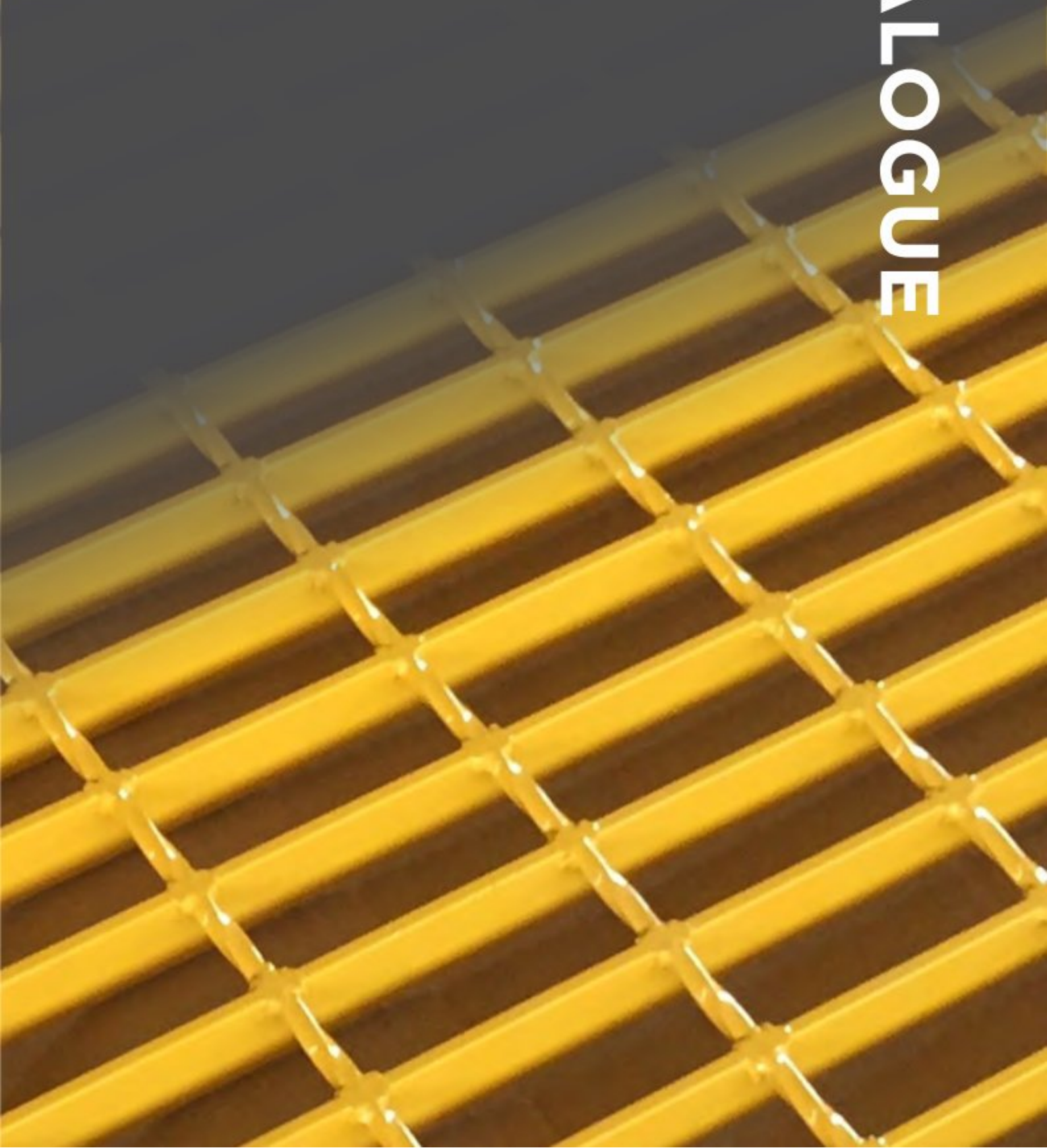




CATALOGUE



STEELGRATING CONTENT

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STEEL
GRATING

OVERVIEW AND APPLICATIONS



APPLICATIONS / USES

- Flooring
- Stair treads
- Walkways and ramps
- Balustrade infill
- Sunshades
- Drain covers
- Man hole covers
- Architectural facades
- Maintenance walkways / platforms
- Mezzanine flooring
- Ball stanchions (guard rails)
- And many other applications

PRODUCTS

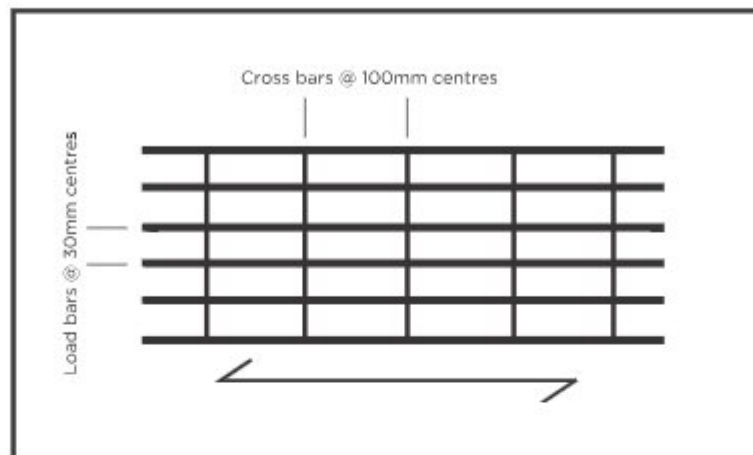
Steel Grating Ltd supplies the following;

- ✓ **Mild Steel Grating-** Available in many different types and profiles, Economic and strong with superior spanning capabilities. Typically supplied with a plain surface, a serrated surface is available on our most popular items.
- ✓ **Aluminium Grating-** Lightweight alternative to Mild Steel grating while still achieving great spanning capabilities, Aluminium grating is also popular in architectural settings such as sunscreens, balustrade infill and facades.
- ✓ **FRP Grating-** Available with a variety of surfaces and colours, lightweight/nonconductive/ non sparking. Used in environments where the physical properties are critical due to its corrosion resistant properties. Standard resin types are Isophthalic polyester and Vinyl ester resin.
- ✓ **Stair Treads-** Available in Mild Steel, Aluminium and FRP with many different options available.
- ✓ **Ball Stanchions-** Where edge protection / guard railing is required we offer a variety of standard stanchion posts designed to meet the requirements of AS1657:2018. A custom service is also available for non-standard stanchions.
- ✓ **Closure Bends/ Rail Bends / Slip Joints -** To complement our stanchion posts we offer closure/rail bends and slip joints when required to ensure fast and simple site installation.
- ✓ **Vehicle Grating-** Mild Steel grating used for drain covers, sump grates, ramps and flooring surfaces for vehicles.
- ✓ **Anti-slip Nosing's & Grip Plate-** Retro fit FRP yellow abrasive nosing and grip plate available to be fitted to most flooring surfaces to enhance slip resistance.
- ✓ **Additional Ancillary products -** Grate plate and Grate mesh.
- ✓ **Grating Fastenings-** Various fixing clips for our grating products.
- ✓ The supply of raw materials/ components **or** a full fabrication service for grating products.

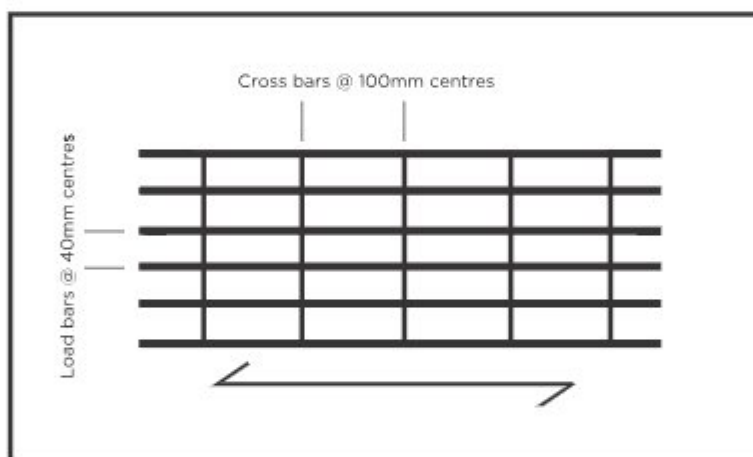
For in depth information on the above product lines please refer to the associated sections within the catalogue.

MILD STEEL AND ALUMINIUM GRATING SERIES

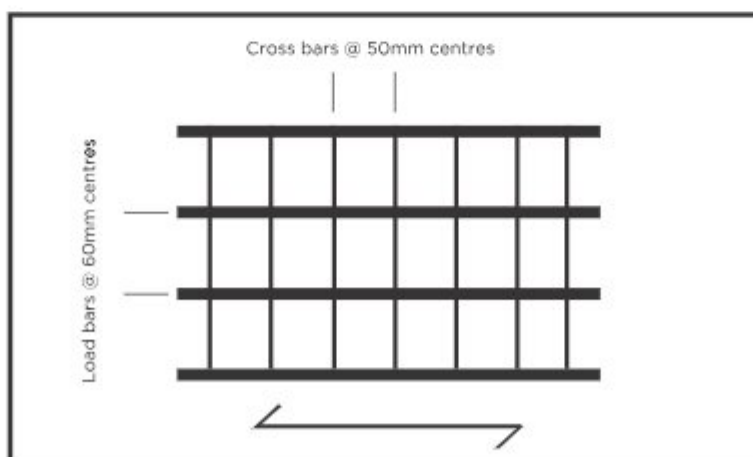
- ✓ **SERIES 1 GRATING** = Load bars at 30mm centres, cross bars at 100mm centres



- ✓ **SERIES 2 GRATING** = Load bars at 40mm centres, cross bars at 100mm centres



- ✓ **SERIES 3 GRATING** = Load bars at 60mm centres, cross bars at 50mm centres



SURFACES: MILD STEEL AND ALUMINIUM GRATING



- Photo depicts steel plain surface



- Photo depicts steel serrated surface

Mild Steel and Aluminium grating is typically supplied with a plain surface. A Serrated (S) surface is also available to a variety of our most common grating products. Serrated grating has notches taken out of the top of the load bar to enhance slip resistance in oily or wet areas. Please refer to the load charts in the associated sections of this catalogue to see what products are available with a serrated surface.

**Serrated grating is dictated by an S at the end of the product code. Grating will be assumed plain surface unless S is dictated at the end of the product code or the grating is clearly specified as serrated.*

**Banding bars to the edges of grates and cut outs will not be supplied serrated.*

FINISH: TREATMENT

FOR MILD STEEL GRATING

- **U**= Black (untreated / raw finish)
- **G**= Hot dip galvanised to AS/NZS 4680
- **P**= Powder coated finish

FOR ALUMINIUM GRATING

- **M**= Mill finish
- **A**= Anodised finish
- **P**= Powder coated finish

STANDARD SHEET SIZE (NOMINAL)

- **MILD STEEL GRATING:** 1000mm (wide) x 5800mm (span)
- **ALUMINIUM GRATING:** 1000mm (wide) x 5000mm (span)

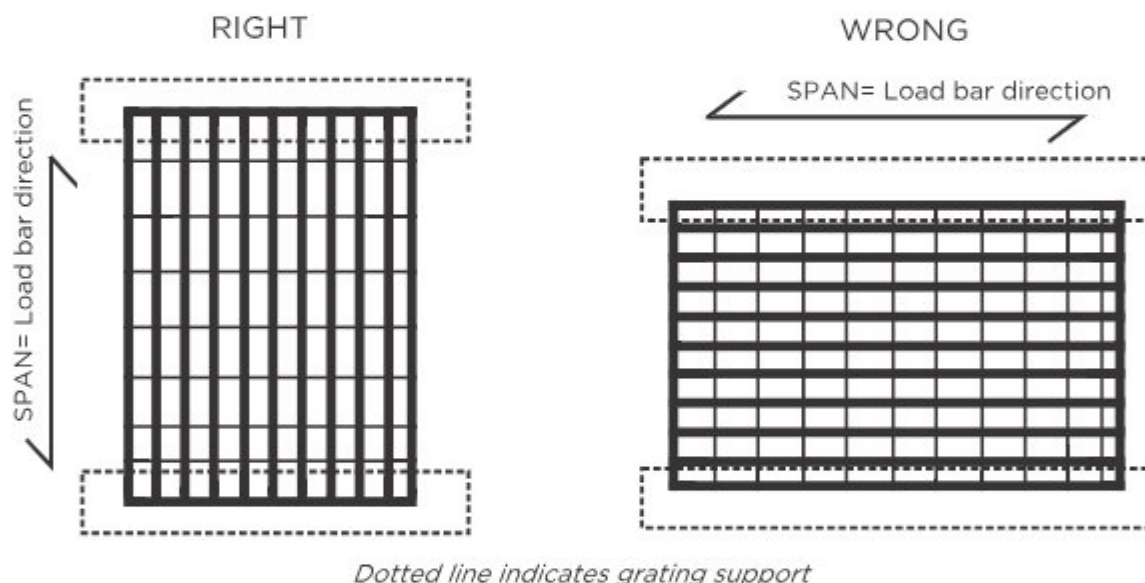
SPAN = LOAD BAR DIRECTION

**The above sizes are nominal sizes only. Actual widths of grating panels will vary in size based on the load bar thickness (3 or 5mm) and the grating type (series 1, 2 or 3). Please view the actual sheet sizes in the associated Mild steel and Aluminium sections of this catalogue.*

Typically we offer a full fabrication service to our clients, (Grates cut to size along with a trim bar welded to the cut edges along with any cut outs, kick plate or any additional items required) followed by the finish requested. We can also offer full or part sheets for clients to do their own fabrication.

LOAD BAR DIRECTION (SPAN)

It is important to check the load bar direction (span) when ordering Mild Steel and Aluminium grating as it needs to be supported in a specific way. The load bars are the flat bars standing on their edge in which the grating is manufactured from. The supports for the grating need to be at 90° (perpendicular) to the load bar direction.



SLOPING WALKWAYS: AS1657 states "where the angle of slope of the walkway exceeds 10° in the direction of travel, cleats shall be provided" A 10x10mm square bar spaced at regular intervals is an acceptable solution in this application. Steel Grating Ltd can weld these on to the grates during the fabrication process if required.

