



Electroforged Gratings-Open Steel Flooring



Indiana

Indiana JEJURI PLANT



Indiana HOUSE

Indiana has over 35 years of experience in manufacturing of Gratings, Cable trays, Conveyors-Bulk Material Handling system, in India and is today recognized as Multi-Product and diversified Group supplying its products world-wide.

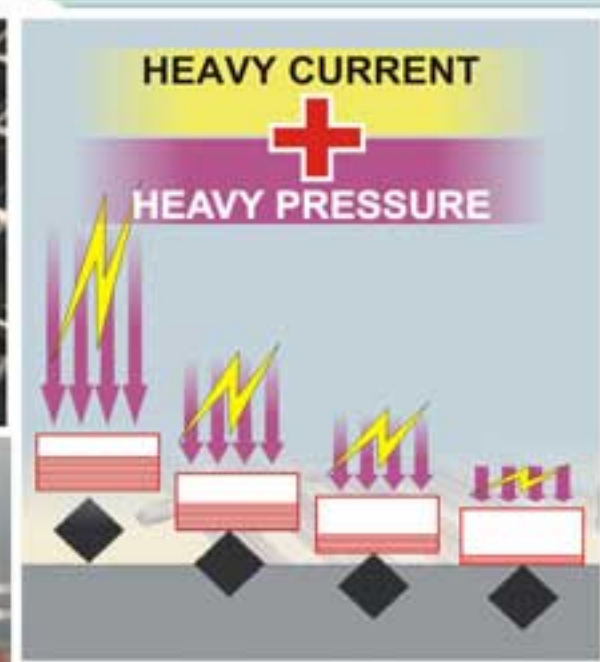
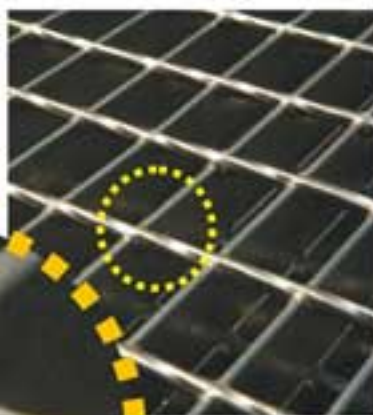
Indiana produces 150 tons of *Electroforged* Gratings per day with its capacity ascending day-by-day. The company manufactures its products at its state of the art plant having world class machinery that are upgraded from time-to-time.

Indiana has privilege of employing well educated, trained and cost effective labor, which enables it to be competitive in Global market. The management here ensures absolutely smooth operation right from receipt of order, until its dispatch to execution.

Indiana has established a full-fledge in-house drawing and designing studio to facilitate tension free execution of plans with total control.

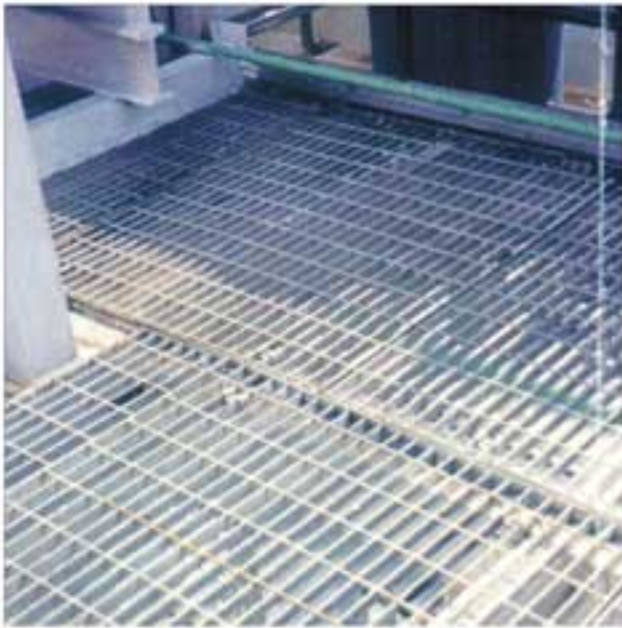
Indiana is deemed as one of the preferred quality suppliers world-wide suppling to USA, UK, Australia, Singapore, Hongkong, Malaysia, Indonesia, Thailand, Egypt, East and West Africa, Jordan, Iran, Iraq, Kuwait, Oman, Qatar, Bahrain, U.A.E. and other parts of World.

EVE



Electroforge Process







↑ Indiana

Applications



Definitions



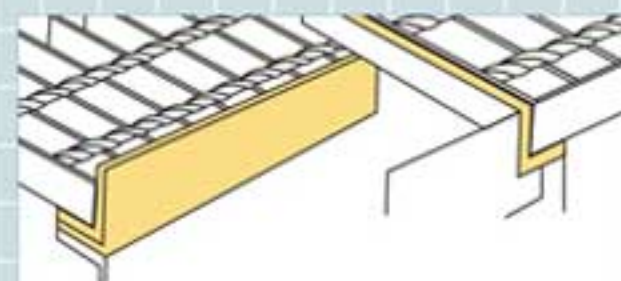
BAND

A flat welded to a side or end of gratings panel or along line of a cut out and extending neither above nor below the bearing bars.



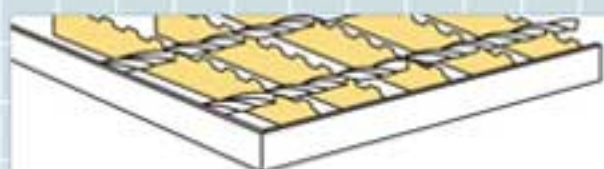
CUT OUT

An area of flooring removed to permit pipes, plant and structural columns to pass through, or to clear obstructions.



