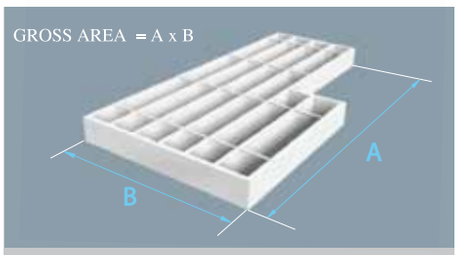
5. Serrated load bearing bar
Flat load bearing bar with serrated top surface



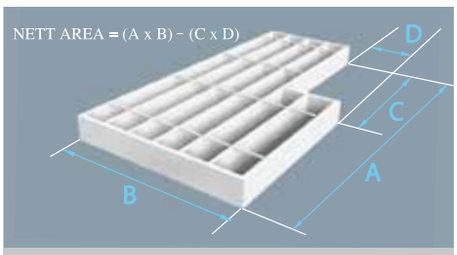
6. Pitch
The centre to centre distance between load bearing bars or cross bars.



7. Binding bar
Flat bar welded to shaped panels at each end and at cut outs



8. Grating gross area
Total area of gratings including cut-out areas.



9. Grating nett area
Total area of gratings excluding cut-out areas.

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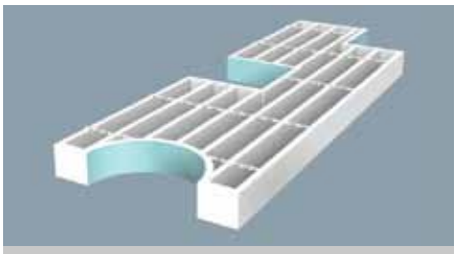
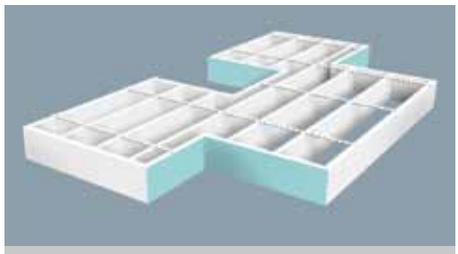
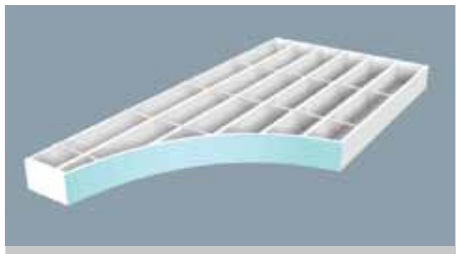


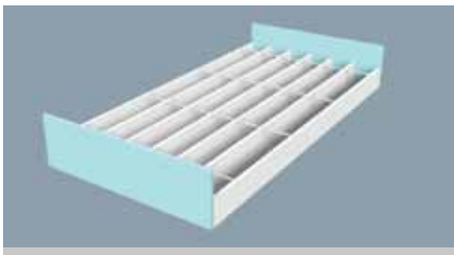
10. Cut - out
Area of grating cut out for pipes and columns to pass through.



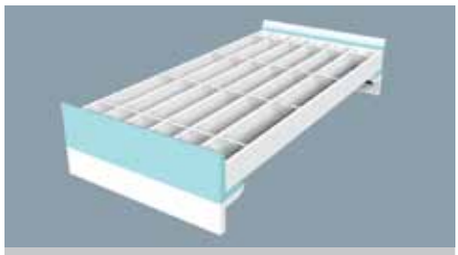
11. Straight shaping
Cut-out with straight edges



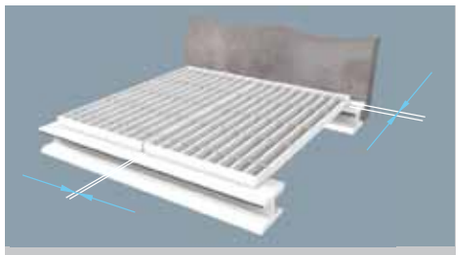
12. Curved shaping
Cut-out with curved edges