**AS1657 states a sloping walkway should not exceed 20°*

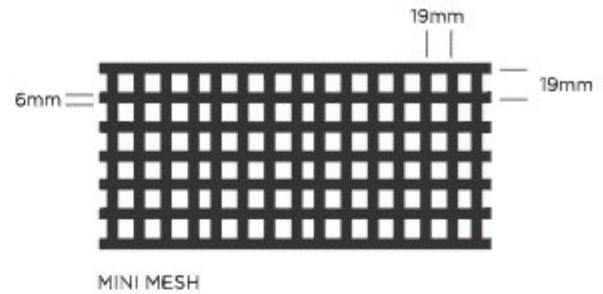
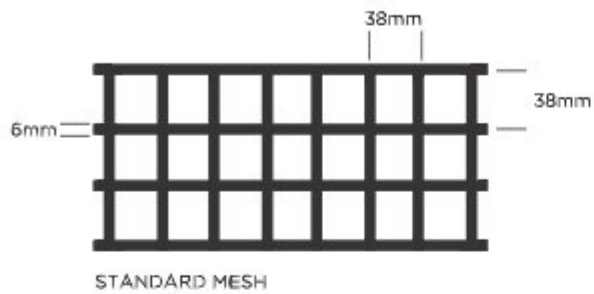


FRP GRATING: MESH / SURFACE / RESIN TYPE

MESH PROFILES

SM = Standard Mesh 38x38mm centre to centre

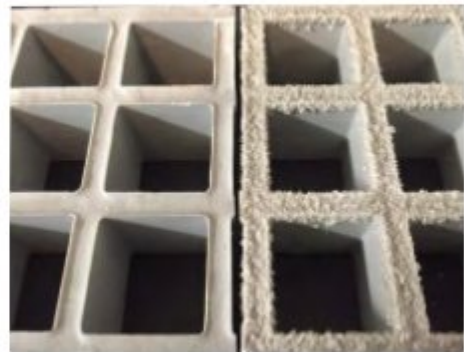
MM = Mini Mesh 19x19mm centre to centre



SURFACES

- Concave top surface
- Grit top surface

Plain surface grating is also available but is manufactured to order.



RESIN TYPE

- Isophthalic Polyester or Vinyl Ester Resin

COLOURS

- A variety of colours available

STANDARD SHEET SIZE: 1220 x 3660mm

For detailed information on our FRP Products please view the FRP section of this catalogue



QUICK LOOK AT ORDERING FOR GRATING PRODUCTS

- Use the quick reference charts or main load charts to determine the most suitable grating for your application.
- Provide information on the material type (Mild Steel, Aluminium or FRP) along with the top surface and finally the finish/ treatment and or colour where applicable.
- Specify the size of the area or panel size(s) for the grating you require along with the load bar direction (span).
- Specify any additional information we need to know for example if there are cut outs or penetrations in the grating, do we need to split cut outs between panels for installation, is kick plate required, are the grates banded or cut to size only etc....

For more detailed information on ordering / specifying our Mild Steel, Aluminium and FRP grating please view the ordering guides within the associated sections within the catalogue.

Whether we are supplying stock sheets, 1 off panels or large fabrication jobs the team at Steel Grating Ltd will be able to help you with any technical enquires. Please contact us at Steel Grating Ltd if you have any questions or queries regarding any of our products.

APPEARANCE OF GRATING

The finished look of the grating is important to us at Steel Grating Ltd. One of the best ways to make sure the grating looks neat and tidy is supplying grating with cross bar alignment. Where possible and with enough information given Steel Grating Ltd will do our best to ensure cross bar alignment is given to grates sitting next to each other within a job we are supplying to you to ensure each job is supplied in an uniform and presentable manner.

QUALITY CONTROL

We are dedicated to ensuring that the upmost quality of products are supplied to our clients. To ensure the highest quality of our products when requested we can supply the following,

- Mill certificates for the raw materials for Mild Steel and Aluminium grating products.
- Test certificates for galvanising of Mild Steel products.
- Current welding certifications for employees at Steel Grating Ltd.
- Certificates of conformance for the materials supplied for FRP grating.

To coincide with the above all our fabricated products goes through a strict quality control system to ensure that we have manufactured the product to the exact sizes and quantities required by our clients.

DELIVERY OF OUR PRODUCTS

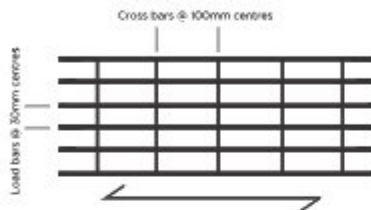
Whether a job is small, medium or large in size Steel Grating Ltd clients are assured that we will do everything possible to supply the job within the desired time frames of our clients. We understand that time frames can be very tight on jobs and our delivery is what sets us aside from our competitors. We will always ask when a job is required and ensure that it is delivered within the required time frame.

We mean what we say; "We will deliver a quality product on time every time"

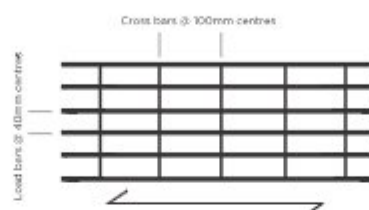


MILD STEEL GRATING

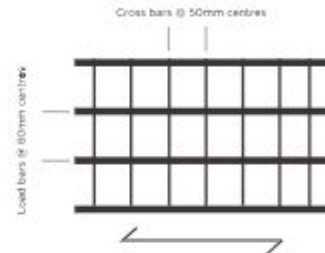
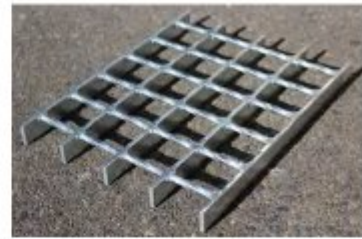
SERIES 1



SERIES 2



SERIES 3



MATERIALS

Mild Steel grating load bars are manufactured from steel that complies with AS/NZS 3679 G250 or better.

TOP SURFACE

Typically supplied with a plain surface. On our most popular products a Serrated surface (S) is also available. Please refer to the loading charts in this section of the catalogue to see which Mild Steel grating types are available with a Serrated surface.

- The **"S"** at the end of the code represents a **S**errated surface, no notation represents a plain surface. Grating will be assumed plain surface unless **S** is dictated at the end of the product code or is clearly specified as Serrated. Eg- 255/1S or 255/1 Serrated

FINISH

- **Black** (untreated/raw) finish (**U**)
- **Hot dip galvanised** finish to meet the requirements of AS/NZS 4680 (**G**)
- **Powder coated** finish (**P**)

STANDARD SHEET SIZE

- Series 1 grating: 995mm (wide) x 5800mm (span)
- Series 2 grating: 1005mm (wide) x 5800mm (span)
- Series 3 grating: 965mm (wide) x 5800mm (span)

**Standard panel widths may vary slightly to what is indicated as there are minor manufacturing tolerances allowable during the process of manufacturing grating.*

Sizes above state grating manufactured from 5mm load bars (for 3mm load bar full panel width please -2mm off the sizes eg- 993mm wide for series 1 and 1003mm wide for series 2). Please review the load bar spacing chart on page **51 of this catalogue for all nearest load bar dimensions for grating products.*

MILD STEEL GRATING QUICK REFERENCE LOAD CHARTS

SERIES 1 GRATING

Product Code	Load Bar Size (mm)	Maximum Span (mm) for various Loads with 5.00mm Deflections			
		5mm deflection span @ 2.5kPa	5mm deflection span @ 4kPa	5mm deflection span @ 5kPa	5mm deflection span @ 7.5kPa
203/1	20 x 3	1204	1070	1012	915
205/1	20 x 5	1368	1216	1150	1039
253/1	25 x 3	1423	1265	1197	1081
255/1	25 x 5	1617	1438	1360	1229
255/1S	25 x 5 serrated	1494	1328	1256	1135
323/1	32 x 3	1712	1523	1440	1301
325/1	32 x 5	1946	1730	1636	1478
325/1S	32 x 5 serrated	1830	1628	1539	1391
403/1	40 x 3	2024	1800	1702	1538
405/1	40 x 5	2300	2045	1934	1748
405/1S	40 x 5 serrated	2213	1968	1861	1682
455/1	45 x 5	2513	2234	2113	1909
505/1	50 x 5	2719	2418	2287	2066
655/1	65 x 5	3310	2943	2784	2515

SERIES 2 GRATING

Product Code	Load Bar Size (mm)	Maximum Span (mm) for various Loads with 5.00mm Deflections			
		5mm deflection span @ 2.5kPa	5mm deflection span @ 4kPa	5mm deflection span @ 5kPa	5mm deflection span @ 7.5kPa
*203/2	20 x 3	1120	996	942	851
205/2	20 x 5	1273	1132	1070	967
253/2	25 x 3	1324	1177	1114	1006
255/2	25 x 5	1505	1338	1265	1143
255/2S	25 x 5 serrated	1390	1236	1169	1056
*323/2	32 x 3	1594	1417	1340	1211
325/2	32 x 5	1811	1610	1523	1376
325/2S	32 x 5 serrated	1703	1515	1432	1294
*403/2	40 x 3	1884	1675	1584	1431
405/2	40 x 5	2140	1903	1800	1626
*405/2S	40 x 5 serrated	2060	1831	1732	1565
*455/2	45 x 5	2338	2079	1966	1777
*505/2	50 x 5	2530	2250	2128	1923

SERIES 3 GRATING

Product Code	Load Bar Size (mm)	Maximum Span (mm) for various Loads with 5.00mm Deflections			
		5mm deflection span @ 2.5kPa	5mm deflection span @ 4kPa	5mm deflection span @ 5kPa	5mm deflection span @ 7.5kPa
*255/3	25 x 5	1360	1209	1143	1033
*255/3S	25 x 5 serrated	1256	1117	1056	955
325/3	32 x 5	1636	1455	1376	1243
325/3S	32 x 5 serrated	1539	1369	1294	1170

- 2.5 kPa, 5mm deflection- Light use for access and working, AS 1657
- 4 kPa, 5mm deflection- High / Repetitive use, AS/NZS 1170
- 5 kPa, 5mm deflection - High / Repetitive use with placement of objects and tools (infrequent), AS/NZS 1170
- 7.5 kPa, 5mm deflection - High / Repetitive use with placement of objects and tools (frequent), AS/NZS 1170
- *product is low use (held in small quantities or not commonly stocked) please contact Steel Grating Ltd for information on quantities regarding these items

SERIES 1: MILD STEEL GRATING LOAD CHART

SAFE LOAD AND DEFLECTION TABLE

Product Code	Load Bar Size (mm)	Mass (kg/sqm)		Span (mm)- maximum allowable Q load (kPa) under strength design												Span (mm) for 5mm deflection at 4kPa
				450	600	750	900	1050	1200	1500	1800	2100	2400	2700	3000	
203/1	20 x 3	18.526	U	43.28	24.26	15.46	10.68	7.80								1070
			D	1.69	3.02	5.90	10.19	16.18								
			D4	0.16	0.49	1.21	2.50	4.63								
205/1	20 x 5	28.993	U	72.14	40.46	25.79	17.82	13.02	9.90						1216	
			D	1.69	3.00	4.66	6.68	9.71	14.49							
			D4	0.09	0.30	0.72	1.50	2.78	4.74							
253/1	25 x 3	22.451	U	67.68	37.97	24.22	16.76	12.25	9.33						1265	
			D	1.35	2.40	3.74	5.36	8.28	12.36							
			D4	0.08	0.25	0.62	1.28	2.37	4.05							
255/1	25 x 5	35.534	U	112.82	63.31	40.39	27.94	20.44	15.57						1438	
			D	1.35	2.40	3.74	5.37	7.27	9.45							
			D4	0.05	0.15	0.37	0.77	1.42	2.43							
255/1S	25 x 5 serrated	32.264	U	91.35	51.25	32.68	22.60	16.52	12.57						1328	
			D	1.50	2.67	4.16	5.95	8.06	10.47							
			D4	0.07	0.21	0.51	1.05	1.95	3.33							
323/1	32 x 3	27.946	U	110.98	62.30	39.78	27.54	20.16	15.37	9.74					1523	
			D	1.06	1.88	2.93	4.20	5.70	7.41	11.51						
			D4	0.04	0.12	0.29	0.61	1.13	1.93	4.71						
325/1	32 x 5	44.693	U	184.98	103.86	66.31	45.92	33.62	25.64	16.25					1730	
			D	1.06	1.88	2.93	4.20	5.70	7.42	11.48						
			D4	0.02	0.07	0.18	0.37	0.68	1.16	2.83						
325/1S	32 x 5 serrated	41.422	U	157.17	88.23	56.32	38.99	28.54	21.75	13.78					1628	
			D	1.15	2.04	3.17	4.56	6.18	8.04	12.42						
			D4	0.03	0.09	0.23	0.47	0.87	1.48	3.61						
403/1	40 x 3	34.226	U	172.05	96.63	61.72	42.76	31.33	23.91	15.18	10.44				1800	
			D	0.84	1.49	2.33	3.34	4.53	5.90	9.15	13.05					
			D4	0.02	0.06	0.15	0.31	0.58	0.99	2.41	5.00					
405/1	40 x 5	55.159	U	289.17	162.42	103.76	71.89	52.67	40.20	25.53	17.57				2045	
			D	0.85	1.50	2.35	3.37	4.57	5.96	9.24	13.18					
			D4	0.01	0.04	0.09	0.19	0.35	0.59	1.45	3.00					
405/1S	40 x 5 serrated	52.543	U	260.95	146.56	93.61	64.85	47.51	36.25	23.02	15.83				1968	
			D	0.89	1.58	2.47	3.55	4.81	6.27	9.71	13.85					
			D4	0.01	0.04	0.11	0.22	0.41	0.69	1.69	3.50					
455/1	45 x 5	61.701	U	366.06	205.64	131.39	91.06	66.74	50.96	32.39	22.31	16.23			2234	
			D	0.75	1.34	2.09	3.00	4.07	5.30	8.23	11.75	15.84				
			D4	0.01	0.03	0.06	0.13	0.24	0.42	1.02	2.11	3.90				
505/1	50 x 5	68.243	U	452.01	253.96	162.29	112.50	82.47	62.99	40.07	27.62	20.12	15.24		2418	
			D	0.68	1.20	1.88	2.70	3.67	4.78	7.42	10.61	14.31	18.50			
			D4	0.01	0.02	0.05	0.10	0.18	0.30	0.74	1.54	2.85	4.86			
655/1	65 x 5	87.868	U	764.16	429.46	274.55	190.39	139.65	106.72	67.99	46.95	34.27	26.03	20.39	2943	
			D	0.52	0.93	1.45	2.08	2.83	3.69	5.73	8.21	11.10	14.38	18.04		
			D4	0.00	0.01	0.02	0.04	0.08	0.14	0.34	0.70	1.30	2.21	3.54		

(1) The data provided in the above table based on the critical design case of the Allowable Stress design and the Ultimate Limit State Design. The mild steel grade is G250 with a yielding strength of 250 MPa according to AS3679-2006, the allowable design stress is 211 MPa.