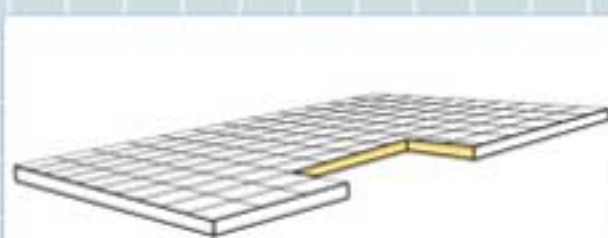
CURB ANGLE

A member fixed to concrete or supporting steelwork at the perimeter of a flooring area.



SERRATIONS

Notches cut in the top surfaces of the load-bearing bars to improve slip resistance.



STRAIGHT SHAPING

That part of a cut out which has straight edges.



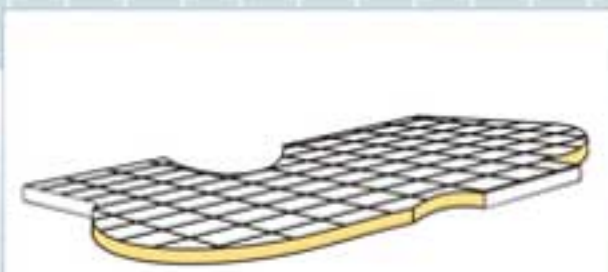
TREAD

A panel of grating having carriers with or without nosing attached by welding, designs specially to serve as stair tread.



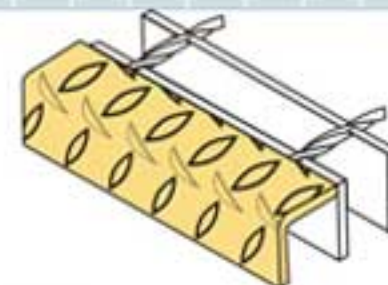
WIDTH

The overall dimension of a flooring panel measured at right angles to the load-bearing bars. (This dimension is always referred to as width, even if it exceeds the length)



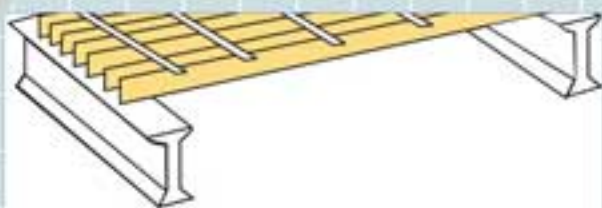
CURVED SHAPING

That part of a cut-out which has curved edges.



NOSING

Section member serving as the front or the leading edge of a stair tread or the gratings at the head of stair.



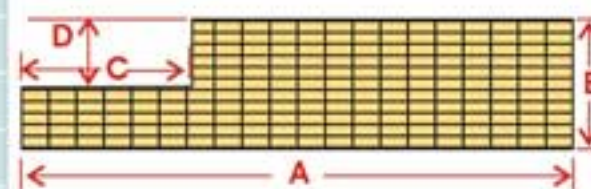
LOAD BEARING MEMBER

A longitudinal load-carrying member of uniform section spanning between supports.



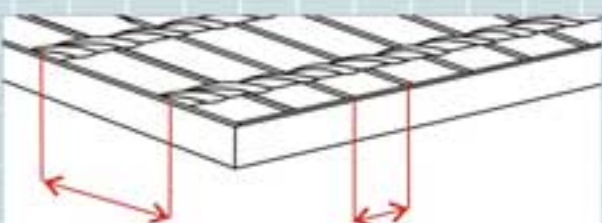
GRATING

An open rigid assembly of metal bars in which the bearing bars (main member) running in one direction are crossed by cross bars running at right angle to bearing bars.



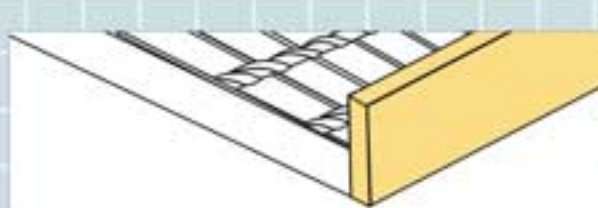
NETT AREA

The area of flooring remaining after deducing areas cut to waste.
($A \times B - C \times D$)



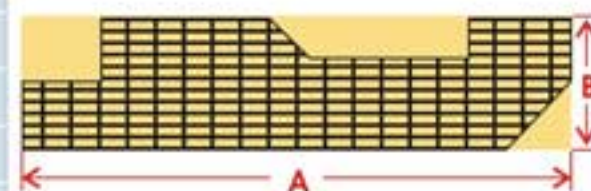
PITCH

The distance measured from centre to centre of load-bearing bars or from centre to centre of transverse bars.



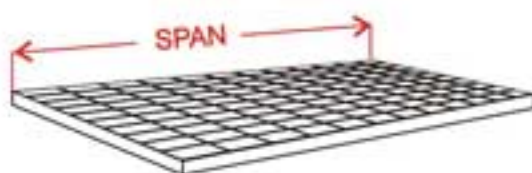
TOE PLATE (KICKING PLATE)

A flat bar around a cut-out of a flooring panel projecting above the top of the load-bearing bars.



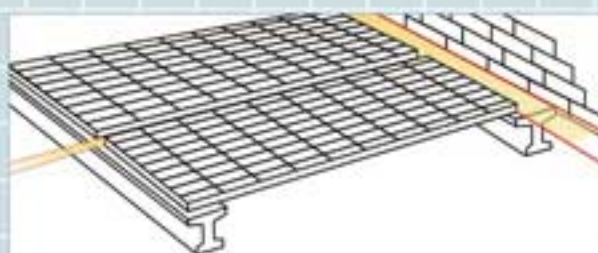
GROSS AREA

The total area of flooring including areas cut to waste ($A \times B$)



SPAN (LENGTH)

Length is direction of span; it is the overall dimensions of flooring panel parallel with the load-bearing bar. This dimension is always referred to as "Span" even if it is shorter than width.



