

Grating Catalogue

Emerald
Steel Industries L.L.C



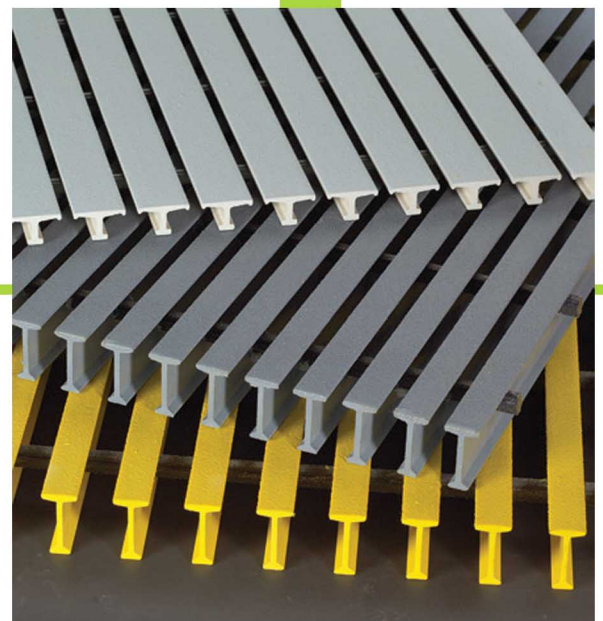
Company Profile

Emerald Steel Industries L.L.C Ajman, United Arab Emirates was Established in 2009 to offer manufacturing services for grating products Steel grating, GRP grating, FRP grating etc. We are proud to introduce ourselves as one of the very reputed company, executing very prominent projects in and around UAE. As we have a team of very talented and hard working individuals .

We have the urge of innovation and exceed the expectation of customers that is the reason EMERALD has grown leaps forward in these few years in the industry and well confidently aiming to reach the highest level to stay that forever.

Grating was invented back in 1908 to solve a problem- a way to ventilate the New York subway system using open steel mesh. Multipurpose and diversity are some the attributes offered by Gratings. Grating has many uses- not only in industries as walkway flooring but also as screens, drain covers and stairways. Gratings are widely used in the various industries such as Chemicals, Petrochemicals, Refineries, Oilfields and Gas Companies, Power plants. Paper Mills, Fertilizers and many more.

Emerald Steel Industries offers Steel Electroforged gratings. Steel gratings can be coated by the Hot Dip Galvanising process or painted to the specifications given by the customer.



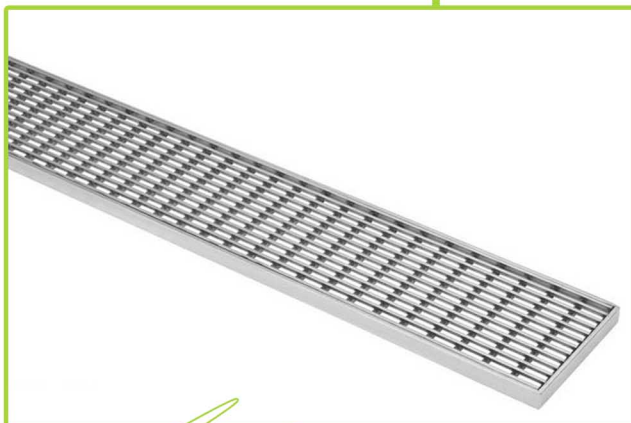
The Galvanizing Process

Galvanizing plant is well equipped with a galvanizing facility to match the international standards. Our kettle size is of 8m x 1.5m x 2.5m size. Hot Dip Galvanizing is a factory controlled metallurgical combination of zinc and steel that provides corrosion resistance in a wide variety of environments.

1. Surface Preparation:

Surface preparation is the most important step in the application of any coating.

2. Galvanizing: In this step, the gratings are completely immersed in a bath of a minimum of 98% pure molten zinc at temperature 450°C. The gratings are slowly withdrawn from the galvanizing bath, and the excess zinc is removed by draining, vibrating, and/or centrifuging. Then steel goes into a dilute chromate quench for longer lasting Luster.



Emerald G-302

Emerald G-301



150x150x20mm



ESI-0005

3. Inspection / Finishing: A variety of simple physical and laboratory tests may be performed for thickness, adherence of the coating, uniformity of the coating and appearance.