(2) U: Safe Superimposed Uniformly Distributed Load - kPa

(3) D: Deflection due to the Safe Superimposed Load - mm

(4) D4: Deflection due to 4 kPa applied Load - mm

(5) Span shown left of heavy line have a deflection of less than 5mm for 4 kPa UDL

(6) Add 12% to the mass provided for galvanising and fabrication banding bars

SERIES 2: MILD STEEL GRATING LOAD CHART

SAFE LOAD AND DEFLECTION TABLE

Product Code	Load Bar Size (mm)	Mass (kg/sqm)		Span (mm)- maximum allowable Q load (kPa) under strength design												Span (mm) for 5mm deflection at 4kPa
				450	600	750	900	1050	1200	1500	1800	2100	2400	2700	3000	
*203/2	20 x 3	14.601	U	32.45	18.19	11.59	8.00									996
			D	1.70	4.02	7.86	13.58									
			D4	0.21	0.66	1.61	3.33									
205/2	20 x 5	22.451	U	54.10	30.34	19.34	13.36	9.76							1132	
			D	1.69	3.00	4.72	8.15	12.94								
			D4	0.13	0.40	0.96	2.00	3.71								
253/2	25 x 3	17.545	U	50.75	28.47	18.16	12.56	9.18							1177	
			D	1.35	2.40	4.02	6.95	11.04								
			D4	0.11	0.34	0.82	1.71	3.16								
255/2	25 x 5	27.357	U	84.61	47.47	30.29	20.95	15.32	11.67						1338	
			D	1.35	2.40	3.74	5.36	7.27	9.89	Contact Steel grating Ltd for deflection for loads and spans for this side of shadow line						
			D4	0.06	0.20	0.49	1.02	1.90	3.24							
255/2S	25 x 5 serrated	24.904	U	68.51	38.43	24.51	16.94	12.38	9.42						1236	
			D	1.50	2.67	4.15	5.95	9.09	13.57							
			D4	0.09	0.28	0.68	1.40	2.60	4.44							
*323/2	32 x 3	21.666	U	83.22	46.72	29.82	20.65	15.11	11.52						1417	
			D	1.06	1.88	2.93	4.20	5.70	7.86							
			D4	0.05	0.16	0.39	0.81	1.51	2.57							
325/2	32 x 5	34.226	U	138.73	77.89	49.73	34.43	25.21	19.22	12.18					1610	
			D	1.06	1.88	2.93	4.20	5.70	7.42	11.47						
			D4	0.03	0.10	0.24	0.49	0.90	1.54	3.77						
325/2S	32 x 5 serrated	31.773	U	117.87	66.17	42.23	29.23	21.40	16.31	10.32					1515	
			D	1.15	2.04	3.17	4.56	6.18	8.03	12.41						
			D4	0.04	0.12	0.30	0.62	1.15	1.97	4.81						
*403/2	40 x 3	26.376	U	129.03	72.46	46.28	32.06	23.49	17.92	11.38					1675	
			D	0.84	1.49	2.33	3.34	4.53	5.90	9.15						
			D4	0.03	0.08	0.20	0.42	0.77	1.32	3.22						
405/2	40 x 5	42.076	U	216.87	121.81	77.81	53.91	39.50	30.14	19.14	13.17				1903	
			D	0.85	1.50	2.35	3.37	4.57	5.96	9.23	13.17					
			D4	0.02	0.05	0.12	0.25	0.46	0.79	1.93	4.00					
*405/2S	40 x 5 serrated	40.114	U	195.71	109.91	70.20	48.63	35.62	27.18	17.26	11.86				1831	
			D	0.89	1.58	2.47	3.55	4.81	6.26	9.71	13.84					
			D4	0.02	0.06	0.14	0.29	0.54	0.92	2.25	4.67					
*455/2	45 x 5	46.982	U	274.54	154.23	98.54	68.29	50.05	38.21	24.29	16.73				2079	
			D	0.75	1.34	2.09	3.00	4.07	5.30	8.23	11.75					
			D4	0.01	0.03	0.08	0.18	0.33	0.56	1.36	2.81					
*505/2	50 x 5	51.889	U	399.00	190.46	121.71	84.37	61.85	47.23	30.05	20.71	15.08			2250	
			D	0.68	1.20	1.88	2.70	3.67	4.78	7.42	10.61	14.31				
			D4	0.01	0.03	0.06	0.13	0.24	0.40	0.99	2.05	3.79				

(1) The data provided in the above table based on the critical design case of the Allowable Stress design and the Ultimate Limit State Design.

The mild steel grade is G250 with a yielding strength of 250 MPa according to AS3679-2006, the allowable design stress is 211 MPa.

(2) U: Safe Superimposed Uniformly Distributed Load - kPa

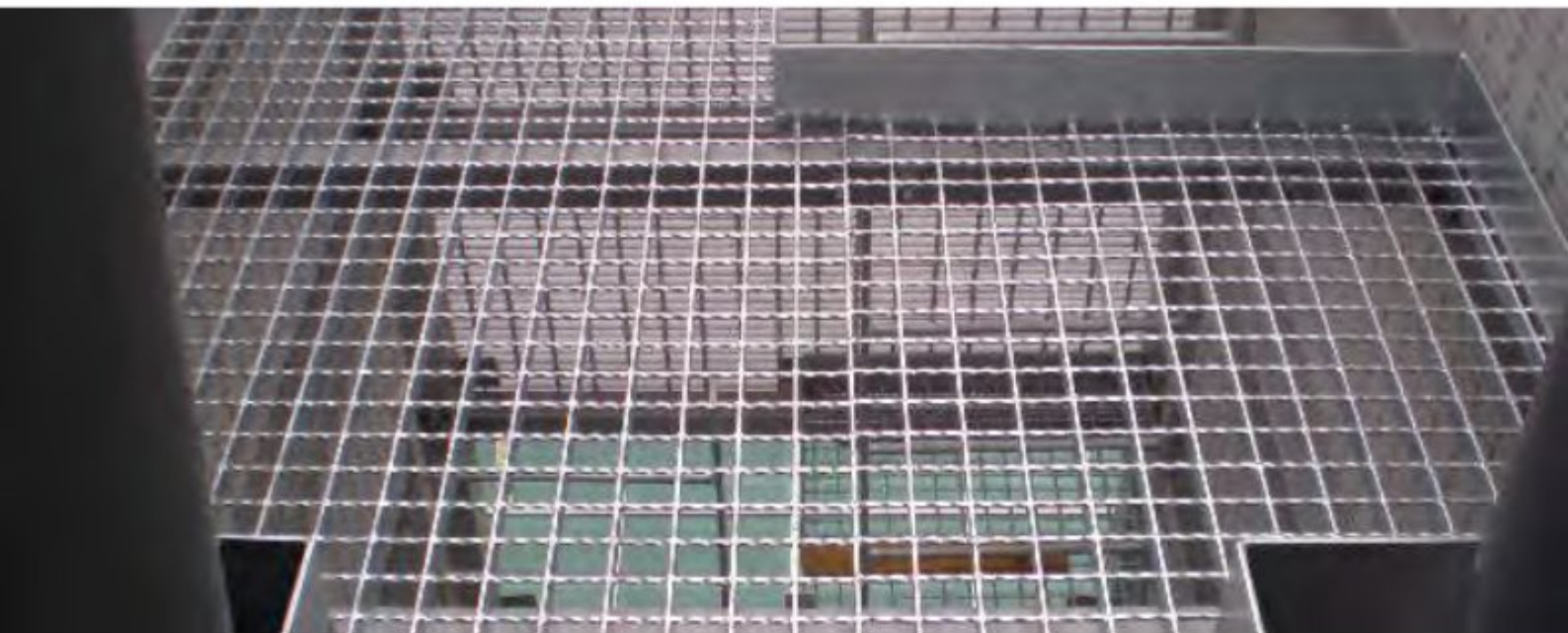
(3) D: Deflection due to the Safe Superimposed Load - mm

(4) D4: Deflection due to 4 kPa applied Load - mm

(5) Span shown left of heavy line have a deflection of less than 5mm for 4 kPa UDL

(6) * Product not commonly stocked

(7) Add 14% to the mass provided for galvanising and fabrication banding bars



SERIES 3: MILD STEEL GRATING LOAD CHART

**Please note series 3 grating does not comply with AS1657 due to the size of the openings*

SAFE LOAD AND DEFLECTION TABLE

Product Code	Load Bar Size (mm)	Mass (kg/sqm)		Span (mm)- maximum allowable Q load (kPa) under strength design												Span (mm) for 5mm deflection at 4kPa
				450	600	750	900	1050	1200	1500	1800	2100	2400	2700	3000	
*255/3S	25 x 5 serrated	20.371	U	45.63	25.58	16.30	11.26	8.22								1117
			D	1.50	2.66	4.97	8.59	13.63								
			D4	0.13	0.42	1.02	2.11	3.90								
*255/3	25 x 5	22.006	U	56.37	31.61	20.15	13.93	10.18	7.74							1209
			D	1.35	2.40	3.73	6.26	9.94	14.84							
			D4	0.10	0.30	0.74	1.54	2.85	4.86	Contact Steel grating Ltd for deflection for loads and spans for this side of shadow line						
325/3S	32 x 5 serrated	24.950	U	78.54	44.07	28.12	19.45	14.23	10.83							1369
			D	1.15	2.03	3.17	4.55	6.16	9.03							
			D4	0.06	0.18	0.45	0.93	1.73	2.96							
325/3	32 x 5	26.585	U	92.45	51.89	33.11	22.92	16.77	12.78							1455
			D	1.06	1.88	2.92	4.20	5.69	7.39							
			D4	0.05	0.14	0.35	0.73	1.36	2.32							

(1) The data provided in the above table based on the critical design case of the Allowable Stress design and the Ultimate Limit State Design. The mild steel grade is G250 with a yielding strength of 250 MPa according to AS3679-2006, the allowable design stress is 211 MPa.

(2) U: Safe Superimposed Uniformly Distributed Load - kPa

(3) D: Deflection due to the Safe Superimposed Load - mm

(4) D4: Deflection due to 4 kPa applied Load - mm

(5) Span shown left of heavy line have a deflection of less than 5mm for 4 kPa UDL

(6) * Product not commonly stocked

(7) * Series 3 grating does not comply with the design requirements of AS1657 due to the openings greater than the limit of 45 mm of which is stated in AS1657

(8) Add 16% to the mass provided for galvanising and fabrication banding bars



HOW TO SPECIFY / ORDER MILD STEEL GRATING

- Use the quick reference load charts or the main load charts to determine a suitable load bar size and series to suit your loading requirements. Eg- 255/1 or 325/2 etc...
- Designate at the end of the code with an **S** if you require a **S**errated surface, No designation will be assumed a Plain surface.
**check which grating options are available with a serrated surface within the load charts*
- Designate that the product you require is Mild Steel by referencing **M** = Mild Steel grating
- Designate the finish you require
 - **U** = Black (untreated / raw finish)
 - **G** = Hot dip galvanised to AS/NZS 4680
 - **P** = Powder coated finish
- Specify the size of the area or panel size(s) for the grating you require along with the load bar direction (span)
- Specify any additional information we need to know for example if there are cut outs or penetrations in the grating, do we need to split cut outs between panels for installation, is kick plate required, are the grates banded or cut to size only etc....

EXAMPLES OF ORDERING / SPECIFYING MILD STEEL GRATING

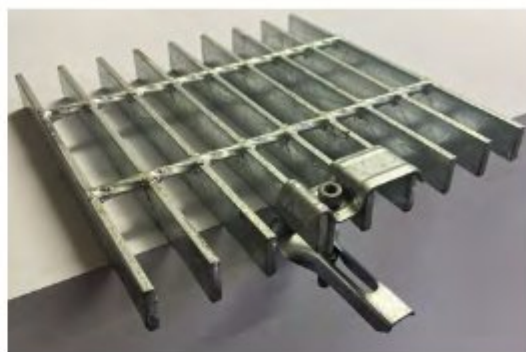
405/1 MU = 40x5mm plain load bars (series 1 grating, load bars at 30mm centres, cross bars at 100mm centres) **M**ild Steel, **U**ntreated finish

325/25 MG = 32x5mm **S**errated load bars (series 2, load bars at 40mm centres, cross bars at 100mm centres) **M**ild Steel, **G**alvanised finish.

FASTENINGS AND INSTALLATION FOR MILD STEEL GRATING:

GALVANISED FIXING CLIPS

Steel Grating Ltd provides a universal fixing clip designed to suit our series 1, series 2 and series 3 steel grating options with load bar sizes from 20mm up to 50mm. These clips comprise of a top "M" clip designed to saddle over the top of the grating and a bottom "J" clip that when applicable is designed to fasten the underside of the grating to the support. The bottom clip captivates the nut meaning that fastening the grating to the supports can be done from the top side of the grating for ease of installation.



- 4 fixing clips per m² is recommended with additional clips to be used on longer grates where the grating sits on top of the supports at the intermediate spans.
- Minimum 4 clips per panel is recommended.
- In areas of lateral load movement or vibration fixing clips are not generally recommended.

WELDING GRATING TO ITS SUPPORT

Welding grating to the supporting structure is deemed a suitable process for permanently installed grating or in areas of vibration and lateral load movement. Steel Grating recommends a 25mm long, 6mm fillet weld at 1000mm centres. Minimum number of welds per panel is 4.

WELDING FIXING LUGS TO GRATING

Fixing lugs can be provided on grates if necessary. This comprises of a flat bar welded between the load bars with a hole drilled in it. The fixing lug is usually located flush with the bottom side of the grating and the centres of the holes for the fixing lugs are determined by the spacing's of the load bars.

ADDITIONAL INFORMATION

Minimum Support Dimension

A minimum support of 25mm for grating up to 50mm deep.

A minimum support of 50mm for 50mm and 65mm deep grating

It is generally recommended that the minimum grating support should be equal to the height of the grating load bar.

RECOMMENDED CLEARANCES

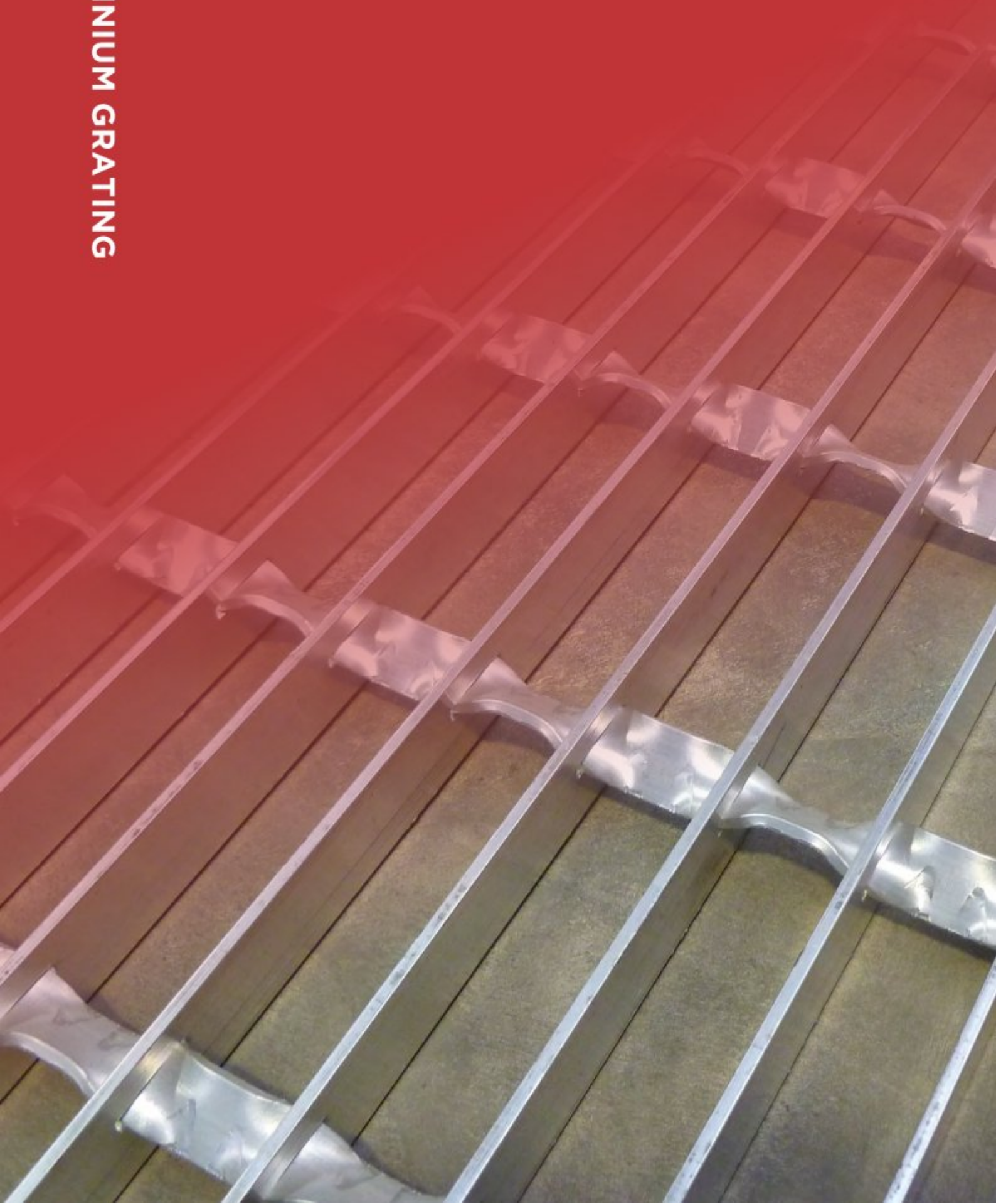
Recommended Clearances 5mm (min) to 10mm (max) spacing between grates.