ERECTION CLEARANCE

The space provided between the edges of a flooring panel and the adjacent structure, or between flooring panels, to facilitate erection.



CARRIER / END PLATE

A plate fixed to a stair Tread for attaching to a stringer.



*Just specify **Indiana** *Electroforged* and we*

Indiana offers a wide range of gratings to cater to different open steel floor requirements.

We are involved from conceptualisation till completion of projects and work together as a team with the consultant, contractor, and owner.

We strive to provide the most economical gratings based upon the load and span requirements of our clients, thereby ensuring absolute value for money.

We have an in-house engineering department that uses the latest Auto CAD systems to offer the design, detail and drafting facilities to convert your structural drawings to detailed grating drawings.

ADVANTAGE
Indiana

will do the rest.



Our site engineers can help in carrying out site surveys and measurements, thereby assisting you in freezing the required specifications.

Our Project Manager has a single source responsibility and coordinates with our engineers from the sales, design, estimation, project manufacturing, quality and shipping departments to ensure that he is responsible to answer any queries you may have regarding your project.

Load table for *Electroforged* Steel Gratings - Metric

41 mm center to center. Types EFB100 & EFB50.

BEARING BAR SIZE in mm	SPAN															
		300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400
25 X3	U	11000	4880	2740	1760	1230	900	680								
	D	0.6	1.4	2.6	3.9	5.9	7.9	10.0								
	C	1660	1100	820	660	550	470	410								
	D	0.5	1.1	2.0	3.1	4.3	6.1	8.0								
25 X5	U	18300	8100	4560	2920	2020	1490	1150	850							
	D	0.6	1.4	2.5	3.9	5.6	7.5	10.0	12.7							
	C	2740	1820	1370	1100	910	780	690	570							
	D	0.5	1.1	2.0	3.1	4.3	6.1	8.0	10.5							
30 X3	U	15800	7100	3950	2520	1750	1290	990	780	680	600					
	D	0.5	1.1	2.1	3.2	4.3	5.4	6.5	7.2	8.3	12.9					
	C	2370	1580	1180	950	790	670	590	520	410	400					
	D	0.4	0.9	1.6	2.6	3.7	5.0	6.6	8.3	9.4	10.3					
30 X5	U	22800	11700	6580	4210	2920	2150	1610	1300	1050	860					
	D	0.5	1.1	2.1	3.2	4.3	5.4	6.5	7.2	10.8	12.9					
	C	3950	2630	1970	1580	1310	1130	980	870	780	710					
	D	0.4	0.9	1.6	2.6	3.7	5.0	6.6	8.3	9.4	13.5					
35 X3	U	21500	9570	5320	3440	2390	1760	1340	1060	860	710					
	D	0.4	1.0	1.8	2.8	3.9	5.2	7.1	9.0	11.1	13.5					
	C	3220	2150	1610	1290	1070	920	800	710	640	580					
	D	0.3	0.8	1.4	2.3	3.2	4.3	5.7	7.2	8.6	10.8					
35 X5	U	35800	1590	8900	5700	3980	2920	2240	1770	1430	1180	990	840			
	D	0.4	1.0	1.8	2.8	3.9	5.2	7.1	9.0	11.1	13.5	16.6	19.6			
	C	5380	3580	2680	2150	1790	1530	1340	1190	1070	980	890	820			
	D	0.3	0.8	1.4	2.3	3.2	4.3	5.7	7.2	8.6	10.8	13.1	15.7			
40 X3	U	28100	12500	7100	4490	3100	2280	1740	1380	1120	920	770	660			
	D	0.3	0.8	1.5	2.4	3.5	4.8	6.2	7.9	9.7	11.8	13.8	16.4			
	C	4200	2800	2110	1690	1400	1200	1050	930	840	760	700	640			
	D	0.3	0.7	1.2	2.1	2.8	3.9	4.9	6.3	7.7	9.4	11.2	13.0			
40 X5	U	47200	20800	11700	7500	5200	3820	2920	2310	1860	1650	1230	1100	950	830	
	D	0.3	0.8	1.5	2.4	3.5	4.8	6.2	7.9	9.7	11.8	13.8	16.4	19.5	20.6	
	C	7000	4680	3510	2800	2330	2010	1750	1560	1400	1270	1170	1080	1000	930	
	D	0.3	0.7	1.2	2.1	2.8	3.9	4.9	6.3	7.7	9.4	11.2	13.0	15.1	17.3	
50 X3	U	59200	26300	14800	9500	6500	4830	3700	2920	2360	1950	1640	1400	1210	1050	960
	D	0.3	0.8	1.3	2.2	3.1	4.2	5.6	7.0	8.6	10.5	12.4	14.6	16.9	19.9	22.1
	C	8900	5900	4490	3550	2960	2530	2220	1970	1760	1610	1480	1370	1270	1180	1110
	D	0.2	0.6	1.0	1.7	2.5	3.4	4.4	5.6	6.9	8.3	9.9	11.7	13.5	15.5	17.7
50 X5	U	73100	32500	18300	11700	8100	5900	4570	3610	2920	2410	2030	1730	1490	1300	1140
	D	0.3	0.7	1.2	2.0	2.8	3.8	5.0	6.3	7.8	9.4	11.2	13.2	15.2	17.5	19.9
	C	10900	7500	5500	4380	3660	3130	2740	2430	2190	1990	1830	1690	1560	1460	13.7
	D	0.2	0.6	1.0	1.5	2.2	3.1	4.0	5.0	6.2	7.5	9.0	10.5	12.1	14.0	15.9

Unit Stress - 1650 Kg/Sq m.

U-Uniformly distributed load in kg/sq.m

C-Concetrated load in kg/meter width

D- Deflection in millimeters.