13. Toe plate
Larger size flat bar welded to the edge of grating panels for safety puposes.



14. Curb angle
A support fixed to concrete or steelwork to support gratings.



15. Erection clearance
The distance from a grating panel to an adjacent panel or structure.



16. Stair tread
A grating with end plates and non-slip nosing for use in stairways.



17. End plates
Plates welded to each end of a stairtread to permit fixing to steelwork.



18. Non slip nosings
Special anti slip bar welded to stairtreads or gratings to prevent slipping.

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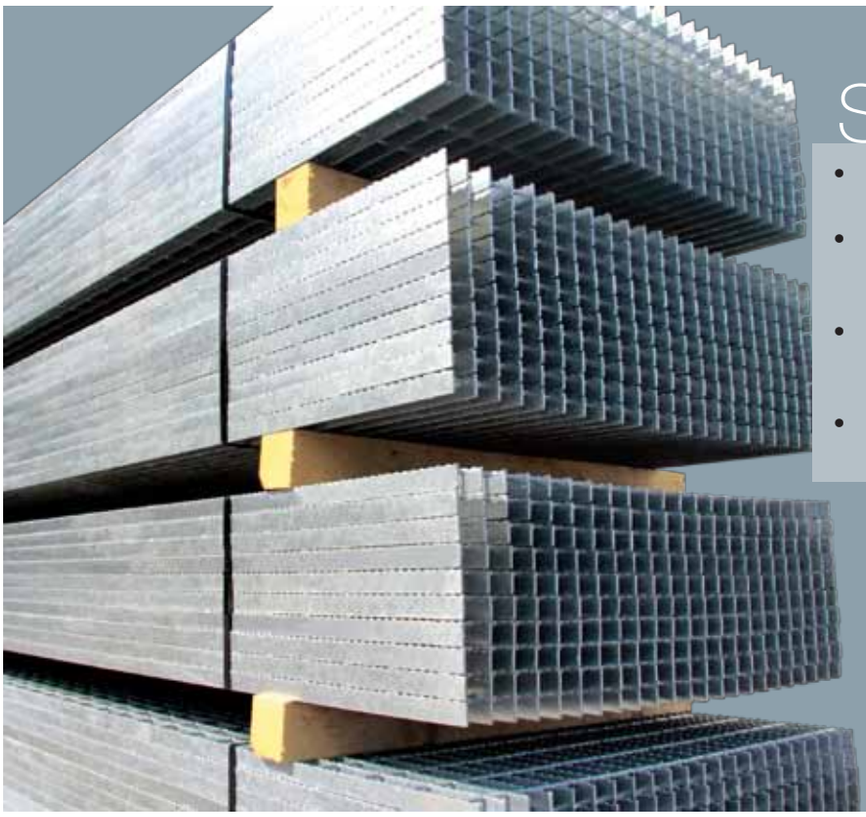
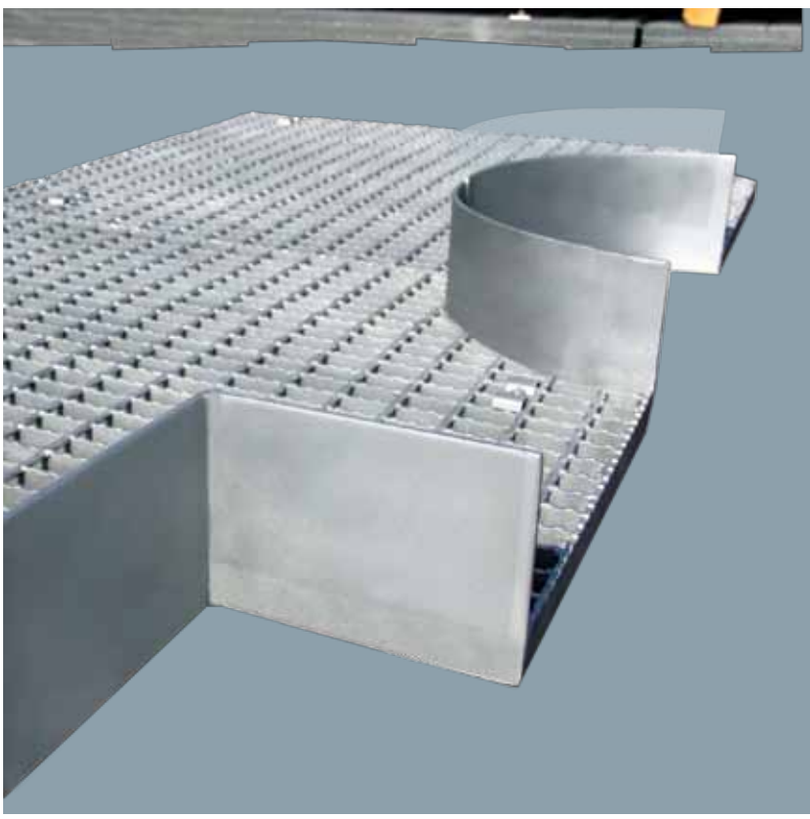
Products



Standard Gratings

- Standard gratings are typically available in 6m x 1m or 20' x 3' panels
- They can be produced with almost any combination of pitch size. Most commonly this is 41mm x 100mm or 30mm x 100mm.
- Load bearing bars of width 20mm to 100mm and thickness 3mm to 6mm can be used. Bars can be plain or with a serrated edge finish of various depths.
- Panels are available in self colour or with a galvanized coating to international standards.



Shaped Gratings

- Shaped grating panels can be cut and profiled from standard grating panels to fit a specific floor area.
- They can be fitted with non-slip edge bars and toe plates to suit the customer's design.
- All of our shaped gratings are subjected to stringent inspection at each stage of manufacture.
- Our engineering department, equipped with the latest Autocad facilities, can draw shaped gratings to meet your precise requirements.
- They will assist you in choosing the correct type of grating to suit your application. Load tables for the most common sizes are shown on pages 15, 17, 19 and 21.
- If required, one of our engineers can visit your site to survey the area to be covered and determine your exact requirement.
- We also project manage the supply of our gratings to meet your technical and schedule requirements.