10mm clearance of grating from the edge of a wall or end of a support

When grating sits in an angle minimum recommended clearance each side is equal to the thickness of the angle.

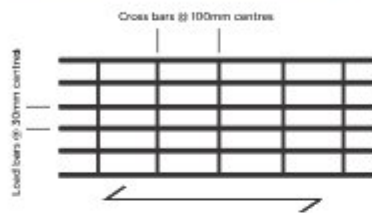


ALUMINIUM GRATING

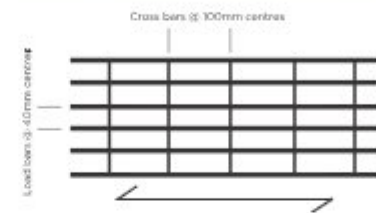


ALUMINIUM GRATING

SERIES 1



SERIES 2



MATERIAL

Aluminium grating load bars are manufactured from aluminium grade 6063 T6.

TOP SURFACE

Typically supplied with a plain surface. On our most popular products a Serrated surface is also available. Please enquire to see which aluminium grating products are available with a Serrated surface.

- The "**S**" at the end of the code represents a **S**errated surface, no notation represents a plain surface. Grating will be assumed plain surface unless **S** is dictated at the end of the product code or is clearly specified as Serrated. Eg- 255/1S or 255/1 Serrated

FINISH

- Mill Finish (**M**)
- Anodised (**A**)
- Powder coated (**P**)

STANDARD SHEET SIZE

Series 1 grating: 995mm (wide) x 5000mm (span)

Series 2 grating: 995mm (wide) x 5000mm (span)

**Standard panel widths may vary slightly to what is indicated as there are minor manufacturing tolerances allowable during the process of manufacturing grating.*

ALUMINIUM GRATING QUICK REFERENCE LOAD CHARTS

ALUMINIUM GRATING SERIES 1

Product Code	Load Bar Size (mm)	Maximum Span (mm) for various Loads with 5.00mm Deflections			
		5mm deflection span @ 2.5kPa	5mm deflection span @ 4kPa	5mm deflection span @ 5kPa	5mm deflection span @ 7.5kPa
203/1	20 x 3	920	818	774	699
205/1	20 x 5	1045	930	879	794
253/1	25 x 3	1088	967	915	827
255/1	25 x 5	1236	1099	1039	939
255/1S	25 x 5 serrated	1142	1015	960	868
323/1	31.8 x 3.2	1324	1177	1113	1006
325/1	32 x 4.5	1449	1288	1218	1101
325/1S	32 x 4.5 serrated	1363	1212	1146	1036
403/1	38 x 3	1489	1324	1252	1131
405/1	38 x 4.5	1648	1465	1386	1252
405/1S	38 x 4.5 serrated	1566	1392	1317	1190
505/1	50 x 4.5	2025	1800	1702	1538

ALUMINIUM GRATING SERIES 2

Product Code	Load Bar Size (mm)	Maximum Span (mm) for various Loads with 5.00mm Deflections			
		5mm deflection span @ 2.5kPa	5mm deflection span @ 4kPa	5mm deflection span @ 5kPa	5mm deflection span @ 7.5kPa
203/2	20 x 3	856	761	720	651
205/2	20 x 5	973	865	818	739
253/2	25 x 3	1012	900	851	769
255/2	25 x 5	1150	1023	967	874
255/2S	25 x 5 serrated	1063	945	894	808
323/2	31.8 x 3.2	1232	1096	1036	936
325/2	32 x 4.5	1348	1199	1134	1024
325/2S	32 x 4.5 serrated	1268	1128	1067	964
403/2	38 x 3	1386	1232	1165	1053
405/2	38 x 4.5	1534	1364	1290	1165
405/2S	38 x 4.5 serrated	1457	1296	1225	1107
505/2	50 x 4.5	1884	1675	1584	1432

- 2.5 kPa, 5mm deflection- Light use for access and working, AS 1657
- 4 kPa, 5mm deflection- High / Repetitive use, AS/NZS 1170
- 5 kPa, 5mm deflection - High / Repetitive use with placement of objects (infrequent), AS/NZS 1170
- 7.5 kPa, 5mm deflection - High / Repetitive use with placement of objects (frequent), AS/NZS 1170

SERIES 1: ALUMINIUM GRATING LOAD CHART

SAFE LOAD AND DEFLECTION TABLE

Product Code	Load Bar Size (mm)	Mass (kg/sqm)		Span (mm)- maximum allowable Q load (kPa) under strength design											Span (mm) for 5mm deflection at 4kPa
				150	300	450	600	750	900	1050	1200	1500	1800		
203/1	20 x 3	6.696	U	321.16	80.24	35.63	20.01	12.78							818
			D	0.45	1.81	4.08	8.84	17.26							
			D4	0.01	0.09	0.46	1.45	3.53							
205/1	20 x 5	10.296	U	535.27	133.74	59.38	33.36	21.31	14.77						930
			D	0.45	1.81	4.08	7.24	11.29	17.90						
			D4	0.00	0.05	0.27	0.87	2.12	4.39	Check Deflection for Loads and Span for this side of Shadow Line					
253/1	25 x 3	8.046	U	486.79	121.64	54.02	30.35	19.40	13.45						967
			D	0.35	1.41	3.16	5.62	8.84	15.27						
			D4	0.00	0.05	0.23	0.74	1.81	3.75						
255/1	25 x 5	12.546	U	836.39	209.01	92.82	52.16	33.34	23.11	16.95					1099
			D	0.36	1.45	3.26	5.79	9.04	13.00	17.66					
			D4	0.00	0.03	0.14	0.44	1.08	2.25	4.17					
255/1S	25 x 5 serrated	11.421	U	677.46	169.28	75.17	42.24	26.99	18.71	13.72					1015
			D	0.40	1.61	3.62	6.44	10.04	14.43	19.96					
			D4	0.00	0.04	0.19	0.61	1.49	3.09	5.72					
323/1	31.8 x 3.2	10.454	U	817.90	204.40	90.79	51.02	32.62	22.62	16.59					1177
			D	0.27	1.08	2.42	4.30	6.72	9.66	13.12					
			D4	0.00	0.02	0.11	0.34	0.82	1.71	3.16					
325/1	32 x 4.5	14.256	U	1233.35	308.23	136.91	76.95	49.20	34.12	25.03	19.13				1288
			D	0.28	1.13	2.55	4.53	7.07	10.17	13.82	18.02				
			D4	0.00	0.01	0.07	0.24	0.57	1.19	2.21	3.77				
325/1S	32 x 4.5 serrated	13.244	U	1048.16	261.94	116.35	65.39	41.80	28.99	21.26	16.25				1212
			D	0.31	1.23	2.77	4.91	7.67	11.02	14.98	19.53				
			D4	0.00	0.02	0.10	0.30	0.73	1.52	2.82	4.81				
403/1	38 x 3	11.556	U	1003.72	250.85	111.42	62.63	40.04	27.77	20.37	15.57				1324
			D	0.21	0.83	1.86	3.30	5.15	7.41	10.07	13.13				
			D4	0.00	0.01	0.07	0.21	0.51	1.07	1.98	3.37				
405/1	38 x 4.5	16.686	U	1739.25	434.69	193.10	108.55	69.41	48.15	35.33	27.01				1465
			D	0.24	0.95	2.15	3.82	5.96	8.57	11.65	15.19				
			D4	0.00	0.01	0.04	0.14	0.34	0.71	1.32	2.25				
405/1S	38 x 4.5 serrated	15.674	U	1517.92	379.36	168.52	94.73	60.57	42.01	30.83	23.57				1392
			D	0.26	1.02	2.30	4.08	6.37	9.17	12.46	16.25				
			D4	0.00	0.01	0.05	0.17	0.42	0.87	1.62	2.76				
505/1	50 x 4.5	21.546	U	2998.16	749.38	332.94	187.19	119.72	83.08	60.98	46.64	29.77	20.61		1800
			D	0.18	0.72	1.63	2.89	4.51	6.49	8.82	11.51	17.94	25.76		
			D4	0.00	0.00	0.02	0.06	0.15	0.31	0.58	0.99	2.41	5.00		

- **U:** Safe Superimposed Uniformly Distributed Load - kPa
- **D:** Deflection due to the Safe Superimposed Load - mm
- **D4:** Deflection due to 4 kPa applied Load - mm
- Span to the left of the heavy line have a deflection of less than 5mm for 4 kPa UDL
- The design has been based on the principal of the aluminium Allowable Stress Design and Ultimate Limit State Design according to AS/NZS 1664.1:1997 and AS/NZS 1664.2:1997

SERIES 2: ALUMINIUM GRATING LOAD CHART

SAFE LOAD AND DEFLECTION TABLE

Product Code	Load Bar Size (mm)	Mass (kg/sqm)	Span (mm)- maximum allowable Q load (kPa) under strength design										Span (mm) for 5mm deflection at 4kPa
			150	300	450	600	750	900	1050	1200	1500	1800	
203/2	20 x 3	5.346	U	240.86	60.18	26.72	15.00	9.58					761
			D	0.45	1.81	4.97	11.79	23.02					
			D4	0.01	0.12	0.61	1.93	4.71					
205/2	20 x 5	8.046	U	401.45	100.30	44.54	25.02	15.98					865
			D	0.45	1.81	4.08	7.24	13.81					
			D4	0.00	0.07	0.37	1.16	2.83					
253/2	25 x 3	6.359	U	365.09	91.22	40.51	22.76	14.54	10.08	Check Deflection for Loads and Span for this side of Shadow Line			900
			D	0.35	1.41	3.16	6.03	11.79	20.37				
			D4	0.00	0.06	0.31	0.99	2.41	5.00				
255/2	25 x 5	9.734	U	627.29	156.75	69.61	39.12	25.00	17.33				1023
			D	0.36	1.45	3.26	5.79	9.04	13.00				
			D4	0.00	0.04	0.19	0.59	1.45	3.00				
255/2S	25 x 5 serrated	8.890	U	508.09	126.96	56.38	31.67	20.24	14.03				945
			D	0.40	1.61	3.62	6.44	10.04	16.76				
			D4	0.00	0.05	0.26	0.81	1.98	4.11				
323/2	31.8 x 3.2	8.165	U	613.42	153.29	68.09	38.26	24.46	16.96	12.44			1096
			D	0.27	1.08	2.42	4.30	6.72	9.66	14.73			
			D4	0.00	0.03	0.14	0.45	1.10	2.28	4.22			
325/2	32 x 4.5	11.016	U	925.01	231.17	102.68	57.71	36.90	25.59	18.77			1199
			D	0.28	1.13	2.55	4.53	7.07	10.17	13.82			
			D4	0.00	0.02	0.10	0.31	0.77	1.59	2.94			
325/2S	32 x 4.5 serrated	10.257	U	786.11	196.45	87.26	49.04	31.35	21.74	15.94			1128
			D	0.31	1.23	2.77	4.91	7.67	11.02	14.98			
			D4	0.00	0.03	0.13	0.40	0.98	2.03	3.76			
403/2	38 x 3	8.991	U	752.79	188.13	83.56	46.97	30.03	20.83	15.28	11.68		1232
			D	0.21	0.83	1.86	3.30	5.15	7.41	10.07	13.75		
			D4	0.00	0.02	0.09	0.28	0.69	1.42	2.64	4.50		
405/2	38 x 4.5	16.484	U	1304.43	326.01	144.83	81.41	52.06	36.11	26.50	20.26		1364
			D	0.24	0.95	2.15	3.82	5.96	8.57	11.65	15.19		
			D4	0.00	0.01	0.06	0.19	0.46	0.95	1.76	3.00		
405/2S	38 x 4.5 serrated	12.079	U	1138.43	284.52	126.39	71.04	45.42	31.51	23.12	17.67		1296
			D	0.26	1.02	2.30	4.08	6.37	9.17	12.46	16.25		
			D4	0.00	0.01	0.07	0.23	0.56	1.16	2.16	3.68		
505/2	50 x 4.5	16.484	U	2248.61	562.03	249.70	140.39	89.79	62.30	45.73	34.98	22.33	1675
			D	0.18	0.72	1.63	2.89	4.51	6.49	8.82	11.51	17.94	
			D4	0.00	0.01	0.03	0.08	0.20	0.42	0.77	1.32	3.21	

- **U:** Safe Superimposed Uniformly Distributed Load - kPa
- **D:** Deflection due to the Safe Superimposed Load - mm
- **D4:** Deflection due to 4 kPa applied Load - mm
- Span to the left of the heavy line have a deflection of less than 5 mm for 4 kPa UDL
- The design has been based on the principal of the aluminium Allowable Stress Design and Ultimate Limit State Design according to AS/NZS 1664.1:1997 and AS/NZS 1664.2:1997

HOW TO SPECIFY / ORDER ALUMINIUM GRATING

- Use the quick reference load charts or the main load charts to determine a suitable load bar size and series to suit your requirements. Eg- 255/1 or 325/2 etc...
- Designate at the end of the code with an **S** if you require a **S**errated surface, No designation will be assumed a Plain surface.
- Designate that you require Aluminium grating by referencing **A= A**luminium grating
- Designate the finish / treatment you require;
 - **M=** Mill finish
 - **A=** Anodised finish (specify to what thickness)
 - **P=** Powder coated finish
- Specify the size of the area or panel size(s) for the grating you require along with the load bar direction (span)
- Specify an additional information we need to know for example if there are cut outs or penetrations in the grating, do we need to split cut outs between panels for installation, is kick plate required, are the grates banded or cut to size only etc....

EXAMPLES OF ORDERING/SPECIFYING ALUMINIUM GRATING

253/1 AM = 25x3mm plain load bars (series 1 grating , load bars at 30mm centres, cross bars at 100mm centres), **A**luminium, **M**ill finish

255/2S AA = 25x5mm serrated load bars (series 2, load bars at 40mm centres, cross bars at 100mm centres) **A**luminium, **A**nodised finish.