When to Choose Grating

In many applications, metal grating is the best choice for strength and long -term cost savings. Choose metal grating instead of solid flooring when you need:

Open area to allow passage of light air , heat and sound between flooring levels

Flooring on which liquids and / or debris cannot collect

Flooring where slip resistance and fabrication are important

Areas where there are complex floor patterns and hard to - fit areas

Required specifications while ordering gratings are

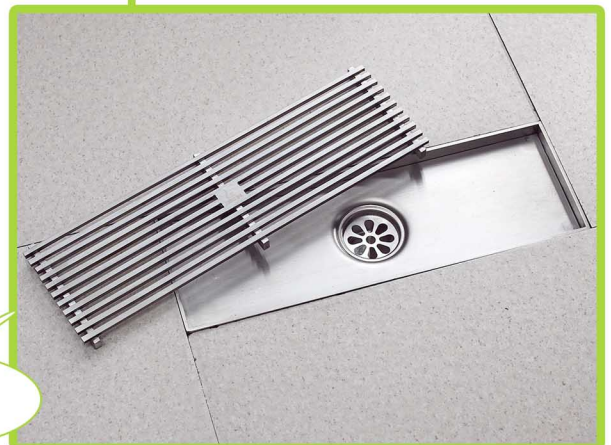
1. Type of gratings (plain or serrated)
2. Size of Bearing bars
3. Size of Cross bars
4. Mesh Size
5. Finish (self-colour, painted or galvanized)
6. Type i.e standard panels or cut to length with details
7. Dimensions of toe plate if any

Required specifications while ordering step threads are points 1 to 5 as above. Other than that, also specify:

1. Size of the step threads
2. Nosing and its type with dimensional details
3. Carrier plate if any with dimensional details.



Emerald G-303



ESI 513



ESI 0001



ESI 0002



ESI 0003

Electro Forged Technology

Electro Forged Gratings are manufactured by PLC controlled equipment which combines high hydraulic pressure (more than 100 Tonnes) and high electric current {approx 2200 amps) to electro forge the cross bar and bearing bar into a single standard panel.

The Electro Forging process eliminates any crack or open joint
The strength of bearing bar is also retained. The square twisted bar (cross bar) provides excellent anti-skid properties.

Nomenclature of gratings + product specifications

Bearing Bar or Load bearing bar (BB) :

These bars support the load put on the grating and they are made from low carbon steel grade 152062.

Cross Bar (CB) :

They are positioned transversely across Bearing bars and are welded into them at their intersection points to provide lateral restraint In Steel Gratings. these are made of square twisted wire rods from low carbon grade steel of SAE1008.

Edge Binding or frame bar (FB) :

Bar fixed to the edge of the Gratings and flush with the top of Bearing bars.

Mesh:

It is the centre to centre distance between two adjacent bearing bars and cross bars.

Edge Binding or frame bar (FB) :

Bar fixed to the edge of the Gratings and flush with the top of Bearing bars.



Emerald G-304

Gratings Applications

Steel grating has many advantages such as great Load-bearing capacity and non-slip. Safe and easy installation Steel Gratings are sturdy and durable easy to clean and have an attractive appearance. Since they are a mesh by design, they also help in good ventilation wherever they are installed.

Emerald G-305



Common uses of Steel Gratings:

Industrial floorings - Maintenance Walkways etc
Drain covers - Drainage
Compound walls
Light Traffic Access Ramps and Disabled Access Ramps
Balustrade In-fills in Balconies.
Light well and Outlet gratings
Vertical Cladding in Architectural applications.
Heavy-Duty Welded Steel Gratings are used in heavy-duty load areas such as airfields, highways, industrial plants, truck and bus terminals, parking lots and railroad yards due to its capacity to take very large loads.

Emerald G-306



Emerald G-307



Magic Grating

Emerald G-309



Emerald G-308



Size Chart Of Emerald Grating

The following Load Charts show the Safe Uniform Loads for the corresponding Bearing Bar size and Span. The Safe Uniform Loads have been calculated such that the elastic deflection shall not be more than 1/200 times the effective span or 10 mm, whichever is lesser

TYPE 30/100, Safe Uniformly Distributed Load in kgs

Bearing Bar Size in mm	Clear Span in Millimeters														
	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400
25x3	8750	3889	2188	1400	972	714	547								
25x5	14583	6481	3646	2333	1620	1190	911	720							
30x3	15120	6720	3780	2419	1680	1234	945	747	605	500					
30x5	25200	11200	6300	4032	2800	2057	1575	1244	1008	833					
35x3	24010	10671	6003	3842	2668	1960	1501	1186	960	794					
35x5	40017	17785	10004	6403	4446	3267	2501	1976	1601	1323	1112	947			
40x3	35840	15929	8960	5734	3982	2926	2240	1770	1434	1185	996	848			
40x5	59733	26548	14933	9557	6637	4876	3733	2950	2389	1975	1659	1414	1161	944	
50x3	70000	31111	17500	11200	7778	5714	4375	3457	2800	2314	1944	1657	1361	1106	911
50x5	116667	51852	29167	18667	12963	9524	7292	5761	4667	3857	3241	2761	2268	1844	1519