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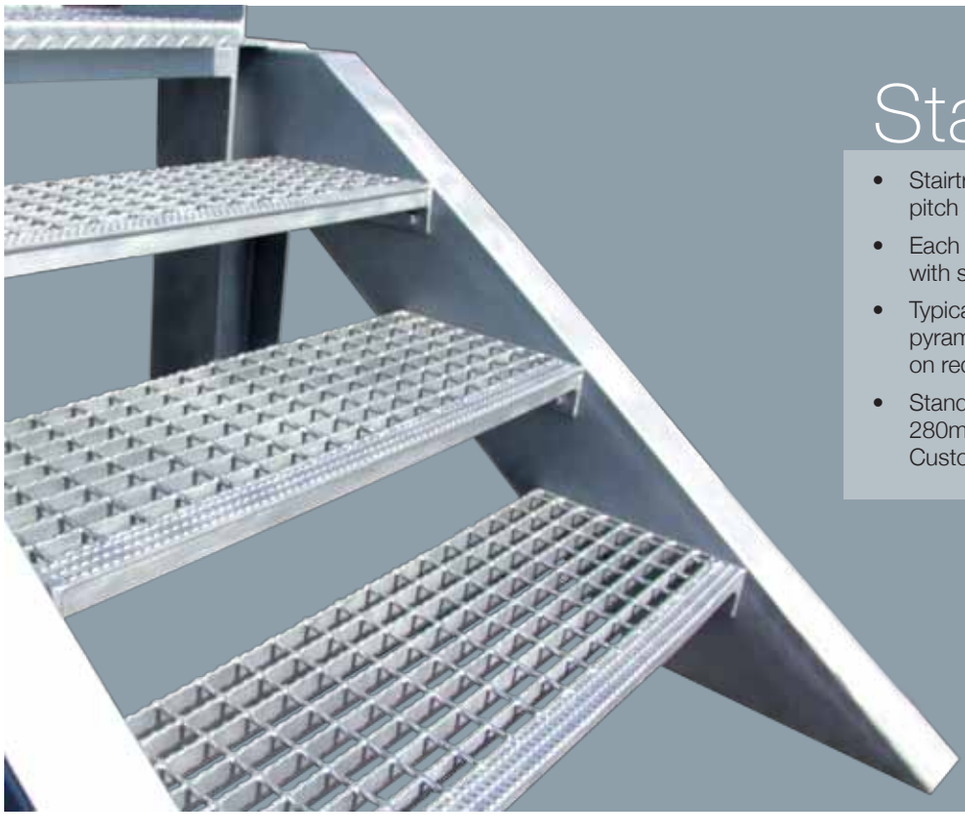
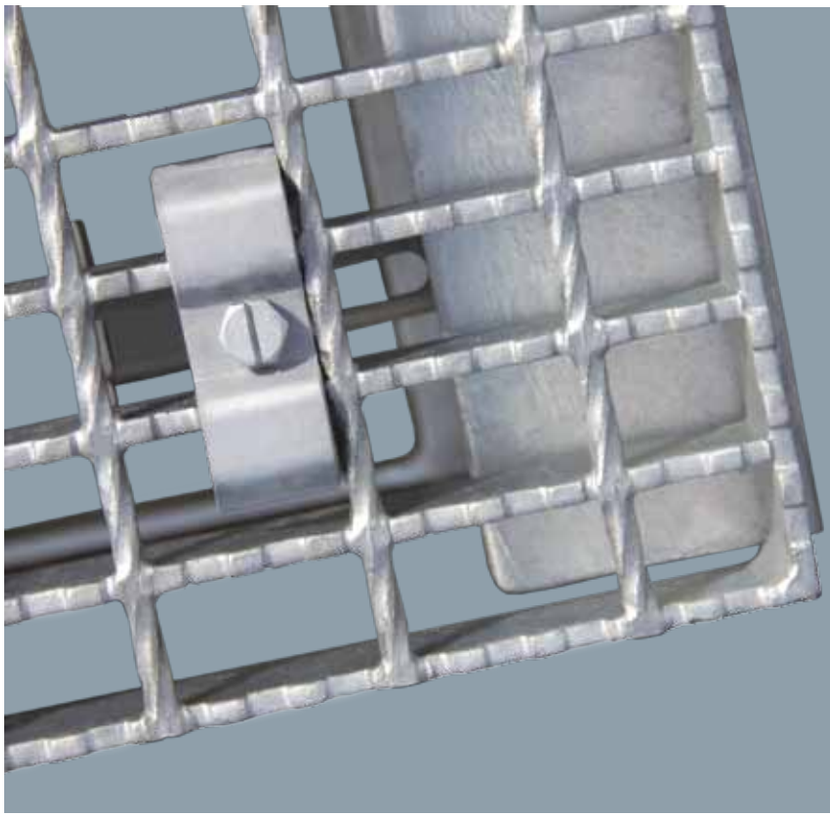


Stairtreads

- Stairtreads can be supplied with any combination of pitch size, bearing bar type and serration profile.
- Each stairtread is supplied with end plates complete with slotted holes for easy installation.
- Typically, we supply the stairtread with a slip resistant pyramid nosing bar. Other types of nosing are available on request.
- Standard sizes of our stairtreads are 250mm and 280mm wide x 800mm, 1000mm and 1200mm long. Customized sizes are available on request.



Fixing Clips

- Gratings can be supplied with our standard saddle top fixing clip.
- Our engineering department can advise you on the correct type of clip needed for your application.
- We can also design and supply customized clips for special applications when required.

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Possibilities

How to choose and specify our gratings

Our gratings and stairtreads can be produced with any combination of the options given below.

To correctly specify the type of gratings that you need, please choose one option from each section.

Your selection should also consider the performance load tables shown on pages 15, 17, 19 and 21.