Spans to left of heavy line produce a deflection of 6 mm or less under a uniform load of 500 kg/sq.m

This deflection is recommended as per BS 4592-1970

Unit Stress - 1650 Kg/Sq m.

U-Uniformly distributed load in kg/sq.m.

C-Concentrated load in kg/meter width at mid-span.

D- Deflection in millimeters.

Spans to left of heavy line produce a deflection of 6 mm or less under a uniform load of 500 kg/sq.m

This deflection is recommended as per BS 4592-1970

TABLE OF WEIGHT

For different types of indiana floor grating

APPROXIMATE THEORETICAL WEIGHTS IN Kg/sq.m.

B.B.Size	EFB100	EFB50	EFC100	EFC50	EFVC100	EFVC50
25 X 3	18	21.5	23	31.5	19.5	23.5
25 X 5	27.5	33.5	36.5	50	29.5	35.5
30 X 3	21	25	27.5	37	23	27.5
30 X 5	32.5	39.5	43.5	60	34.70	41.5
35 X 3	24	29	31.5	43	25.90	30.90
35 X 5	37.5	46	50	69	39.5	47.90
40 X 3	27	32.5	35.5	48.5	29	34.60
40 X 5	42.5	52	57	78.5	44.70	54.20
50 X 3	33.05	40.5	44	60.5	35.5	42.40
50 X 5	53	64.5	70.5	98	55	66.60

Note: These weights are average . Actual weights per Sq. mtr. will vary according to panel size.

For other types of gratings, multiply the above figures with the following factor :

TYPE	EFVC100/50	EFC100/50	EFB100/50
LODE FACTOR	1.5	1.3	1.2

Besides above meshes, Indiana can supply the following meshes 60X 100/60 X 50,66 X 100/66 X50 for fencing applications

You feed us the data i.e Load, span and of your required grating and leave it to us. We will design eco grating for you.

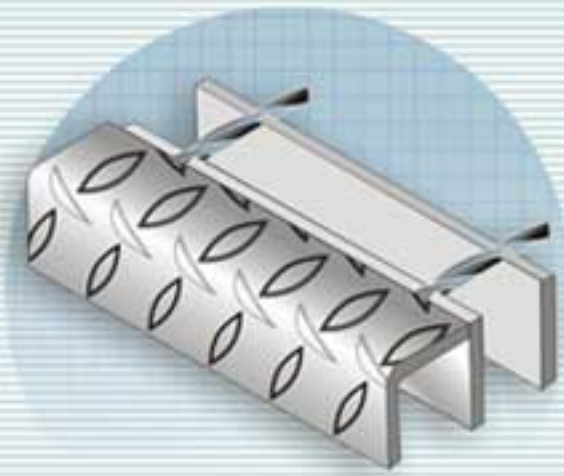
Load table for *Electroforged* Steel Gratings -Imperial

30 mm center to center. Types EFC100 & EFC50.

Bar Size	Ped Span	Sec.Mod. Per Ft. Of Widht	CLEAR SPAN													
				2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	8'-0"	9'-0"
1" x 1/8"	51"	.211	U	632	404	281	206	158	125	101	84	70	U = Safe uniform load C= Safe concentrated of grating width, a D=Deflection in inches Date is theoretical an based on 18.000 psi. Install with cross rods			
			D	.074	.116	.168	.228	.298	.377	.466	.563	.670				
			C	632	505	421	361	316	281	253	230	211				
			D	.060	.093	.134	.182	.238	.302	.372	.451	.536				
1" x 3/16"	57"	.316	U	947	606	421	309	237	187	152	125	105				
			D	.074	.116	.168	.228	.298	.377	.466	.563	.670				
			C	947	758	632	541	474	421	379	344	316				
			D	.060	.093	.134	.182	.238	.302	.372	.451	.536				
1-1/4" x 1/8"	61"	.329	U	987	632	439	322	247	195	158	130	110	93	81		
			D	.060	.093	.134	.182	.238	.302	.372	.451	.536	.629	.730		
			C	987	789	658	564	493	439	395	359	329	304	282		
			D	.048	.074	.107	.146	.191	.241	.298	.360	.429	.504	.584		
1-1/4" x3/16"	67"	.493	U	1480	947	658	483	370	292	237	196	164	140	121		
			D	.060	.093	.134	.182	.238	.302	.372	.451	.536	.629	.730		
			C	1480	1184	987	846	740	658	592	538	493	455	423		
			D	.048	.074	.107	.146	.191	.241	.298	.360	.429	.504	.584		
1-1/2"x1/8"	70"	.474	U	1421	909	632	464	355	281	227	188	158	135	116	89	70
			D	.050	.078	.112	.152	.199	.251	.310	.376	.447	.524	.608	.794	1.006
			C	1421	1137	947	812	711	632	568	517	474	437	406	355	316
			D	.040	.062	.089	.122	.159	.201	.248	.300	.358	.420	.487	.636	.804
1-1/2"x3/16"	77"	.711	U	2132	1364	947	696	533	421	341	282	237	202	174	133	105
			D	.050	0.78	.112	.152	.199	.251	.310	.376	.447	.524	.608	.794	1.006
			C	2132	1705	1421	1218	1066	947	853	775	711	.656	609	533	474
			D	.040	.062	.089	.122	.159	.201	.248	.300	.358	.420	.487	.636	.804
1-3/4"x3/16"	87"	.967	U	2901	1857	1289	947	725	573	464	384	322	275	237	181	143
			D	.043	.067	.096	.130	.170	.215	.266	.322	.383	.450	.521	.681	.862
			C	2901	2321	1934	1658	1451	1289	1161	1055	967	893	829	725	645
			D	.034	.053	.077	.104	.136	.172	.213	.257	.306	.360	.417	.545	.689
2"x3/16"	96"	1.263	U	3789	2425	1684	1237	947	749	606	501	421	359	309	237	187
			D	.037	.058	.084	.114	.149	.189	.233	.282	.335	.393	.456	.596	.754
			C	3789	3032	2526	2165	1895	1684	1516	1378	1263	1166	1083	947	842
			D	.030	.047	.067	.091	.119	.151	.186	.225	.268	.315	.365	.477	.603