TYPE 41/100, Safe Uniformly Distributed Load in kgs

Bearing Bar Size in mm	Clear Span in Millimeters														
	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400
25x3	11900	5289	2975	1904	1322	971	744								
25x5	19833	8815	4958	3173	2204	1619	1240	979							
30x3	20563	9139	5141	3290	2285	1679	1285	1015	823	680					
30x5	34272	15232	8568	5484	3808	2798	2142	1692	1371	1133					
35x3	32654	14513	8163	5225	3628	2666	2041	1613	1306	1079					
35x5	54423	24188	13606	8708	6047	4443	3401	2688	2177	1799	1512	1288			
40x3	48742	21633	12186	7799	5416	3979	3046	2407	1950	1611	1354	1154			
40x5	81237	36105	20309	12998	9026	6632	5077	4012	3249	2686	2257	1923	1579	1284	
50x3	95200	42311	23800	15232	10578	7771	5950	4701	3808	3147	2644	2253	1850	1504	1240
50x5	158667	70519	39667	25387	17630	12952	9917	7835	6347	5245	4407	3755	3084	2507	2066

Size Chart Of Emerald Grating

Press Locked Grating

Type Selection Table for Press Locked Grating

Load Bar	Cross Bar	Maintenance Platform No Public Use					Pedestrian Traffic Public Residential and Light Use					Pedestrian Traffic Public Commercial and Crowded Use				
		UDL=2.5Kpa Deflection=5mm					UDL=3.0Kpa Deflection=5mm					UDL=3.0Kpa Deflection=5mm				
		Loading bar pitch center to center					Loading bar pitch center to center					Loading bar pitch center to center				
(mm)		22.2	33.3	44.4	20.0	25.0	22.2	33.3	44.4	20.0	25.0	22.2	33.3	44.4	20.0	25.0
20x2	10x2	1270	1150	1080	1290	1230	1210	1110	1030	1240	1180	1140	1030	960	1160	1100
20x5	10x3	1410	1290	1210	1440	1380	1360	1240	1160	1390	1320	1280	1160	1090	1300	1240
25x3	10x2	1490	1360	1270	1520	1450	1430	1300	1220	1460	1390	1340	1220	1140	1370	1300
25x5	12x3	1660	1520	1430	1690	1610	1600	1460	1370	1630	1550	1500	1370	1280	1530	1460
30x3	10x2	1610	1470	1370	1730	1650	1540	1410	1310	1670	1590	1450	1320	1230	1560	1490
30x5	10x3	1790	1640	1540	1920	1840	1720	1580	1480	1850	1770	1620	1480	1390	1750	1670
32x3	10x2	1670	1550	1450	1810	1730	1620	1490	1390	1750	1660	1530	1390	1300	1640	1560
32x5	12x3	1890	1730	1630	2010	1920	1820	1670	1570	1940	1850	1710	1570	1470	1830	1740
35x3	10x2	1900	1740	1630	1930	1850	1830	1670	1560	1860	1770	1710	1560	1460	1750	1660
35x5	12x3	2100	1940	1820	2140	2050	2030	1860	1750	2060	1970	1910	1750	1640	1950	1860
40x3	10x2	2040	1910	1790	2130	2030	2010	1840	1720	2050	1950	1890	1720	1610	1930	1840
40x5	12x3	2300	2130	2000	2340	2250	2230	2050	1930	2270	2170	2110	1930	1810	2140	2050
45x3	10x2	2220	2080	1950	2310	2210	2190	2000	1880	2230	2130	2060	1880	1760	2100	2000
45x5	12x3	2500	2310	2180	2540	2440	2410	2230	2100	2460	2360	2280	2100	1970	2330	2230
50x3	10x2	2450	2240	2110	2490	2380	2360	2150	2030	2400	2290	2220	2020	1900	2260	2160
50x5	12x3	2690	2480	2350	2730	2620	2600	2390	2260	2640	2540	2460	2260	2130	2510	2400
60x5	10x3	2880	2670	2520	3080	2970	2790	2580	2430	2990	2880	2650	2440	2290	2850	2730
65x5	12x3	3040	2830	2680	3250	3130	2950	2740	2580	3160	3040	2800	2580	2430	3010	2880