1 Bearing Bar Height (mm) - 20, 25, 30, 32, 35, 38, 40, 45, 50, 55, 60, 65, 70, 80, 90, 100

2 Bearing Bar Thickness (mm) - 2, 2.5, 3, 3.5, 4, 4.5, 5, 6, 7, 8, 9, 10

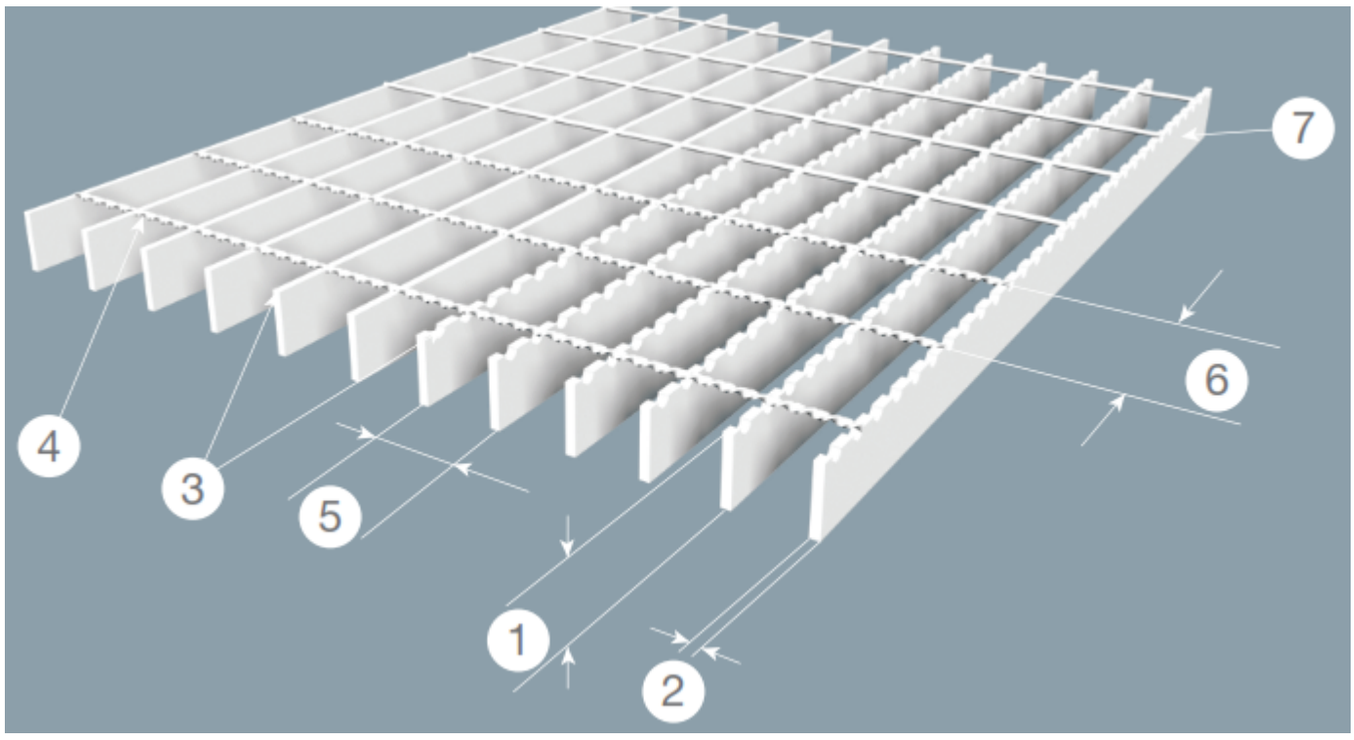
3 Bearing Bar Type - Plain, Serrated

4 Twisted Square Cross Bar Diameter (mm) - 5, 6, 8

5 Bearing Bar Pitch (mm) - 25, 30, 33, 34, 35, 40, 41, 50

6 Cross Bar Pitch (mm) - 20, 25, 38, 50, 76, 100

7 Finish - Self Colour, Hot Dip Galvanized, Painted



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Quality Counts

We strongly believe that quality counts and we have based our business strategy on the belief that the best quality product and service always wins through. It is on this basis that we have grown into a global supplier to more than thirty countries in such a short time.

Our commitment to quality runs through our product from start to finish:

Raw Materials

Our raw materials are procured only from reputable sources that we regularly visit and audit. Our material suppliers are all ISO 9001 certified and we procure our raw materials to the following minimum standards and grades:

- ASTM A1011M (American Standard)
- BS EN 10025 Grade S275 JR (British Standard and European Norm)

Manufacturing Standards

We manufacture our gratings to many international standards of which the most common are:

- ANSI/NAAMM MBG 531-00 (American National Standard)
- BS 4592-1:2006 (British Standard)

Welder Testing

Our welders are tested and approved to the following standards:

- AWS D1.1:2010 (American Welding Standard)
- BS EN 287-1:2004 (British Standard and European Norm)

Hot Dip Galvanized

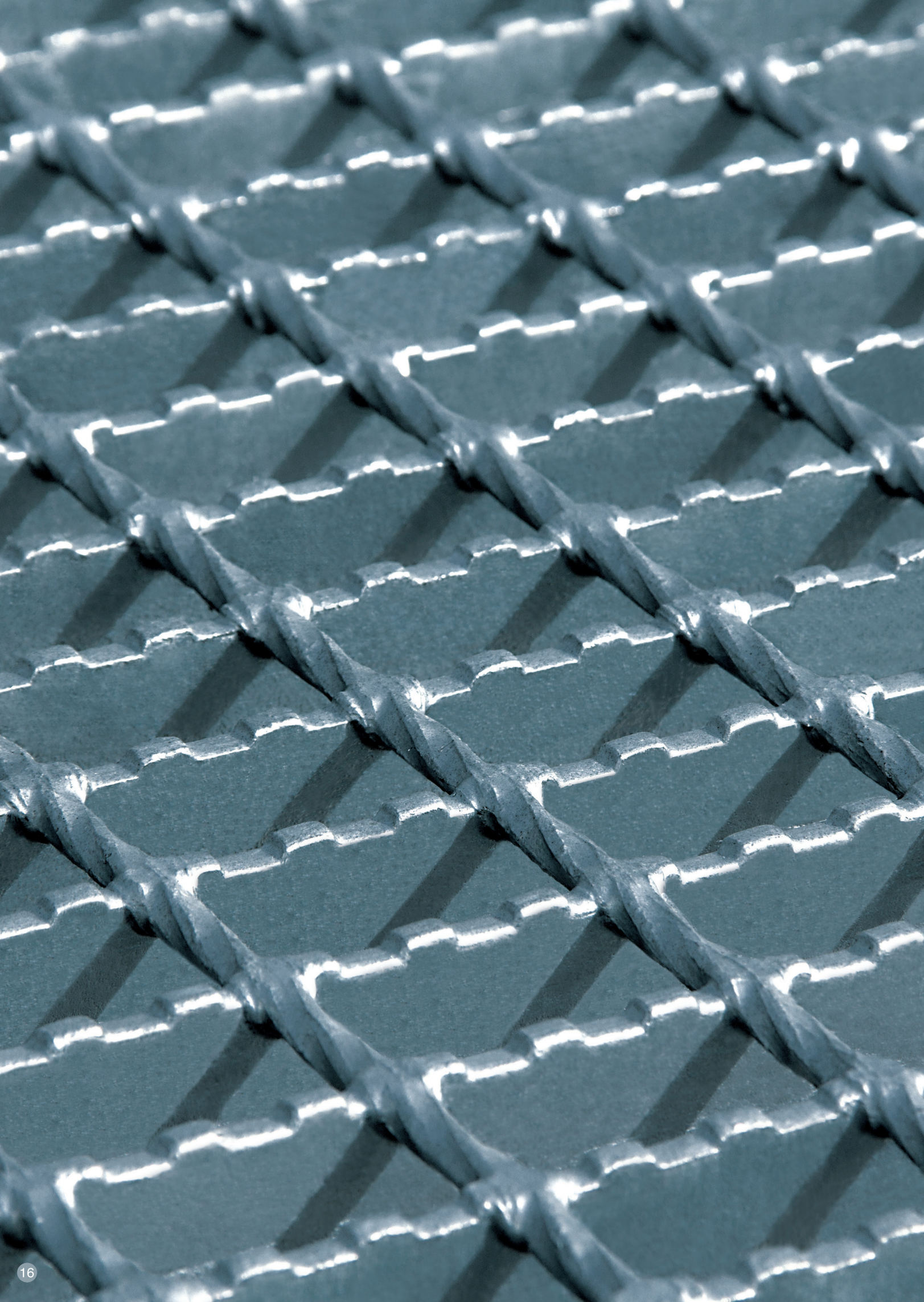
Our products are hot dip galvanized (if required) to the following standards:

- ASTM A123 (American Standard)
- BS EN ISO 1461:2009 (British Standard and European Norm)

Quality Assurance

Our Quality Assurance Plan (QAP) states all of the inspection hold points in our production process that our Quality Controllers follow to ensure that we achieve our commitment to 100% inspection. This is how we ensure that our finished product is of the highest standard possible. Our QAP can be adapted to suit your particular project requirements if needed.