Stairway Treads

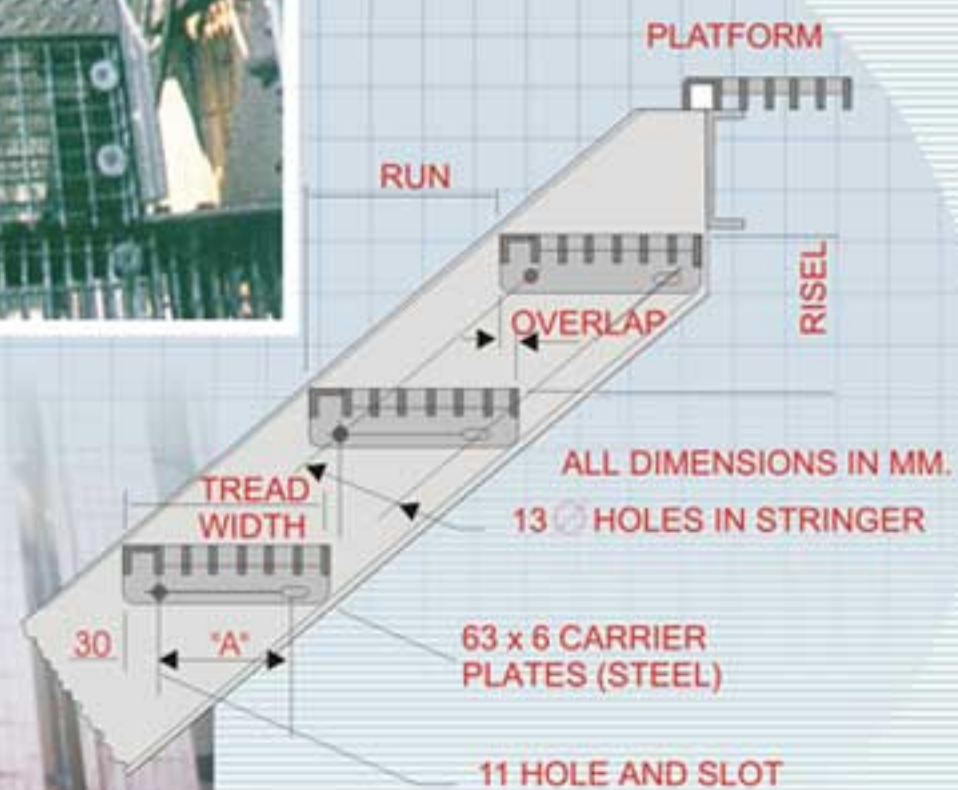


The front edge makes each tread clearly visible; which is important from the point of view of safety. To further increase this "warning" effect, we recommend selecting a mesh for stair plates which is different from mesh of platform or landing plates. Even in very dim light the contrast between the two meshes offers an unmistakable warning to the user to be careful.

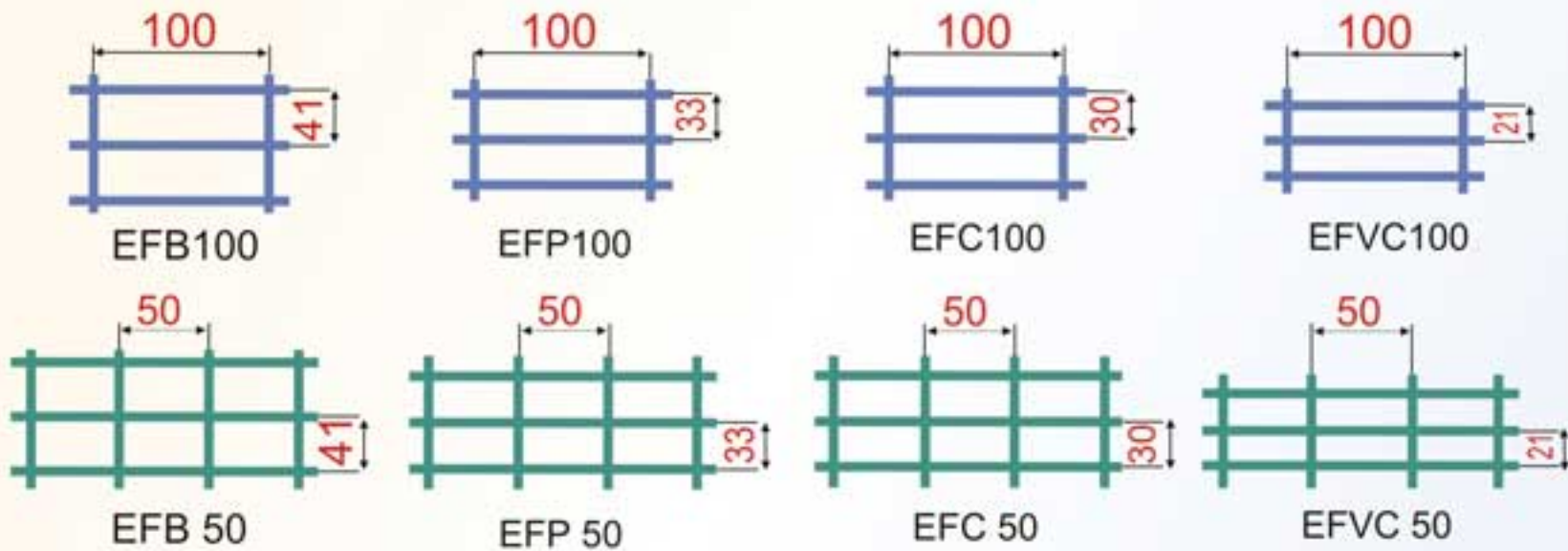
STEEL CHEQUERED PLATE / PYRAMID NOSING

Standard for press-locked and welded style steel stair platforms and treads.