Type Selection Table for Press Locked Grating

Load Bar	Cross Bar	General Factories and Workshops Motor Room, Wheel Trolleys					General Heavy Loading Area Boiler Equipment and heavy Equipment Areas				
		UDL=5.0Kpa Deflection=5mm					UDL=7.5Kpa Deflection=5mm				
		Loading bar pitch center to center					Loading bar pitch center to center				
(mm)		22.2	33.3	44.4	20.0	25.0	22.2	33.3	44.4	20.0	25.0
20x3	10x2	1080	980	910	1100	1000	980	890	830	1000	950
20x5	10x3	1220	1110	1030	1240	1180	1110	1000	940	1130	1000
25x3	10x2	1270	1160	1080	1300	1230	1160	1050	980	1180	1120
25x5	12x3	1430	1300	1220	1460	1390	1300	1180	1110	1330	1260
30x3	10x2	1380	1250	1160	1490	1410	1250	1130	1060	1350	1280
30x5	10x3	1540	1410	1320	1670	1590	1410	1280	1200	1520	1450
32x3	10x2	1460	1320	1230	1560	1480	1320	1200	1120	1420	1350
32x5	12x3	1630	1490	1390	1750	1660	1490	1360	1270	1600	1520
35x3	10x2	1630	1480	1390	1670	1580	1480	1350	1260	1520	1440
35x5	12x3	1830	1670	1560	1860	1770	1670	1520	1420	1700	1620
40x3	10x2	1800	1640	1530	1840	1750	1640	1490	1390	1670	1590
40x5	12x3	2010	1840	1720	2050	1950	1840	1680	1570	1800	1790
45x3	10x2	1960	1780	1670	2000	1900	1790	1620	1510	1830	1730
45x5	12x3	2180	2000	1880	2230	2130	2000	1830	1710	2050	1950
50x3	10x2	2210	1920	1800	2160	2050	1930	1750	1640	1970	1870
50x5	12x3	2360	2150	2030	2400	2290	2160	1970	1850	2210	2100
60x5	12x3	2540	2330	2180	2730	2610	2330	2130	1990	2520	2400
65x5	12x3	2680	2470	2320	2890	2760	2470	2260	2120	2660	2540

EMERALD PRODUCTS

Press-Locked Grating

Ball Joint Handrail

Aluminum Grating

Welding Grating

FRP Grating

Emerald Plate

Hang Ceiling

Stairway

Stair Treads

Fence /Wall

Gully Grate

Emerald G-310

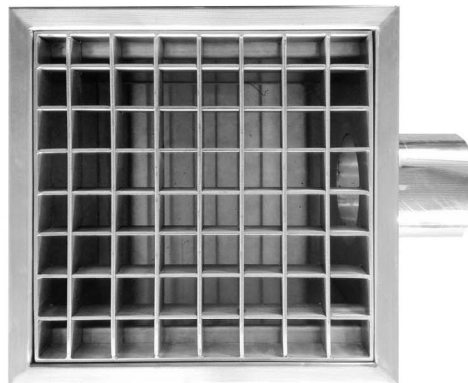
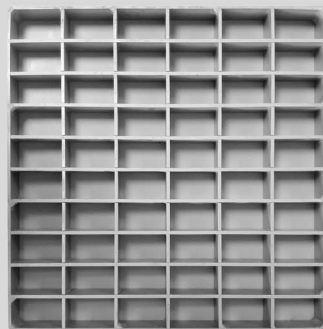
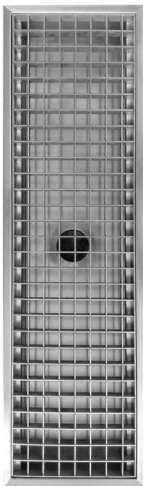
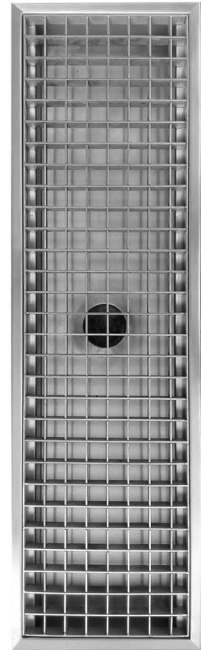


ESI 514



Emerald G-310

EMERALD PRODUCTS



Design Test And Quality

DESIGN



ESI offers a range of gratings to fulfill different requirements. ESI offers services of designing drafting and manufacturing. ESI team gets involved in projects from the stage of conceptualization, fabrication and completion, working together with consultants. ESI design office is well equipped with latest hardware as well as software. Our professional team prepares all drawings as per the specification of customers.

ESI products are subject to meticulous inspection during and after fabrication. Project inspection and test plans can be offered with appropriate procedures.

Quality Management:



Emerald G-311

Quality Management can be considered to have three main components: quality control quality assurance and quality improvement: focused not only on product quality but also the means to achieve it.

Quality management uses quality assurance and control of processes as well as products to achieve more consistent quality

ESI's well experienced and qualified team has adopted a standard quality policy that commits ESI to highest standards from design to installation. ESI aims to enhance consumer satisfaction through such a continuous quality checks in day-to-day operations. It complies with stringent control standards set by Internationally acclaimed Agencies. This gives us an opportunity to provide an international quality to our products.

Testing :

Quality Management can be considered to have three main components: quality control, quality assurance and quality improvement: focused not only on product quality, but also the means to achieve it

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