If the standard you require is not listed above, please refer us to it. We will check and confirm to you that we can comply with it.



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Performance Table A - For 25mm Centres



NOTES :-

Below table is made considering working stress of 165 N/mm² which allows for a safety factor of 1.6.

Deflection should not more than span / 200 times or 10mm,whichever is lesser.

For pedestrian traffic there are three loading categories,which are Light Duty - (UDL - 3 KN/m²), Medium Duty - (UDL - 5 KN/m²) and Heavy Duty - (UDL - 7.5 KN/m²)

Add 2.8 Kg/m² to theoretical weight Kg/m² for Cross bars @ 50 mm centres

When calculating UDL and deflection for serrated gratings,allowance should be made for the material removed from the bearing bar to form the serration profile.Typically this is 90% of the UDL and 105 % of the deflection.These figures vary depending on the type of serration and should be confirmed during the design process.

Bearing Bar Size (mm)		SPAN IN MM													Max Clear Span for Pedestrian Loadings				Theoretical Weight Kg/m2 for 100mm pitch
		300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	U - KN/m²	3	5	7.5	
20 x 3	UDL-KN/m²	120.60	53.36	30.05	15.44	8.93	5.62	3.76	2.64	1.93	1.44	1.11	0.87	0.67	Span - mm	1294.80	1092.00	954.00	22.14
	D - mm	0.75	1.68	2.99	3.75	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	6.47	5.46	4.77	
20 x 5	UDL-KN/m²	201.00	88.90	50.08	25.73	14.89	9.38	6.28	4.41	3.21	2.41	1.86	1.46	1.11	Span - mm	1535.00	1294.00	1131.00	35.01
	D - mm	0.75	1.68	2.99	3.75	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	7.67	6.47	5.65	
25 x 3	UDL-KN/m²	188.50	83.70	47.00	30.10	17.45	10.99	7.36	5.17	3.77	2.83	2.18	1.71	1.30	Span - mm	1618.00	1365.00	1192.00	26.96
	D - mm	0.60	1.35	2.39	3.75	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	8.09	6.82	5.96	
25 x 5	UDL-KN/m²	314.00	139.60	78.20	50.12	29.08	18.31	12.27	8.61	6.28	4.72	3.63	2.86	2.18	Span - mm	1919.00	1618.00	1414.00	43.06
	D - mm	0.60	1.35	2.39	3.75	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	9.60	8.09	7.07	
30 x 3	UDL-KN/m²	271.50	120.10	67.50	43.35	30.08	18.99	12.72	8.93	6.51	4.89	3.77	2.96	2.26	Span - mm	1942.00	1638.00	1431.00	31.79
	D - mm	0.50	1.12	1.99	3.12	4.49	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	9.71	8.19	7.15	
30 x 5	UDL-KN/m²	452.00	200.10	112.50	72.30	50.15	31.65	21.20	14.89	10.85	8.15	6.28	4.94	3.76	Span - mm	2223.00	1942.00	1697.00	51.10
	D - mm	0.50	1.12	1.99	3.12	4.49	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	9.71	8.48	
35 x 3	UDL-KN/m²	371.00	163.50	92.10	58.90	40.97	30.09	20.20	14.19	10.34	7.77	5.99	4.70	3.58	Span - mm	2196.00	1911.00	1669.00	36.62
	D - mm	0.43	0.96	1.71	2.67	3.85	5.24	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	9.55	8.34	
35 x 5	UDL-KN/m²	617.00	272.50	153.50	98.20	68.28	50.16	33.66	23.64	17.23	12.95	9.97	7.85	5.98	Span - mm	2495.00	2196.00	1980.00	59.15
	D - mm	0.43	0.96	1.71	2.67	3.85	5.24	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	10.00	9.90	
40 x 3	UDL-KN/m²	476.00	213.50	120.60	77.06	53.52	39.26	30.05	21.18	15.44	11.60	8.93	7.02	5.35	Span - mm	2427.00	2136.00	1908.00	41.45
	D - mm	0.37	0.84	1.50	2.34	3.37	4.58	5.98	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	10.00	9.54	
40 x 5	UDL-KN/m²	793.00	355.60	201.00	128.47	89.20	65.44	50.09	35.29	25.73	19.33	14.89	11.71	8.93	Span - mm	2758.00	2427.00	2194.00	67.20
	D - mm	0.37	0.84	1.50	2.34	3.37	4.58	5.98	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	10.00	10.00	
50 x 5	UDL-KN/m²	1255.00	554.00	314.00	200.50	139.10	102.15	78.36	61.89	50.25	37.75	29.08	22.87	17.44	Span - mm	3260.00	2870.00	2593.00	83.29
	D - mm	0.30	0.67	1.20	1.87	2.69	3.66	4.79	6.06	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	10.00	10.00	
60 x 5	UDL-KN/m²	1810.00	800.00	452.50	289.00	200.10	147.10	112.80	89.12	72.13	65.25	50.25	39.53	30.14	Span - mm	3738.00	3290.00	2973.00	99.38
	D - mm	0.25	0.56	1.00	1.56	2.24	3.05	3.99	5.05	6.23	8.25	9.00	9.75	10.00	D - mm	10.00	10.00	10.00	
70 x 5	UDL-KN/m²	2415.00	1090.00	610.50	394.20	272.34	200.60	153.50	121.35	98.19	81.12	79.80	62.76	47.86	Span - mm	4197.00	3693.00	3337.00	115.47
	D - mm	0.21	0.48	0.85	1.34	1.92	2.62	3.42	4.33	5.34	6.46	9.00	9.75	10.00	D - mm	10.00	10.00	10.00	

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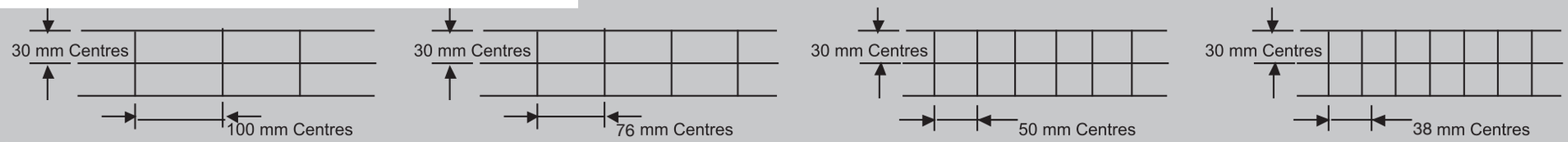
Performance Table B - For 30mm Centres



NOTES :-

Below table is made considering working stress of 165 N/mm² which allows for a safety factor of 1.6.