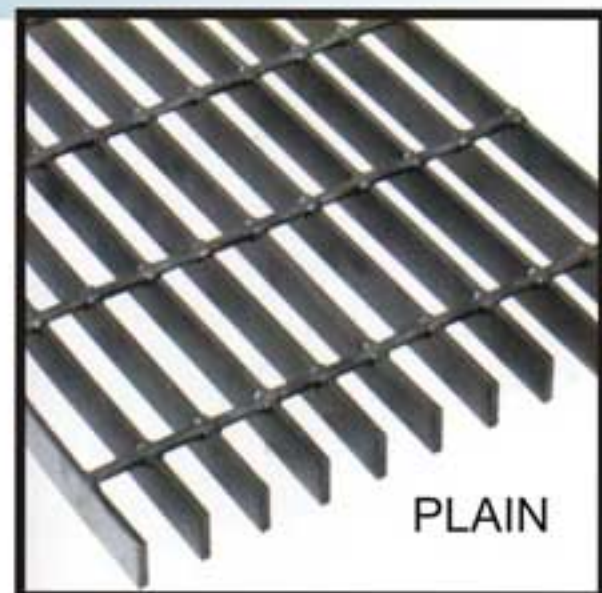
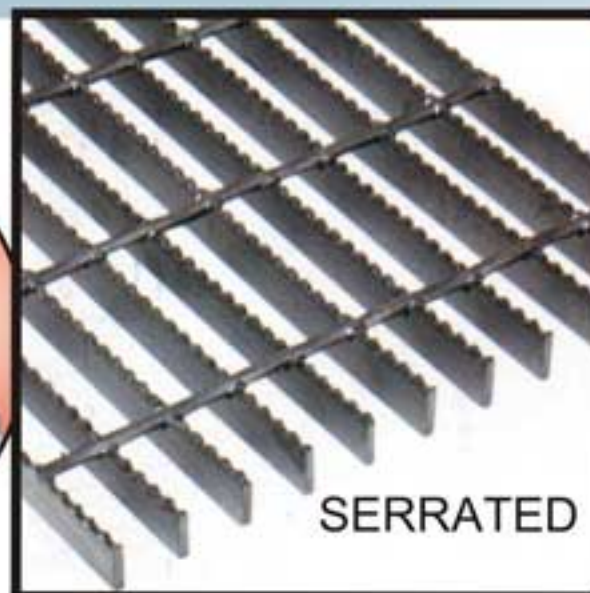
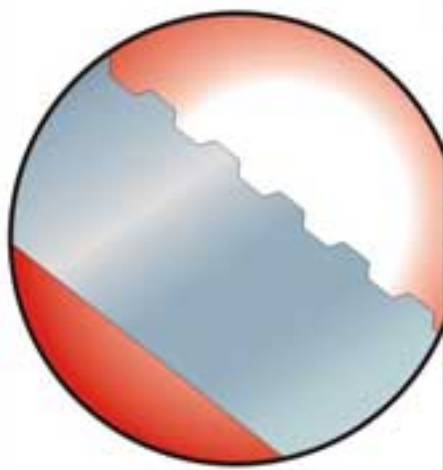
Stair Stringer and Tread Carrier Hole Punchings



Standard Types of Open *Electroforged* Steel Gratings



Bearing Bar:



Cross Bar



Standard Panel Sizes

MESH SIZES

EFB	100/50	6000 mm x 1000 mm	OR	6000 mm x 915mm	OR	20ft. x3ft.
EFP	100/50	6000 mm x 997 mm	OR	6000 mm x 925mm	OR	20ft. x3ft.
EFC	100/50	6000 mm x 990 mm	OR	6000 mm x 928mm	OR	20ft. x3ft.
EFVC	100/50	6000 mm x 1000 mm	OR	6000 mm x 915mm	OR	20ft. x3ft.

WHAT TO SPECIFY WHILE ORDERING GRATINGS-

1 TYPE OF GRATING

- (a) Standard Panel / Cut to size.
- (b) Serrated / plain.
- (c) Mesh size.