ADDITIONAL INFORMATION

MINIMUM SUPPORT DIMENSION

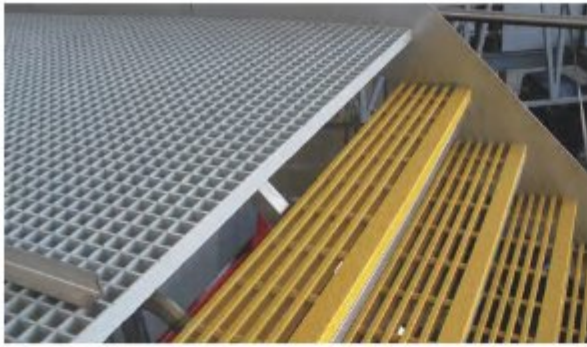
- A minimum support of 25mm for grating up to 50mm deep.

It is generally recommended that the minimum grating support should be equal to the height of the grating load bar.

RECOMMENDED CLEARANCES

- 5mm (min) to 10mm (max) spacing between grates.
- 10mm clearance of grating from the edge of a wall or end of a support
- When grating sits in an angle minimum recommended clearance each side is equal to the thickness of the angle.





FRP GRATING

FRP MANUFACTURING PROCESS

Liquid resin and continuous fiberglass roving's are systematically laid in a mould, layer after layer to produce the desired thickness and panel dimensions. The finished moulds are then set aside to cure. The one piece interwoven mesh construction of moulded fiberglass grating produces a product with optimal corrosion resistance and bi-directional strength. Since the fiberglass grating is "cast" in one piece, there is no mechanical joint between bearing bars. The high percentage of resin (65%) in moulded fiberglass grating offers superior corrosion resistance and optimal impact resistance. Moulded fiberglass gratings with a square mesh pattern offer increased load capacity and panel utilization due to its bi-directional trait. Being of one-piece construction, the fiberglass grating distributes loads throughout the fiberglass grating section.

ADVANTAGES OF FRP GRATING

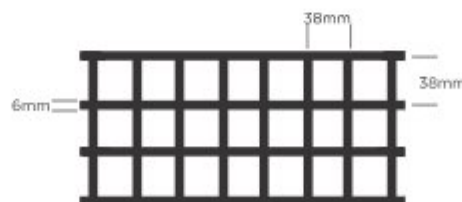
- Light weight
- Chemical corrosion resistance
- Non sparking
- Non electrically conductive
- Non magnetic
- Tapered bars allow debris to easily fall through
- Standard mesh has a 70% open area
- Mini Mesh has a 45% open area

FRP GRATING PATTERNS

FRP grating is available in two pattern types (stocked)

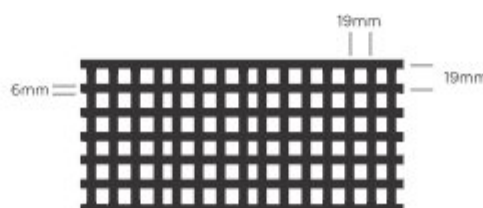
STANDARD MESH

38x38mm centre to centre



MINI MESH

19x19mm centre to centre



**Other pattern types are available but are manufactured to order. Please contact Steel Grating limited to discuss what other patterns are available.*

COMMONLY STOCKED FRP GRATING TYPES

TYPE	RESIN		SURFACE		COLOURS			
	ISO	Vinyl	Grit	Concave	Green	Yellow	Light Grey	Dark Grey
Standard Mesh	✓	—	✓	—	✓	✓	✓	✓
FRP 25mm	✓	—	✓	—	✓	✓	✓	✓
FRP 32mm	✓	—	—	✓	—	✓	—	—
FRP 38mm	✓	—	✓	—	✓	✓	✓	✓
FRP 38mm	✓	—	—	✓	—	—	✓	—
FRP 38mm	—	✓	✓	—	—	✓	—	—
Mini Mesh	—	—	—	—	—	—	—	—
FRP 38mm	✓	—	✓	—	—	—	—	✓

Table above shows the FRP grating products that are commonly stocked. Other combinations of type, resin, surface and colour that are not stated above are available but are manufactured to order.

STANDARD SHEET SIZES

FRP grating comes in one standard sheet size 1220x3660mm ex stock. Other sheet sizes are available but are manufactured to order. For nonstandard panel sizes please call Steel Grating Ltd to discuss what options are available to suit your requirements.

CUTTING TO SIZE

In addition to supplying stock sheets we can also cut FRP grating to the shapes and sizes you require along with any cut outs or penetrations.

TOP SURFACE

FRP grating comes standard with two different surfaces for slip resistance.

- Grit top Surface
- Concave top surface

RESIN SELECTION

Isophthalic Polyester (Type I) - Industrial grade resin great for environments where fiberglass grating may occasionally be in contact with harsh chemicals due to splashes or spills.

Vinyl Ester (Type V) - Developed to withstand frequent and direct contact in the harshest of chemical environments. Type V is ideal for use in acidic and caustic environments.

FLAME SPREAD RATING

Isophthalic polyester resin and Vinyl ester resin have an ASTM-E84 fire class rating of class 1, 25 or less.

Phenolic (Type P) - Best choice for applications where fire resistance, low smoke, and low toxic fume emissions are critical. **Phenolic resin grating is not stocked but available to order.** Please contact Steel Grating Ltd to discuss the availability of phenolic resin grating. Please note: Phenolic resin grating is only available in a reddish brown colour.

Please contact Steel Grating for any non standard resin types, surfaces and colours

FRP GRATING LOAD CHART:

Product Code	Load Bar Size (mm)	Load Bar Spacing	Mass (kg/sqm)	Load (kPa)	Simple Span (mm)								Span (mm) for 5mm deflection at 4kPa
					300mm	450mm	600mm	750mm	900mm	1050mm	1200mm		
					Delection (mm)								
FRP25mm (SM)	25x6mm	38.1mm	12.2	2.5	<0.25	0.49	1.24	2.99	5.97			760	
				4.0	<0.25	0.64	1.99	4.78	9.56				
				5.0	<0.25	0.76	2.49	5.97					
				7.5	<0.25	1.26	3.73	8.93					
				10.0	0.28	1.71	4.98	11.7					
				12.0	0.48	1.91	5.96	14.1					
FRP32mm (SM)	32x6mm	38.1mm	15.0	2.5	<0.25	<0.25	0.75	1.75	3.73	6.90		860	
				4.0	<0.25	0.40	1.19	2.95	5.97	11.0			
				5.0	<0.25	0.50	1.49	3.72	7.47				
				7.5	<0.25	0.75	2.24	5.47	11.2				
				10.0	<0.25	1.00	2.99	7.25					
				12.0	<0.25	1.19	3.58	8.82					
FRP38mm (SM)	38x6mm	38.1mm	19.2	2.5	<0.25	<0.25	0.26	0.76	1.73	3.08	5.39	1050	
				4.0	<0.25	<0.25	0.56	1.35	2.63	5.07	8.62		
				5.0	<0.25	0.26	0.74	1.73	3.25	6.37	10.8		
				7.5	<0.25	0.48	1.02	2.48	4.99	9.44			
				10.0	<0.25	0.52	1.47	3.27	6.73	12.5			
				12.0	<0.25	0.72	1.67	4.05	8.10	15.2			
FRP38mm (MM)	38x6mm	19.1mm	23.2	2.5	<0.25	<0.25	<0.25	0.74	1.24	2.3	3.85	1140	
				4.0	<0.25	<0.25	0.40	1.03	1.99	3.68	6.16		
				5.0	<0.25	<0.25	0.50	1.26	2.49	4.60	7.70		
				7.5	<0.25	0.27	0.75	1.97	3.73	6.90	11.5		
				10.0	<0.25	0.48	1.00	2.51	4.98	9.19			
				12.0	<0.25	0.48	1.19	3.10	5.96	11.00			

* (SM) denotes standard mesh grating 38x 38mm centres *(MM) denotes mini mesh grating 19x 19mm centres

HOW TO SPECIFY/ORDER FRP GRATING

- Designate that you require FRP grating by putting **FRP** at the start of the code.
- Designate the thickness of FRP grating: **25mm**, **32mm** or **38mm**.
- Designate whether you require standard or minimesh grating
 - 38x38mm **Standard Mesh** is denoted by **SM**
 - 19x19mm **Mini Mesh** is denoted by **MM**

DESIGNATE RESIN TYPE

- **I**= Isophthalic polyester resin or
- **V**= Vinyl ester resin

FOLLOWED BY SURFACE FINISH

- **G**= Grit top surface
- **C**= Concave top surface

THEN FINALLY COLOUR

- **Y**= Yellow
- **G**= Green
- **L**= Light grey
- **D**= Dark grey

EXAMPLE FOR ORDERING / SPECIFYING FRP GRATING:

FRP25 SM IGG - FRP grating 25mm thick, 38x38mm **Standard Mesh**, Isophthalic polyester resin, Grit top surface, Green in colour.

FRP32 SM ICY- FRP grating 32mm thick, 38x38mm **Standard Mesh**, Isophthalic polyester resin, Concave top surface, Yellow in colour

FRP GRATING CHEMICAL RESISTANCE CHART

CHEMICAL ENVIRONMENT	CONCENTRATION %	TEMP °C	TYPE: ISOPHTHALIC	TYPE: VINYL
Acetic Acid	25	MAX	C	C
Acetic Acid	50	MAX	C	C
Aluminium Hydroxide	ALL	MAX	C	C
Ammonium Chloride	ALL	48.8	C	C
Ammonium Bicarbonate	15	48.8	C	C
Ammonium Bicarbonate	50	48.8	C	C
Ammonium Hydroxide	20	26.6	N	F
Ammonium Sulphate	ALL	48.8	C	C
Benzene	100	65.5	I	I
Benzoic Acid (SAT)	SAT	MAX	C	C
Borax (SAT)	SAT	MAX	C	C
Calcium Carbonate	ALL	MAX	C	C
Calcium Nitrate	ALL	MAX	C	C
Carbon Tetrachloride	100	26.6	N	I
Chlorine, Dry Gas	ALL	MAX	C	C
Chlorine Water (SAT)	SAT	48.8	I	C
Chromic Acid	50	65.5	N	I
Citric Acid	ALL	MAX	C	C
Copper Chloride	ALL	MAX	C	C
Copper Cyanide	ALL	60	F	C
Copper Nitrate	ALL	MAX	C	C
Ethanol	10	48.8	F	C
Ethanol	50	48.8	I	C
Ethylene Glycol	ALL	65.5	C	C
Ferric Chloride	100	MAX	C	C
Ferrous Chloride	ALL	MAX	C	C
Formaldehyde 0-50%	50	48.8	I	F
Gasoline	ALL	48.8	C	C
Glucose	ALL	48.8	C	C
Glycerine	100	MAX	C	C
Hydrobromic Acid	50	MAX	F	F
Hydrochloric Acid	10	MAX	F	C
Hydrochloric Acid	37	MAX	F	I
Hydrogen Peroxide	30	26.6	N	C

CHEMICAL ENVIRONMENT	CONCENTRATION %	TEMP °C	TYPE: ISOPHTHALIC	TYPE: VINYL
Lactic Acid	100	MAX	C	C
Lithium Chloride (SAT)	SAT	MAX	N	N
Magnesium Chloride	ALL	MAX	C	C
Magnesium Nitrate	ALL	MAX	C	C
Magnesium sulphate	ALL	MAX	C	C
Mercuric Chloride	ALL	MAX	C	C
Mercurous Chloride	ALL	MAX	C	C
Nickel Chloride	ALL	MAX	C	C
Nickel Sulphate	ALL	MAX	C	C
Nitric Acid	20	48.8	F	F
Oxalic Acid	ALL	65.5	C	C
Perchloric Acid	30	32.2	I	F
Phosphoric Acid	80	MAX	C	C
Potassium Chloride	ALL	MAX	C	C
Potassium Dichromate	ALL	MAX	C	C
Potassium Nitrate	ALL	MAX	C	C
Potassium Sulfate	ALL	MAX	C	C
Propylene Glycol	ALL	MAX	C	C
Sodium Acetate	ALL	MAX	C	C
Sodium Bisulfate	ALL	26.6	F	F
Sodium Bromide	ALL	26.6	C	C
Sodium Cyanide	ALL	26.6	I	C
Sodium Hydroxide	10	MAX	I	C
Sodium Hydroxide	50	MAX	N	F
Sodium Nitrate	ALL	MAX	C	C
Sodium Sulfate	ALL	MAX	C	C
Sulfuric Acid	10	MAX	F	C
Sulfuric Acid	25	MAX	F	C
Sulfuric Acid	75	37.7	I	C
Tartaric Acid	ALL	MAX	C	C
Vinegar	ALL	MAX	C	C
Water, Distilled	ALL	MAX	C	C
Zinc Nitrate	100	MAX	C	C
Zinc Sulfate	100	MAX	C	C

MAX- Temperature for Isophthalic polyester 71°C / Vinyl Ester 85°C

C- Continuous exposure of the grating to the temperature and chemical environment listed above

F- Frequent exposure of the grating to splashes and spills to the temperature and chemical environment listed above

I- Infrequent exposure of the grating to splashes and spills to the temperature and chemical environment listed above with the spill being immediately cleaned up / washed from the grating

N- Not recommended for the temperatures and concentrations listed above

The corrosion data listed above is for general information only. Resin Manufacturers have provided test data that indicates that the specific resin can withstand the corrosion conditions listed. Steel Grating Ltd believes this information to be true and correct. In certain cases testing for specific environments is recommended.

CUTTING & INSTALLATION

Cutting: FRP grating can be cut with a variety of different cutting tools. For best results we recommend a heavy duty rotary saw with a masonry, carbide or diamond tip blade. Make sure that the grating is on a steady and even surface to help prevent shifting or moving of the grating that can cause chipping of the grating surface. Please ensure you wear gloves, full length overalls, a face shield and a dust mask when cutting FRP grating. Always cut FRP grating in a well ventilated area or where mechanical extraction of the dust particles is available.

Finishing: All cut surfaces should be coated with resin to prevent corrosion of the glass fibres. A coating of a two part resin or comparable to the resin used to manufacture the grating should be used.

APPEARANCE OF FRP GRATING:

Unlike traditional Steel and Aluminium grating when FRP grates are cut they do not have a banding bar welded to the cut edges (the cut edge becomes the finished edge). Where possible to make FRP grating look neat and presentable we recommend that any sheets cut to size along with cut outs or penetrations be made to the nearest whole square dimension. This prevents any grates with open ends or fingers as we call them. This is not always practical but with enough forward planning this can be achieved.

FRP FIXING CLIPS

All FRP fixing are grade 316 stainless steel.

Stainless steel "M" Clips:

M clips are designed to clamp two of the FRP grating load bars to the supporting member. This provides excellent holding capacity as it restrains movement in both directions. "M" clips are available for both Standard and Minimesh grating.