Deflection should not more than span / 200 times or 10mm,whichever is lesser.

For pedestrian traffic there are three loading categories,which are Light Duty - (UDL - 3 KN/m²), Medium Duty - (UDL - 5 KN/m²) and Heavy Duty - (UDL - 7.5 KN/m²)

Add 2.8 Kg/m² to theoretical weight Kg/m² for Cross bars @ 50 mm centres

When calculating UDL and deflection for serrated gratings,allowance should be made for the material removed from the bearing bar to form the serration profile.Typically this is 90% of the UDL and 105 % of the deflection.These figures vary depending on the type of serration and should be confirmed during the design process.

Bearing Bar Size (mm)		SPAN IN MM													Max Clear Span for Pedestrian Loadings				Theoretical Weight Kg/m2 for 100mm pitch
		300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	U - KN/m²	3	5	7.5	
20 x 3	UDL-KN/m²	99.73	44.33	24.93	12.80	7.41	4.67	3.13	2.20	1.60	1.20	0.93	0.73	0.56	Span - mm	1217	1026	896	18.84
	D - mm	0.75	1.68	2.99	3.75	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	6.09	5.13	4.48	
20 x 5	UDL-KN/m²	166.22	73.88	41.56	21.34	12.35	7.78	5.21	3.66	2.67	2.00	1.54	1.21	0.93	Span - mm	1442	1217	1063	29.52
	D - mm	0.75	1.68	2.99	3.75	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	7.21	6.09	5.32	
25 x 3	UDL-KN/m²	155.83	69.26	38.96	24.93	14.47	9.11	6.10	4.29	3.13	2.35	1.81	1.42	1.08	Span - mm	1521	1283	1120	22.84
	D - mm	0.60	1.35	2.39	3.74	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	7.61	6.42	5.60	
25 x 5	UDL-KN/m²	259.72	115.43	64.93	41.56	24.12	15.19	10.17	7.15	5.21	3.91	3.01	2.37	1.81	Span - mm	1803	1521	1328	36.19
	D - mm	0.60	1.35	2.39	3.74	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	9.02	7.61	6.64	
30 x 3	UDL-KN/m²	224.40	99.73	56.10	35.90	24.93	15.75	10.55	7.41	5.40	4.06	3.13	2.46	1.87	Span - mm	1825	1539	1345	26.85
	D - mm	0.50	1.12	1.99	3.12	4.49	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	9.13	7.70	6.73	
30 x 5	UDL-KN/m²	374.00	166.22	93.50	59.84	41.56	26.24	17.58	12.35	9.00	6.76	5.21	4.10	3.12	Span - mm	2121	1825	1594	42.86
	D - mm	0.50	1.12	1.99	3.12	4.49	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	9.13	7.97	
35 x 3	UDL-KN/m²	305.43	135.75	76.36	48.87	33.94	24.93	16.75	11.76	8.58	6.44	4.96	3.90	2.98	Span - mm	2096	1796	1569	30.85
	D - mm	0.43	0.96	1.71	2.67	3.85	5.24	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	8.98	7.85	
35 x 5	UDL-KN/m²	509.06	226.25	127.26	81.45	56.56	41.56	27.92	19.61	14.29	10.74	8.27	6.51	4.96	Span - mm	2381	2096	1860	49.53
	D - mm	0.43	0.96	1.71	2.67	3.85	5.24	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	10.00	9.30	
40 x 3	UDL-KN/m²	398.93	177.30	99.73	63.83	44.33	32.57	24.93	17.56	12.80	9.62	7.41	5.83	4.44	Span - mm	2317	2039	1793	34.85
	D - mm	0.37	0.84	1.50	2.34	3.37	4.58	5.98	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	10.00	8.97	
40 x 5	UDL-KN/m²	664.89	295.51	166.22	106.38	73.88	54.28	41.56	29.27	21.34	16.03	12.35	9.71	7.41	Span - mm	2632	2317	2093	56.21
	D - mm	0.37	0.84	1.50	2.34	3.37	4.58	5.98	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	10.00	10.00	
50 x 5	UDL-KN/m²	1038.89	461.73	259.72	166.22	115.43	84.81	64.93	51.30	41.67	31.31	24.12	18.97	14.46	Span - mm	3112	2739	2475	69.55
	D - mm	0.30	0.67	1.20	1.87	2.69	3.66	4.79	6.06	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	10.00	10.00	
60 x 5	UDL-KN/m²	1496.00	664.89	374.00	239.36	166.22	122.12	93.50	73.88	59.84	54.10	41.67	32.78	24.99	Span - mm	3568	3140	2837	82.90
	D - mm	0.25	0.56	1.00	1.56	2.24	3.05	3.99	5.05	6.23	8.25	9.00	9.75	10.00	D - mm	10.00	10.00	10.00	
70 x 5	UDL-KN/m²	2036.22	904.99	509.06	325.80	226.25	166.22	127.26	100.55	81.45	67.31	66.18	52.05	39.69	Span - mm	4005	3525	3185	96.24
	D - mm	0.21	0.48	0.85	1.34	1.92	2.62	3.42	4.33	5.34	6.46	9.00	9.75	10.00	D - mm	10.00	10.00	10.00	

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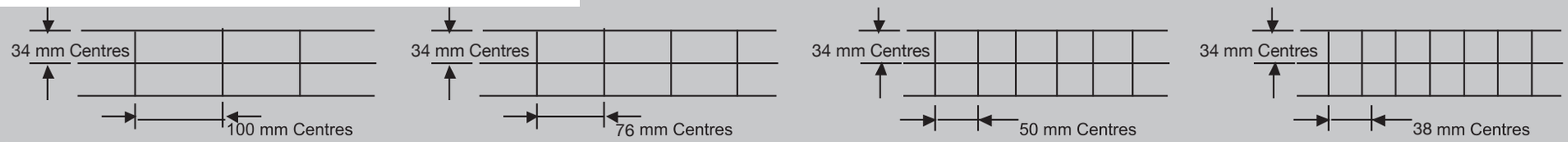
Performance Table C - For 34mm Centres



NOTES :-

Below table is made considering working stress of 165 N/mm² which allows for a safety factor of 1.6.