2 DEPTH OF BEARING BAR

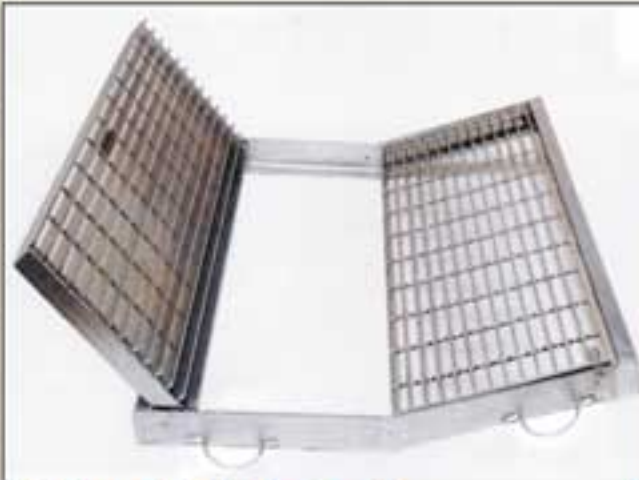
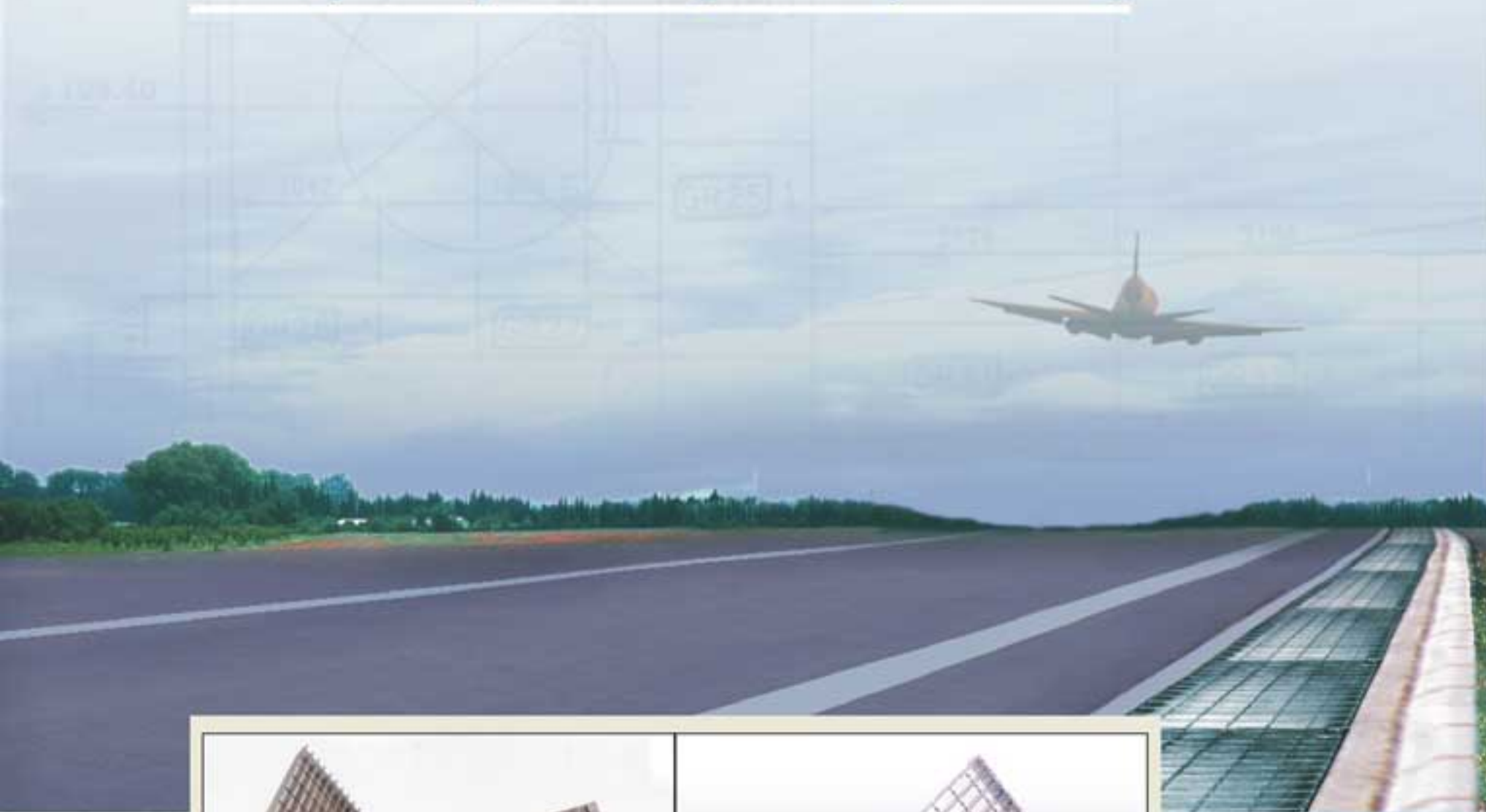
3 SPAN

Direction of Bearing Bar/Length of Grating

4 REQUIRED FINISH

Self Colour / Galvanised
/ Painted / Sand Blasted

Heavy Duty Grating / Gully Grating



Hinged Dish Grating



Hinged Pit- Grating



Sump Gratings



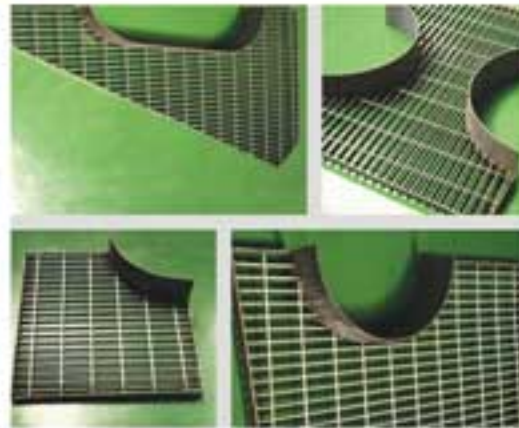
Trench Gratings

Manufactured as per clients Specifications

Design service

Total service concept

CUT TO SIZE GRATINGS



Indiana offers design & engineering services to meet customised complex grating needs of the customers.

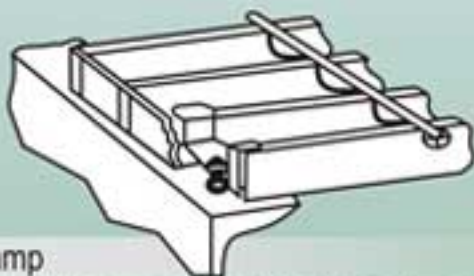
Certain applications demand cut-out gratings with irregular forms. For all such applications we supply custom made grating cut-outs as per your floor plans.

All you have to do is submit your floor plans for all such requirements and our engineering department will do the rest.