Stainless steel "C" Clips:

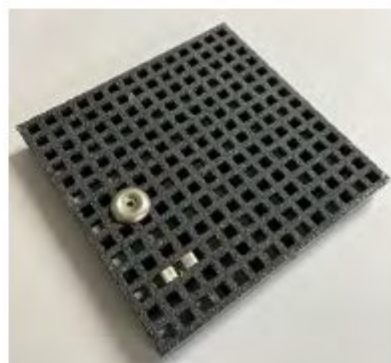
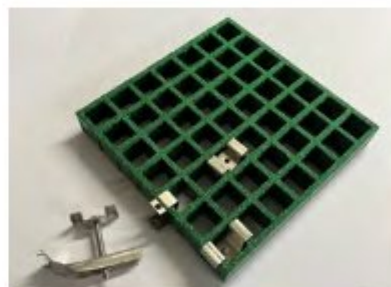
C Clips are designed to hold two grating panels together to minimise differential deflections when their joints fall between supports. The lower nut is secured to the bottom of the clips so these can be installed from the top side of the grating. C Clips are available for standard mesh grating only and are designed for 25mm and 38mm thick FRP grating.

Standard mesh:

- Standard M clip – optional supply with M6x40 or M6x60 bolt with nylock nut
- Deep recessed M clip – optional supply with M8x40 bolt with nylock nut
- Complete fixing clip set – top M clip, bottom J clip, M8x70 bolt with nut
- C clip – with captivated nut and bolt

Minimesh:

- M clip – optional supply M5x40mm bolt with nut and washer
- Disc washer – optional supply with M6x70 bolt and nylock nut



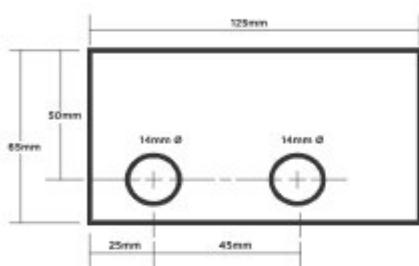


STANDARD END PLATES: MILD STEEL AND ALUMINIUM

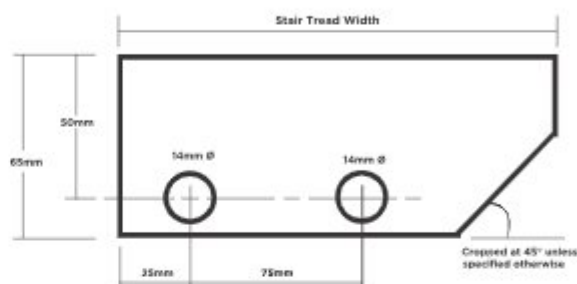
Standard end plates for stair treads are manufactured from 65x5mm flat bar for grating up to 40mm in depth. Non-standard end cleats can be made on request.

RECOMMENDED END PLATES FOR VARIOUS STAIR TREAD WIDTHS

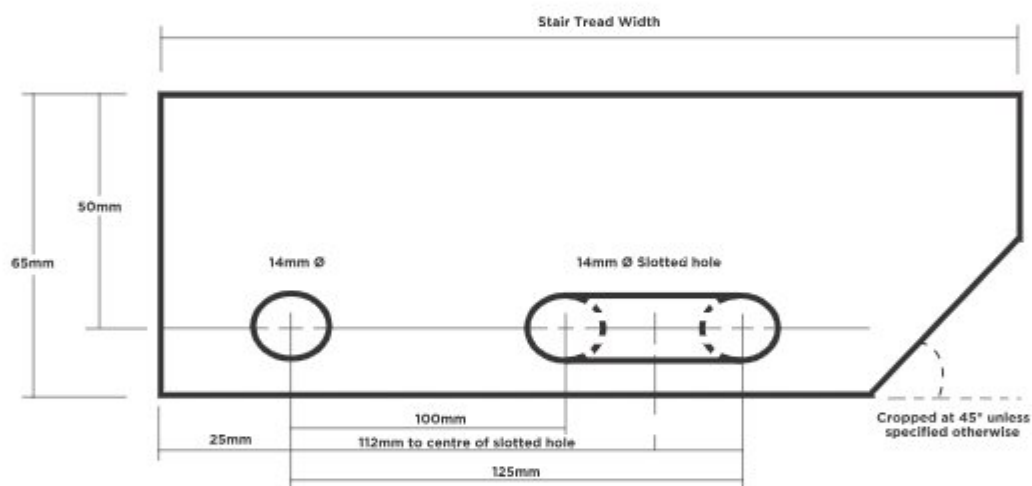
FOR 125mm Stair Tread Width



FOR 155mm, 165mm & 185mm Stair Tread Width



FOR 205mm, 215mm, 245mm, 275mm, 285mm, 305mm, 325mm Stair Tread Widths



RECOMMENDED HOLE CENTRES FOR SLOTTED END PLATES

- 205, 215mm = 100mm centres
- 245, 275, 285, 305, 325mm = 125mm centres

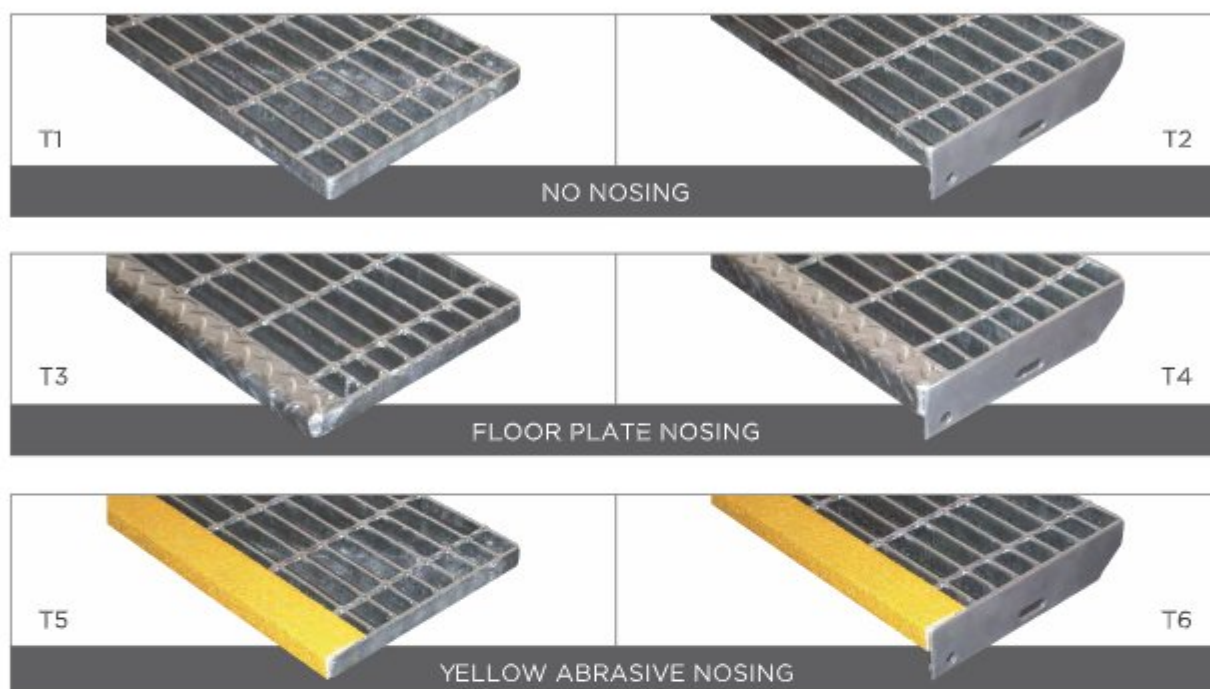
TOE BOARDS ON STAIR TREADS

Toe Boards can be incorporated into any of the above stair tread types in both Mild steel and Aluminium. A toe board is typically a flat bar welded to the back edge of a stair tread at a nominated height above the stair tread to close the openings between risers. Toe boards are optional and need to be specified if required at the time of ordering/quoting.

STAIR TREAD TYPES:

MILD STEEL AND ALUMINIUM

We can supply stair treads at any width and length to suit your application. Stair treads can be supplied with either a banded end / welded fixing or bolted end to suit your requirements. To complement our stair treads we can also provide them with no nosing, a floor plate nosing or a yellow abrasive nosing to best suit your application.



**Photos above show stair treads manufactured from mild steel galvanised grating.*

Please note AS1657 states "the nosing shall be such that the edge of the stair tread is clearly visible against the background"*

RECOMMENDED MAXIMUM SPAN FOR MILD STEEL AND ALUMINIUM GRATING TYPES

MILD STEEL

MAXIMUM RECOMMENDED SPAN				RECOMMENDED WIDTHS						
Load Bar	25x5mm	32x5mm	40x5mm							
Series 1	900mm	1300mm	1600mm	125mm	155mm	185mm	215mm	245mm	275mm	305mm
Series 2	750mm	1200mm	1500mm	125mm	165mm	—	205mm	245mm	285mm	325mm
Series 3	600mm	875mm	—	125mm	—	185mm	—	245mm	—	305mm

ALUMINIUM

MAXIMUM RECOMMENDED SPAN				RECOMMENDED WIDTHS						
Load Bar	25x5mm	32x5mm	40x5mm							
Series 1	675mm	850mm	1075mm	125mm	155mm	185mm	215mm	245mm	275mm	305mm
Series 2	—	750mm	900mm	125mm	165mm	—	205mm	245mm	285mm	325mm

**Please note "the going shall not be less than 215mm" to comply with AS1657.*

FRP STAIR TREADS

RECOMMENDED MAXIMUM SPANS FOR FRP STAIR TREADS

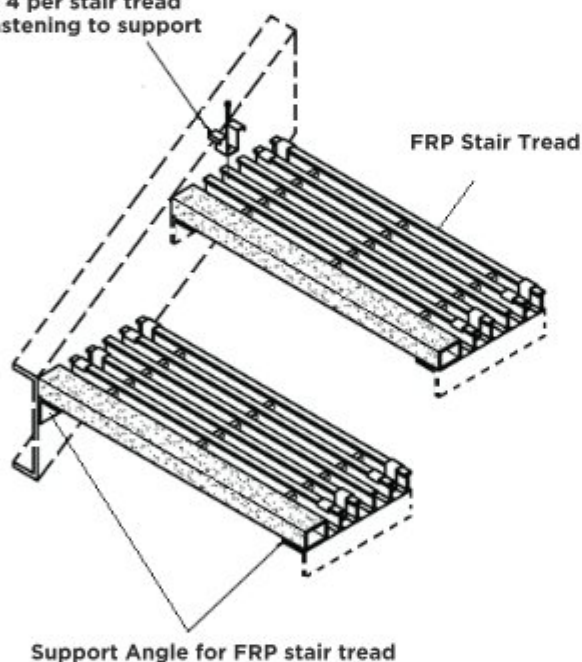
MAXIMUM RECOMMENDED SPAN (mm)				RECOMMENDED WIDTHS (mm)		
TYPE	FRP25mm	FRP38mm				
MOULDED	600	875		235	272	311

* The recommend maximum spans are for static conditions. Deflections for impact loads or dynamic load will be in excess of 5mm

* Long term loads will result in additional deflections due to creep in the material

* For applications at elevated temperatures, please consult Steel Grating Ltd.

Stainless Steel "M"
clips, 4 per stair tread
for fastening to support



MOULDED FRP STAIR TREAD



*FRP stair treads require a minimum of 40mm support surface at each end for the grating to sit on and require 4 off stainless steel "M" clips per stair tread for fixing to supporting structure.

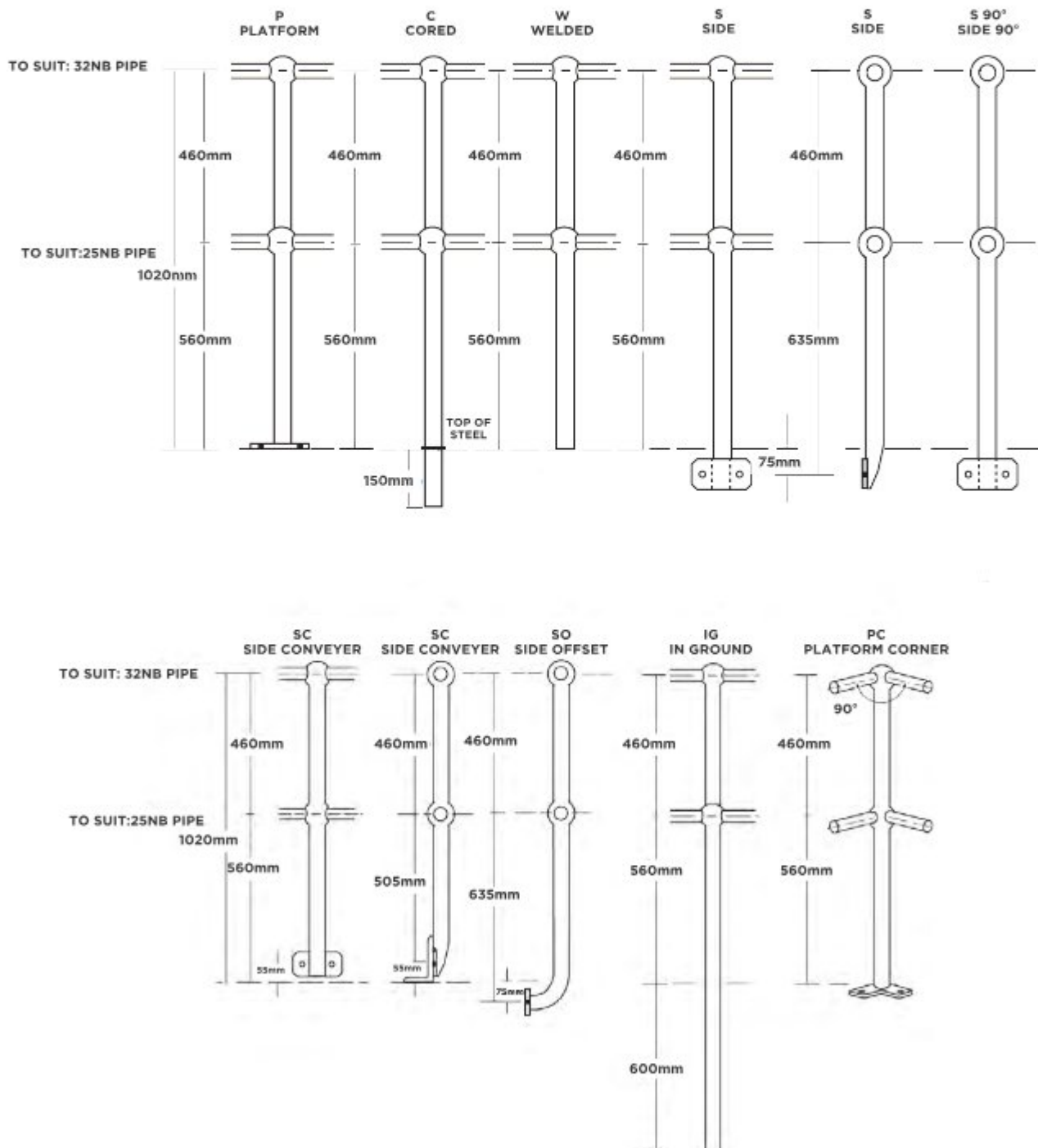


BALL STANCHIONS

Steel Grating manufactures ball Stanchions that comply with the requirements of AS1657 in both design and for imposed actions (loadings). Our standard stanchions have been theoretically and physically tested for imposed actions in accordance and as required by AS1657:2018 to give you peace of mind for a complete tubular guardrail system. Along with our standard Ball Stanchion posts we can also supply horizontal and angle closure bends, railing, rail bends, kick plate mounting brackets and kick plate where required for fast and easy onsite installation.