Deflection should not more than span / 200 times or 10mm,whichever is lesser.

For pedestrian traffic there are three loading categories,which are Light Duty - (UDL - 3 KN/m²), Medium Duty - (UDL - 5 KN/m²) and Heavy Duty - (UDL - 7.5 KN/m²)

Add 2.8 Kg/m² to theoretical weight Kg/m² for Cross bars @ 50 mm centres

When calculating UDL and deflection for serrated gratings,allowance should be made for the material removed from the bearing bar to form the serration profile.Typically this is 90% of the UDL and 105 % of the deflection.These figures vary depending on the type of serration and should be confirmed during the design process.

Bearing Bar Size (mm)		SPAN IN MM													Max Clear Span for Pedestrian Loadings				Theoretical Weight Kg/m2 for 100mm pitch
		300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	U - KN/m²	3	5	7.5	
20 x 3	UDL-KN/m2	88.30	39.05	21.99	11.29	6.53	4.12	2.76	1.93	1.41	1.06	0.81	0.64	0.49	Span - mm	1166.00	984.00	859.70	16.96
	D - mm	0.75	1.68	2.99	3.75	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	5.83	4.92	4.29	
20 x 5	UDL-KN/m2	147.00	65.10	36.65	18.83	10.90	6.86	4.60	3.23	2.35	1.76	1.36	1.07	0.81	Span - mm	1383.00	1166.80	1019.30	26.38
	D - mm	0.75	1.68	2.99	3.75	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	6.91	5.83	5.09	
25 x 3	UDL-KN/m2	138.00	61.30	34.33	22.00	12.76	8.04	5.39	3.78	2.76	2.07	1.59	1.25	0.95	Span - mm	1458.50	1230.00	1074.00	20.49
	D - mm	0.60	1.35	2.39	3.75	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	7.29	6.15	5.37	
25 x 5	UDL-KN/m2	230.00	102.15	57.21	36.67	21.28	13.40	8.97	6.30	4.59	3.45	2.66	2.09	1.59	Span - mm	1729.00	1458.50	1274.00	32.26
	D - mm	0.60	1.35	2.39	3.75	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	8.64	7.29	6.37	
30 x 3	UDL-KN/m2	198.50	87.85	49.40	31.72	22.02	13.89	9.31	6.53	4.77	3.58	2.76	2.16	1.65	Span - mm	1750.00	1476.00	1289.50	24.02
	D - mm	0.50	1.12	1.99	3.12	4.49	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	8.75	7.38	6.44	
30 x 5	UDL-KN/m2	331.00	146.40	82.40	52.86	36.77	23.15	15.51	10.89	7.94	5.96	4.60	3.61	2.75	Span - mm	2056.00	1750.00	1528.90	38.15
	D - mm	0.50	1.12	1.99	3.12	4.49	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	8.75	7.64	
35 x 3	UDL-KN/m2	271.00	119.60	67.40	43.10	29.97	22.02	14.78	10.38	7.57	5.68	4.38	3.44	2.62	Span - mm	2031.00	1722.00	1504.00	27.55
	D - mm	0.43	0.96	1.71	2.67	3.85	5.24	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	8.61	7.52	
35 x 5	UDL-KN/m2	452.00	199.30	112.30	71.85	49.96	36.70	24.64	17.30	12.61	9.47	7.30	5.74	4.37	Span - mm	2308.00	2031.00	1783.00	44.04
	D - mm	0.43	0.96	1.71	2.67	3.85	5.24	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	10.00	8.91	
40 x 3	UDL-KN/m2	348.00	156.20	88.25	56.38	39.16	28.73	21.99	15.49	11.29	8.48	6.54	5.14	3.92	Span - mm	2245.00	1968.00	1719.00	31.09
	D - mm	0.37	0.84	1.50	2.34	3.37	4.58	5.98	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	9.84	8.59	
40 x 5	UDL-KN/m2	580.00	260.20	147.10	94.00	65.28	47.88	36.65	25.83	18.83	14.14	10.89	8.57	6.53	Span - mm	2551.00	2245.00	2029.00	49.93
	D - mm	0.37	0.84	1.50	2.34	3.37	4.58	5.98	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	10.00	10.00	
50 x 5	UDL-KN/m2	920.00	405.50	229.90	146.70	101.78	74.74	57.34	45.28	36.77	27.62	21.28	16.73	12.76	Span - mm	3015.00	2654.00	2398.00	61.70
	D - mm	0.30	0.67	1.20	1.87	2.69	3.66	4.79	6.06	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	10.00	10.00	
60 x 5	UDL-KN/m2	1325.00	586.00	331.00	211.50	146.40	107.61	82.50	65.21	52.78	47.74	36.77	28.92	22.05	Span - mm	3457.00	3043.00	2750.00	73.48
	D - mm	0.25	0.56	1.00	1.56	2.24	3.05	3.99	5.05	6.23	8.25	9.00	9.75	10.00	D - mm	10.00	10.00	10.00	
70 x 5	UDL-KN/m2	1762.00	798.00	446.50	288.50	199.30	146.80	112.34	88.79	71.84	59.36	58.39	45.92	35.00	Span - mm	3881.00	3416.00	3087.00	85.25
	D - mm	0.21	0.48	0.85	1.34	1.92	2.62	3.42	4.33	5.34	6.46	9.00	9.75	10.00	D - mm	10.00	10.00	10.00	

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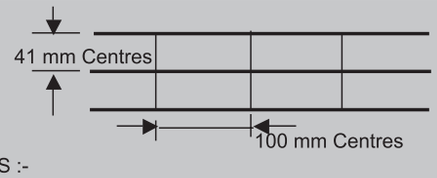
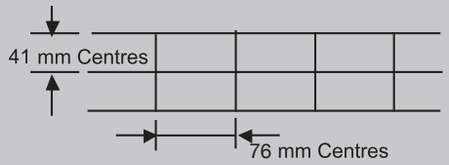
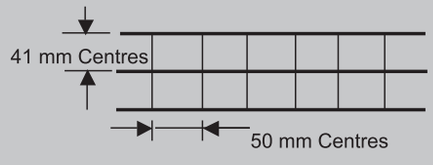
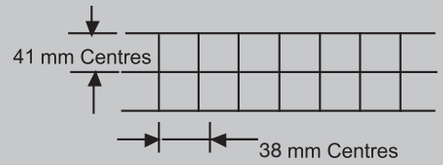
Performance Table D - For 41mm Centres









NOTES :-

Below table is made considering working stress of 165 N/mm^2 which allows for a safety factor of 1.6.

Deflection should not more than span / 200 times or 10mm,whichever is lesser.

For pedestrian traffic there are three loading categories,which are Light Duty - (UDL - 3 KN/m^2), Medium Duty - (UDL - 5 KN/m^2) and Heavy Duty - (UDL - 7.5 KN/m^2)

Add 2.8 Kg/m^2 to theoretical weight Kg/m^2 for Cross bars @ 50 mm centres

When calculating UDL and deflection for serrated gratings,allowance should be made for the material removed from the bearing bar to form the serration profile.Typically this is 90% of the UDL and 105 % of the deflection.These figures vary depending on the type of serration and should be confirmed during the design process.

Bearing Bar Size (mm)		SPAN IN MM													Max Clear Span for Pedestrian Loadings				Theoretical Weight Kg/m2 for 100mm pitch
		300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	U - KN/m^2	3	5	7.5	
20 x 3	UDL-KN/m^2	73.33	32.59	18.33	9.41	5.45	3.43	2.30	1.61	1.18	0.88	0.68	0.54	0.41	Span - mm	1098	926	809	14.60
	D - mm	0.75	1.68	2.99	3.75	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	5.49	4.63	4.05	
20 x 5	UDL-KN/m^2	122.22	54.32	30.56	15.69	9.08	5.72	3.83	2.69	1.96	1.47	1.13	0.89	0.68	Span - mm	1302	1098	959	22.45
	D - mm	0.75	1.68	2.99	3.75	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	6.51	5.49	4.80	
25 x 3	UDL-KN/m^2	114.58	50.93	28.65	18.33	10.64	6.70	4.49	3.15	2.30	1.73	1.33	1.05	0.80	Span - mm	1373	1158	1011	17.54
	D - mm	0.60	1.35	2.39	3.74	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	6.87	5.79	5.06	
25 x 5	UDL-KN/m^2	190.97	84.88	47.74	30.56	17.73	11.17	7.48	5.25	3.83	2.88	2.22	1.74	1.33	Span - mm	1627	1373	1199	27.36
	D - mm	0.60	1.35	2.39	3.74	4.50	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	8.14	6.87	6.00	
30 x 3	UDL-KN/m^2	165.00	73.33	41.25	26.40	18.33	11.58	7.76	5.45	3.97	2.98	2.30	1.81	1.38	Span - mm	1647	1389	1214	20.49
	D - mm	0.50	1.12	1.99	3.12	4.49	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	8.24	6.95	6.07	
30 x 5	UDL-KN/m^2	275.00	122.22	68.75	44.00	30.56	19.30	12.93	9.08	6.62	4.97	3.83	3.01	2.30	Span - mm	1953	1647	1439	32.26
	D - mm	0.50	1.12	1.99	3.12	4.49	5.25	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	9.77	8.24	7.20	
35 x 3	UDL-KN/m^2	224.58	99.81	56.15	35.93	24.95	18.33	12.32	8.65	6.31	4.74	3.65	2.87	2.19	Span - mm	1922	1621	1416	23.43
	D - mm	0.43	0.96	1.71	2.67	3.85	5.24	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	9.61	8.11	7.08	
35 x 5	UDL-KN/m^2	374.31	166.36	93.58	59.89	41.59	30.56	20.53	14.42	10.51	7.90	6.08	4.78	3.65	Span - mm	2205	1922	1679	37.17
	D - mm	0.43	0.96	1.71	2.67	3.85	5.24	6.00	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	9.61	8.40	
40 x 3	UDL-KN/m	293.33	130.37	73.33	46.93	32.59	23.95	18.33	12.91	9.41	7.07	5.45	4.28	3.27	Span - mm	2145	1852	1618	26.38
	D - mm	0.37	0.84	1.50	2.34	3.37	4.58	5.98	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	9.26	8.09	
40 x 5	UDL-KN/m^2	488.89	217.28	122.22	78.22	54.32	39.91	30.56	21.52	15.69	11.79	9.08	7.14	5.45	Span - mm	2438	2145	1918	42.08
	D - mm	0.37	0.84	1.50	2.34	3.37	4.58	5.98	6.75	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	10.00	9.59	
50 x 5	UDL-KN/m^2	763.89	339.51	190.97	122.22	84.88	62.36	47.74	37.72	30.64	23.02	17.73	13.95	10.64	Span - mm	2882	2536	2292	51.89
	D - mm	0.30	0.67	1.20	1.87	2.69	3.66	4.79	6.06	7.50	8.25	9.00	9.75	10.00	D - mm	10.00	10.00	10.00	
60 x 5	UDL-KN/m^2	1100.00	488.89	275.00	176.00	122.22	89.80	68.75	54.32	44.00	39.78	30.64	24.10	18.38	Span - mm	3304	2908	2627	61.70
	D - mm	0.25	0.56	1.00	1.56	2.24	3.05	3.99	5.05	6.23	8.25	9.00	9.75	10.00	D - mm	10.00	10.00	10.00	
70 x 5	UDL-KN/m^2	1497.22	665.43	374.31	239.56	166.36	122.22	93.58	73.94	59.89	49.49	48.66	38.27	29.18	Span - mm	3709	3264	2949	71.51
	D - mm	0.21	0.48	0.85	1.34	1.92	2.62	3.42	4.33	5.34	6.46	9.00	9.75	10.00	D - mm	10.00	10.00	10.00	



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