We can also supply pre fabricated handrail panels to suit your requirements if required.

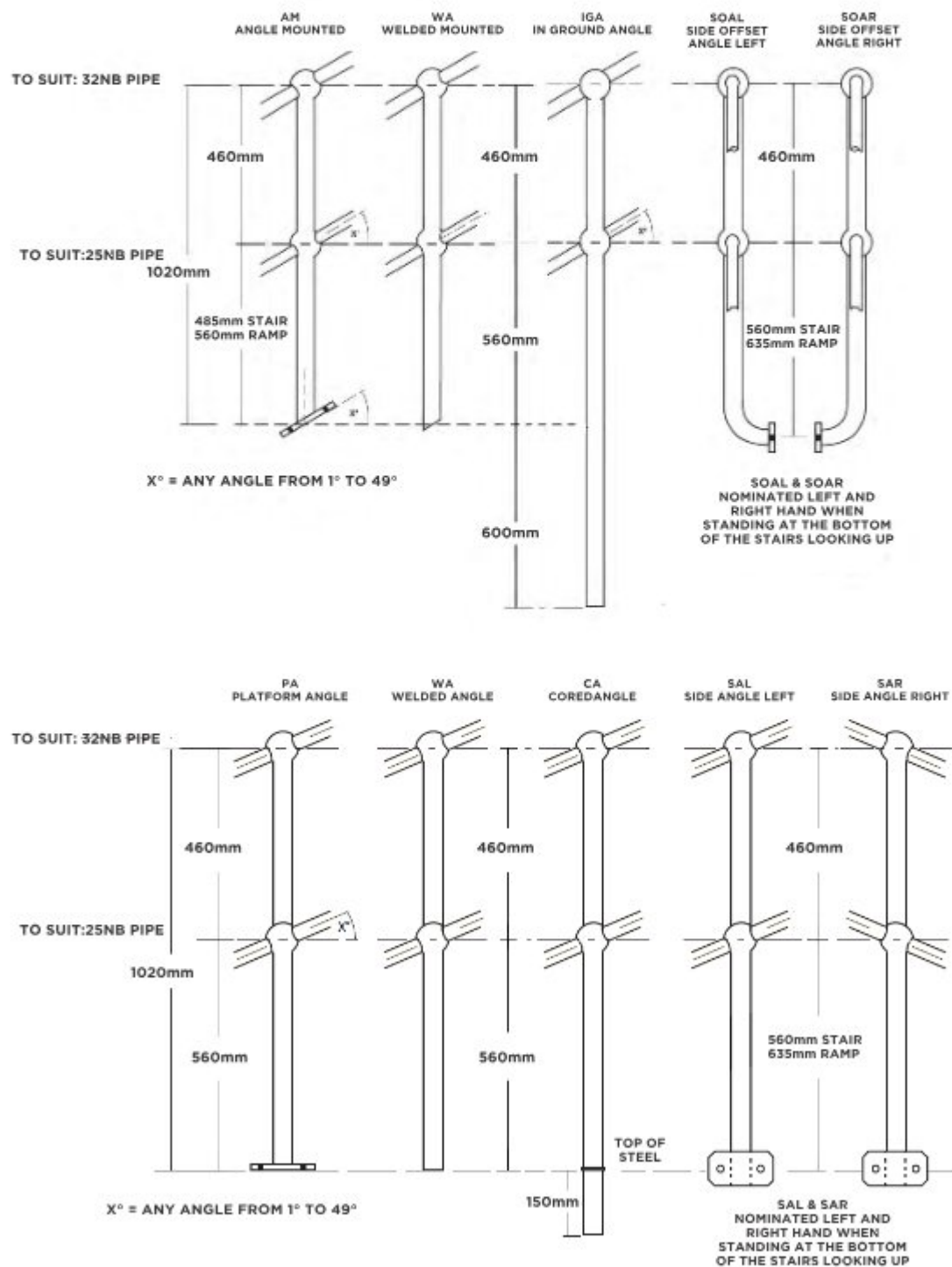
STANDARD STANCHION DIMENSIONS



*Footing sizes for IG and IGA stanchions need to be determined by the civil engineer.



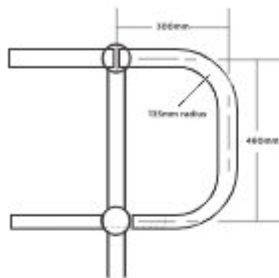
STANDARD STANCHION DIMENSIONS CONTINUED



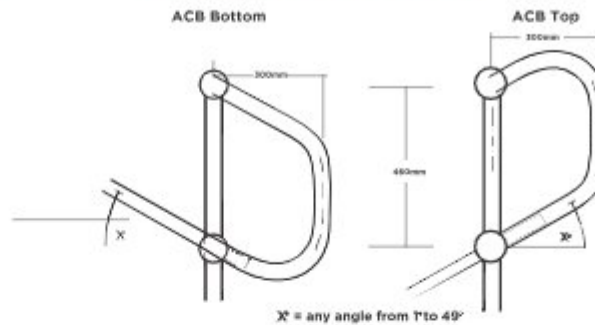
*Footing sizes for IG and IGA stanchions need to be determined by the civil engineer.

CLOSURE BENDS

HORIZONTAL CLOSURE BEND: HCB



ANGLE CLOSURE BENDS: ACB

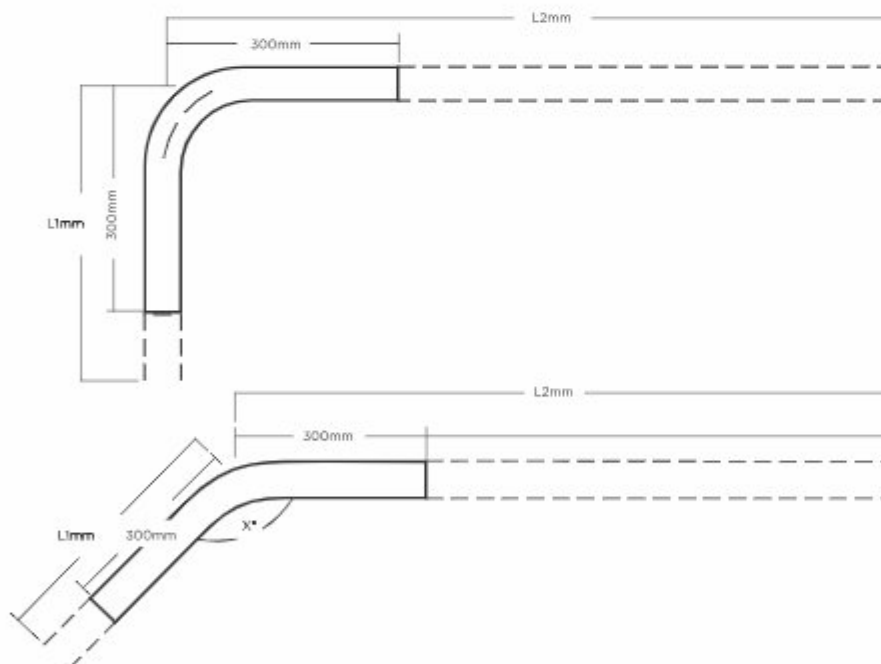


Standard closure bends are manufactured from 32nb black or galvanised medium wall thickness (3.20mm) pipe with a 135mm radius at the centre line.

Heavy closure bends are manufactured from 32nb black or galvanised heavy wall thickness (4.0mm) pipe with a 135mm radius at the centre line.

40nb closure bends When 40nb pipe is used as the top railing closure bends are manufactured from 40nb pipe. All bends manufactured from 40nb pipe have 135mm radius at the centre line.

RAIL BENDS



- Rail bends can be manufactured from 25nb, 32nb and 40nb pipe in medium wall thickness (3.20mm) and heavy wall thickness (4.0mm) black or galvanised pipe.
- Standard rail bends are 300 x 300mm centre to centre. Custom rail bends can be manufactured on request. $L1 + L2$ must total 6500mm or less.



PROFILE AND SPACINGS

Our standard Stanchion posts are manufactured from the following material types.

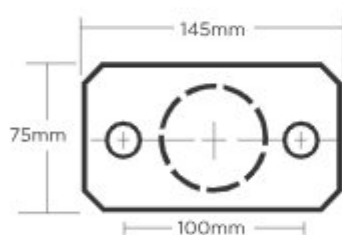
TYPE:	POST	TOP RAIL	INTERMEDIATE RAIL	WALL THICKNESS	SPACING
Standard	40nb (48.3mm OD)	32nb (42.4mm OD)	25nb (33.7mm OD)	3.2mm	2000mm centres
Heavy	40nb (48.3mm OD)	32nb (42.4mm OD)	25nb (33.7mm OD)	4.0mm	2500mm centres

**Unless specified otherwise all stanchions are manufactured from standard (medium wall thickness) pipe*

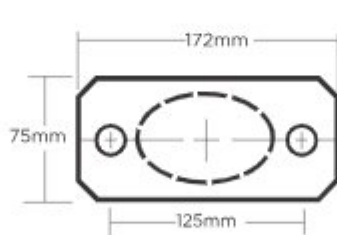
**When spaced at maximum 2000mm centres for standard stanchions (medium wall thickness pipe) and at maximum 2500mm centres for heavy stanchions (heavy wall thickness pipe) our standard stanchions will comply with the loading requirements of AS1657: 2018.*

BASE PLATES

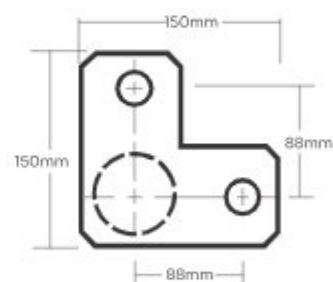
STANDARD



ANGLE MOUNT



CORNER



Standard base plates are used on **ALL** stanchions except PC (platform corner) and AM Stanchions from 15° to 49° unless specified otherwise.

Angle mount base plates are used on AM stanchions only between 15° and 49° unless specified otherwise.

Corner base plates are used on PC (platform corner) stanchions only unless specified otherwise.

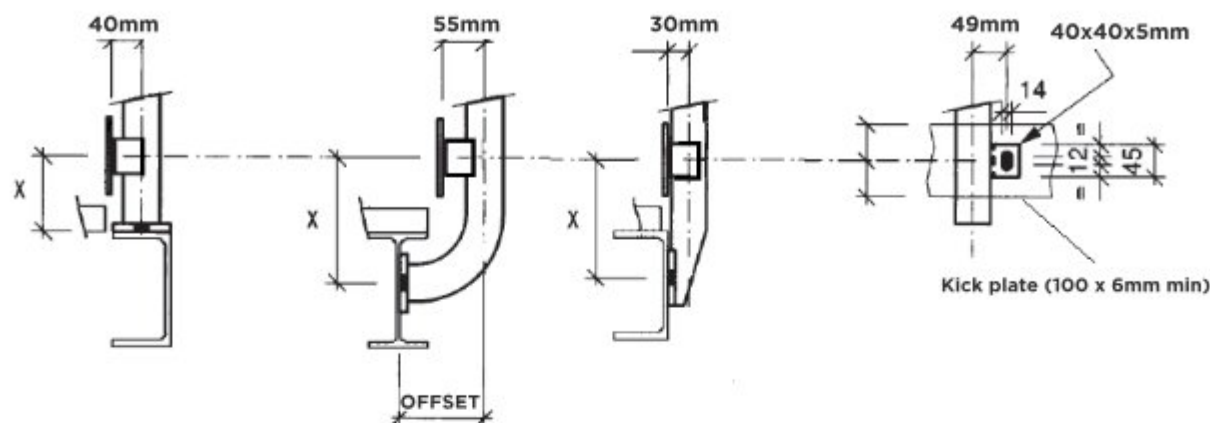
Custom Base plates can be manufactured to suit our stanchions, these would need to be requested at the time of quoting / ordering.

Base plates are manufactured from 75 x 10mm flat bar.

Holes are 18mm \varnothing and require 2 x M16 bolts per base plate for installation. Chemical anchors are recommended when fixing to concrete.

KICK PLATE MOUNTING BRACKETS

KICK PLATE MOUNTING BRACKET DETAIL



DIMENSION 'X' FOR KPMB HEIGHT FOR VARIOUS STANCHION TYPES				
Grating Height mm	Nil	20,25,32mm	40,45,50mm	65mm
P,W,C	X = 60mm	X = 85mm	X = 100mm	X = 120mm
S&SO	X = 135mm	X = 160mm	X = 180mm	X = 195mm

* Slot on kick plate mounting bracket allows 7mm up/down adjustment.

* Kick plate mounting brackets will be positioned on the right hand side of stanchion when viewed from the walking surface unless specified otherwise **or** drilled left side only.

*If kick plate mounting brackets are required on stanchions this needs to be clearly specified at the time of ordering / quoting.

* Kick plate can be bolted or welded to the kick plate mounting bracket. Slot is designed for an M12 bolt.

**To comply with AS1657 you must have a minimum of 100mm of kick plate above the walking surface, and a maximum gap of 10mm between the walking surface and the underside of the kick plate.*



SO STANCHION OFFSET DETAIL

Recommended SO stanchion off sets for the following:

110mm offset for 150x75, 180x75, 200x75 and 230x75 Channel

110mm offset for 200UB and 250UB Universal beams

130mm offset for 250x90, 300x90 and 380x100 Channel

130mm offset for 310UB, 360UB, 410UB and 460UB Universal beams

140mm offset for 530UB Universal Beams



DRILLED ONE SIDE ONLY



When required stanchions can be drilled one side only on both the top and intermediate rails or only on the top or intermediate rail. Drilled one side only stanchions need to be nominated at the time of ordering along with the correct nomination in which you require.

CUSTOM STANCHIONS

Along with our standard stanchions we can also manufacture one ball or multi ball stanchions to suit your requirements. The heights, ball centres, ball drillings and type of stanchion will need to be specified.

**Please note one ball and multi ball stanchions do not meet the requirements of AS1657.*

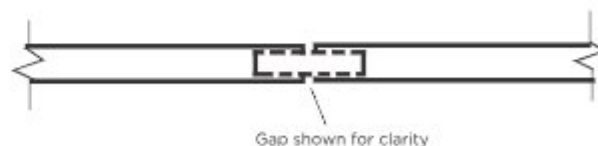
INSTALLATION

Rails should be fixed to the stanchion ball by welding;

SLIP JOINTS

Steel Grating Ltd can supply slip joints when required. Slip Joints are used when

- A rail joint cannot be done inside the stanchion ball.
- As an expansion joint for long runs of guard railing.



INSTALLATION OF A BALL STANCHION GUARDRAIL SYSTEM

Please contact Steel Grating Ltd for installation details and procedures for site installation of our guard rail system.

VEHICLE LOADINGS



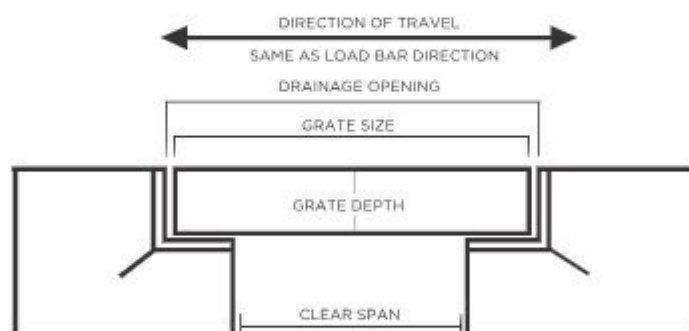
VEHICLE LOADINGS

Steel Grating Ltd drainage grates and sump covers have a large amount of open area to allow liquid to drain easily while still providing strength and economy to support heavy loads. We recommend series 1 grating for drainage grate and sump covers for maximum strength. We have categorised our grating into the 5 most common vehicle usages. Please refer to the table below that states what each of our grating types will clear span for the different vehicle types.

PRODUCT CODE	LOAD BAR SIZE (Grate Depth)	LARGE CAR Wheel load 495kg Tyre contact area 130 x 130	2T FORKLIFT Wheel load 1865kg Tyre contact area 130 x 140	5T FORKLIFT Wheel load 4450kg Tyre contact area 180 x 250	5T TRUCK Wheel load 1690kg Tyre contact area 170 x 170	LARGE TRUCK Axel load 9.8T Dual wheel each axle end wheel load 2450kg Tyre contact area 200 x 200	LARGE TRUCK Axel load 14.3T Dual wheel each axle end wheel load 3580kg Tyre contact area 250 x 200
205/1	20mm	235mm	—	—	—	—	—
255/1	25mm	390mm	190mm	180mm	245mm	200mm	205mm
325/1	32mm	560mm	230mm	215mm	300mm	290mm	285mm
405/1	40mm	815mm	290mm	275mm	385mm	365mm	340mm
455/1	45mm	995mm	340mm	325mm	445mm	415mm	385mm
505/1	50mm	1210mm	390mm	350mm	520mm	470mm	435mm
655/1	65mm	1810mm	585mm	440mm	775mm	670mm	615mm

LOAD DATA BASED ON THE FOLLOWING CRITERIA:

- Vehicles assumed to be fully laden
- Spans shown in the table are clear spans
- Assumed minimum support width = to load bar depth
- Impact factor of 1.3 for moving vehicle applied
- All vehicles travelling parallel to span of grating
- The span of the grating must not be greater than the wheelbase of the vehicle



Steel Grating Ltd can also supply MSA trench grate frames if required. Please contact Steel Grating Ltd for more information on these.

ANCILLARY ITEMS



ANCILLARY ITEMS

YELLOW ABRASIVE NOSING'S AND GRIP PLATE

Steel Grating Ltd supply FRP yellow abrasive nosing's for the leading edge of stair treads and landings where required. These provide a superior non-slip surface and being yellow in colour provides excellent definition against the background as per the requirements of AS1657. In addition to our yellow abrasive nosing's we also supply a 3mm thick yellow abrasive sheeting (Grip plate) for installation on any flooring surfaces. Our yellow abrasive nosing and grip plate are ideal in any wet, slippery, oily or dirty conditions.

Our yellow abrasive nosings and grip plate can be easily installed to new areas or existing problematic areas. Being of fibre glass construction this provides a tough, durable and long lasting solution to meet your requirements while also providing excellent UV and chemical resistance.

Our yellow abrasive nosings and grip plate have been tested in accordance, and comply with AS/NZS 3661.1:1993(wet) for pedestrian slip resistance

YELLOW ABRASIVE NOSINGS:

Dimensions: Any length up to 3000mm x 50mm wide x 25mm deep x 3mm thick.

YELLOW ABRASIVE GRIP PLATE:

Standard sheet size: 1200mmx2400mmx3mm.

From our standard sheet size we can cut into strips, squares, rectangles or any shapes to suit the requirements of the area.

APPLICATIONS:

- Steel, Aluminium and FRP grating stair treads and landings
- Floor plate stair treads and landings
- Wooden stair treads and landings
- Concrete stair treads and landings



GRATE PLATE:

Steel Grating Ltd can supply Mild Steel and Aluminium grating with 3 or 5mm checker plate welded to the top side of the grating. Checker plate can be welded to any of our standard grating types we supply. Checker plate provides a solid surface to the grating. The combination of checker plate and grating maximises the spanning capabilities for a variety of applications.



GRATE MESH:

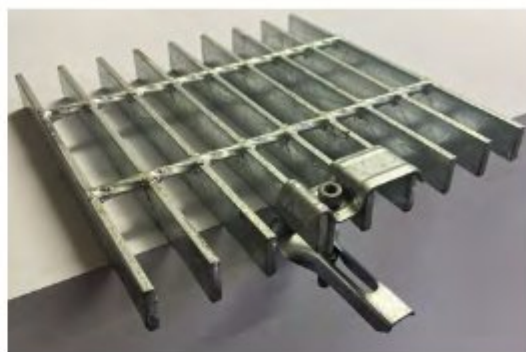
Steel Grating Ltd can supply any Mild Steel gratings with a light gauge mesh welded to the top side or underside of our grating to prevent small objects and tools from falling through the grating to areas below. When a light gauge mesh with the dimensions of LWD 30mm x SWD 12mm is used, this complies with AS1657 clause 4.5.



FASTENINGS AND INSTALLATION FOR MILD STEEL GRATING:

GALVANISED FIXING CLIPS

Steel Grating Ltd provides a universal fixing clip designed to suit our series 1, series 2 and series 3 steel grating options with load bar sizes from 20mm up to 50mm. These clips comprise of a top "M" clip designed to saddle over the top of the grating and a bottom "J" clip that when applicable is designed to fasten the underside of the grating to the support. The bottom clip captivates the nut meaning that fastening the grating to the supports can be done from the top side of the grating for ease of installation.



- 4 fixing clips per m² is recommended with additional clips to be used on longer grates where the grating sits on top of the supports at the intermediate spans.
- Minimum 4 clips per panel is recommended.
- In areas of lateral load movement or vibration fixing clips are not generally recommended.

WELDING GRATING TO ITS SUPPORT

Welding grating to the supporting structure is deemed a suitable process for permanently installed grating or in areas of vibration and lateral load movement. Steel Grating recommends a 25mm long, 6mm fillet weld at 1000mm centres. Minimum number of welds per panel is 4.

WELDING FIXING LUGS TO GRATING

Fixing lugs can be provided on grates if necessary. This comprises of a flat bar welded between the load bars with a hole drilled in it. The fixing lug is usually located flush with the bottom side of the grating and the centres of the holes for the fixing lugs are determined by the spacing's of the load bars.

ADDITIONAL INFORMATION

Minimum Support Dimension

A minimum support of 25mm for grating up to 50mm deep.

A minimum support of 50mm for 50mm and 65mm deep grating

It is generally recommended that the minimum grating support should be equal to the height of the grating load bar.

RECOMMENDED CLEARANCES

Recommended Clearances 5mm (min) to 10mm (max) spacing between grates.

10mm clearance of grating from the edge of a wall or end of a support

When grating sits in an angle minimum recommended clearance each side is equal to the thickness of the angle.

FASTENINGS AND INSTALLATION FOR FRP GRATING:

FRP FIXING CLIPS :

All FRP fixings are grade 316 stainless steel.

Stainless steel "M" Clips:

M clips are designed to clamp two of the FRP grating load bars to the supporting member. This provides excellent holding capacity as it restrains movement in both directions. "M" clips are available for both Standard and Minimesh grating.

Stainless steel "C" Clips:

C Clips are designed to hold two grating panels together to minimise differential deflections when their joints fall between supports. The lower nut is secured to the bottom of the clips so these can be installed from the top side of the grating. C Clips are available for standard mesh grating only and are designed for 25mm and 38mm thick FRP grating.

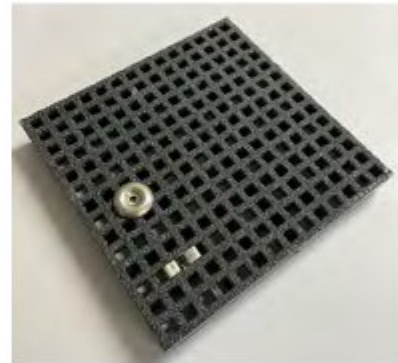
Standard mesh:

- Standard M clip – optional supply with M6x40 or M6x60 bolt with nylock nut
- Deep recessed M clip – optional supply with M8x40 bolt with nylock nut
- Complete fixing clip set – top M clip, bottom J clip, M8x70 bolt with nut
- C clip – with captivated nut and bolt



Minimesh:

- M clip – optional supply M5x40mm bolt with nut and washer
- Disc washer – optional supply with M6x70 bolt and nylock nut

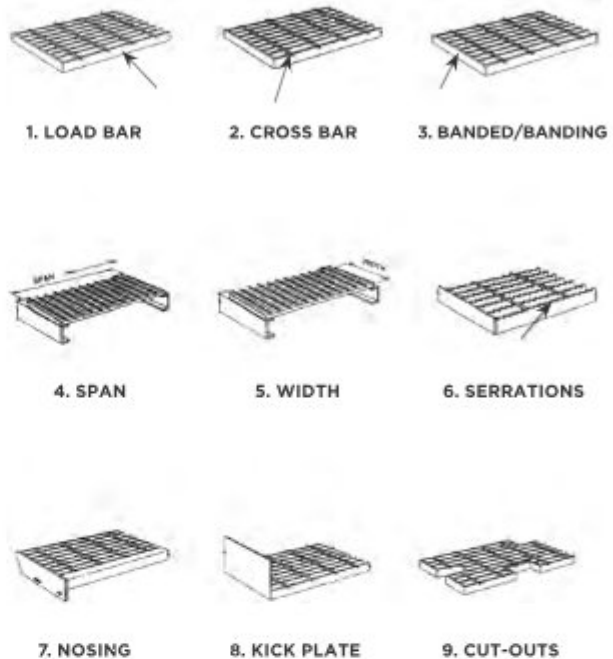


TERMINOLOGY / TOLERANCES

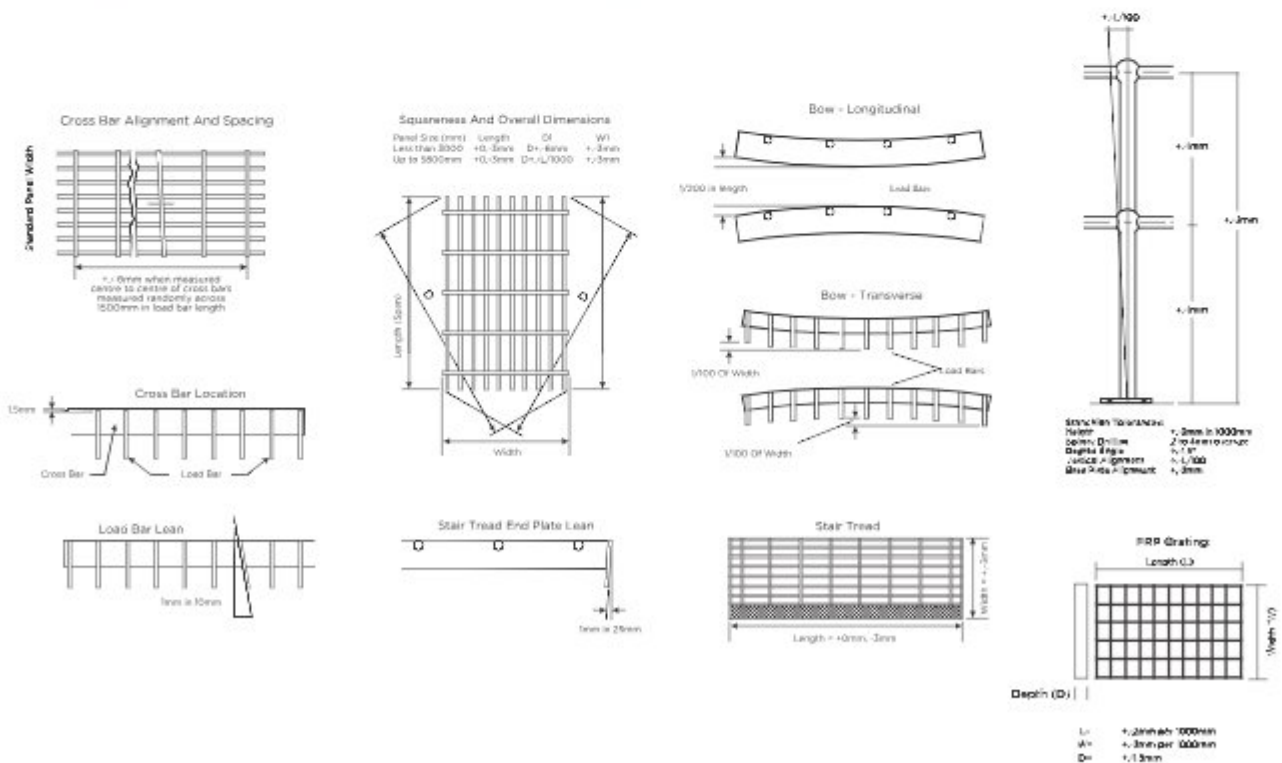


TERMINOLOGY

- 1. Load Bar-** The flat bar standing on its edge that carries the load.
- 2. Cross Bar-** The twisted rod or flat bar fixed at 90° to the load bars. The cross bars hold the load bars together.
- 3. Banded / Banding-** This is the process of welding a trim bar around the cut edges of the grating.
- 4. Span-** This is the overall length of the grate measured parallel to the load bar ie: The load bar length
- 5. Width-** This is the overall width of the panel or landing measured at 90° to the load bar.
- 6. Serrations-** Notches taken out of the top of the load bar to enhance slip resistance.
- 7. Nosing-** A member on the front edge of the stair tread or landing grate to help create definition and enhance slip resistance.
- 8. Kick plate-** Typically in the form of a large flat bar welded to the edge of the grating or mounted to the stanchion post. AS1657 requires minimum 100mm above the walking surface.
- 9. Cut outs-** Areas of the flooring removed to permit passage for plant, structural members or stanchion posts etc.



MANUFACTURING TOLERANCES



LOAD BAR SPACING CHART

This chart indicates the dimensions of each grating type to the nearest load bar for series 1, 2 & 3 grating and the nearest full square for FRP grating.

Number of Bars:	Series 1: (30mm Load Bar Centres)	Series 2: (40mm Load Bar Centres)	Series 3: (60mm Load Bar Centres)	FRP:
2	35	45	65	44
3	65	85	125	82
4	95	125	185	120
5	125	165	245	158
6	155	205	305	196
7	185	245	365	235
8	215	285	425	273
9	245	325	485	311
10	275	365	545	349
11	305	405	605	387
12	335	445	665	425
13	365	485	725	463
14	395	525	785	501
15	425	565	845	539
16	455	605	905	577
17	485	645	965	616
18	515	685		654
19	545	725		692
20	575	765		730
21	605	805		768
22	635	845		806
23	665	885		844
24	695	925		882
25	725	965		920
26	755	1005		958
27	785			997
28	815			1035
29	845			1073
30	875			1111
31	905			1149
32	935			1187
33	965			1225
34	995			

*Please note spacing's for series 1,2 & 3 are for 5mm thick load bars. For 3mm bars minus 2mm of each spacing.
Eg- for series 1 grating 9 bars = 243mm, 21 bars = 603mm.

*FRP grating load bar centres are 38.1mm.



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