Special Clamps and Fixtures

Special clamps and fixtures are offered which do not require site welding and drilling and are thus ideal where welding and drilling on site are not allowed

- 1) CL - R3 - M8/X-L- STUD TYPE
2) CL - R4 - M8 / X - L- STUD TYPE



Clamp

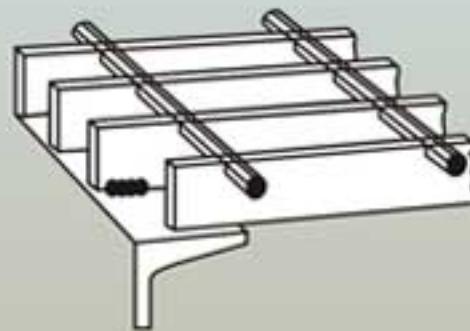
Stud Bolts are centered between two main bars and welded to supporting members. U-shaped clip engaging two main bearing bars is placed over Stud Bolt and then Hex nut is tightened.



Clamp

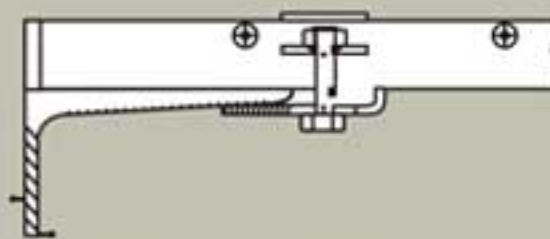
Holes are drilled in the beam to suit 1/4" screws, and the screw is fitted after which the nut can be screwed on from below. Alternatively the hole in the beam can be threaded and the clip fitted from above.

- 3) CL - R3 / R33 M8 / 50L PLATE TYPE
4) CL - R4 - M8 / 50 L PLATE TYPE



Tack Welding

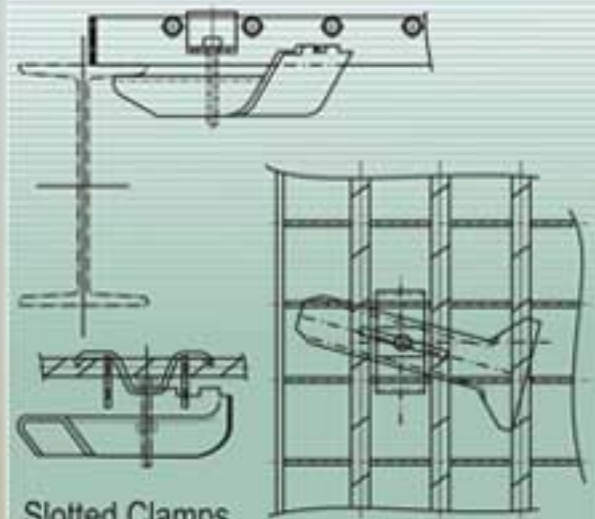
It is the most positive fastening method. Grating is field welded To support.



Clamp

To be used where site welding & drilling is not at all allowed.

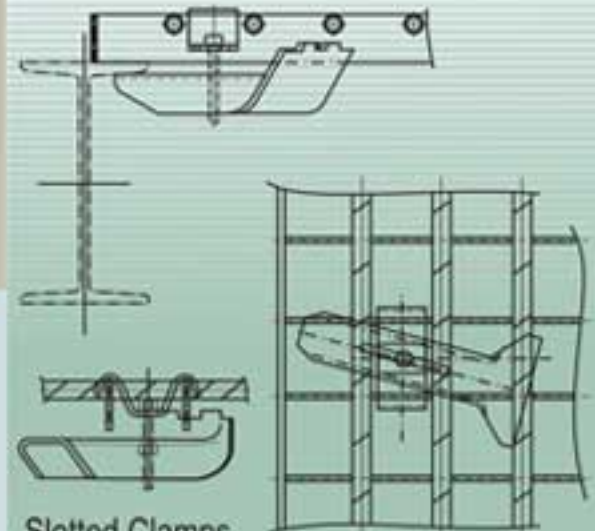
- 5) CL R3/ R33/R35/R4-M8/50L-U/L TYPE 3 mm



Slotted Clamps

On site where welding is not permitted/ or for removable gratings use Saddle Clip and slotted clamp as above.

- 6) CL - R3 / R33 - M8 / 50L U/L TYPE - 2 mm
7) CL - R4 - M8 / 50L U/L TYPE - 2 mm



Slotted Clamps

On site where welding is not permitted/ or for removable gratings use Saddle Clip and slotted clamp as above.

'X' = HEIGHT OF BEARING BAR - 5 mm

Besides Steel Floor Grating We also deal in

Gratings in M.Steel, Al,SS,FRP

Cable Trays in M.Steel, Al, SS, FRP, PVC Coated

Cable Glands

Cable Lugs

Copper Earth Rods

Steel-O-Tiles

You may ask for our detailed product catalogue on above.

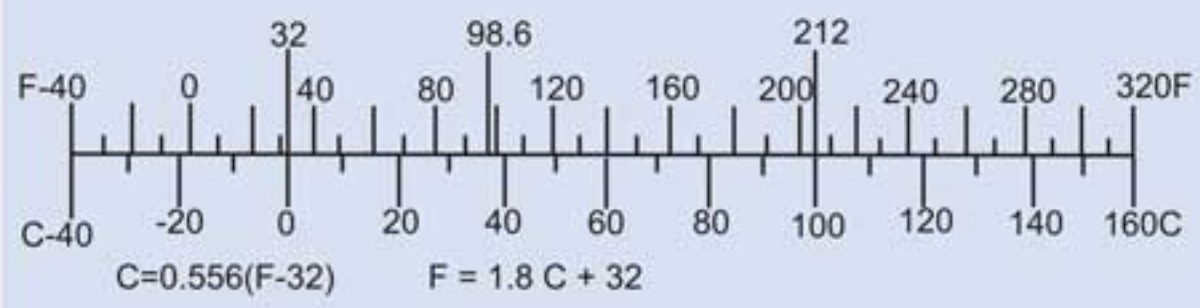




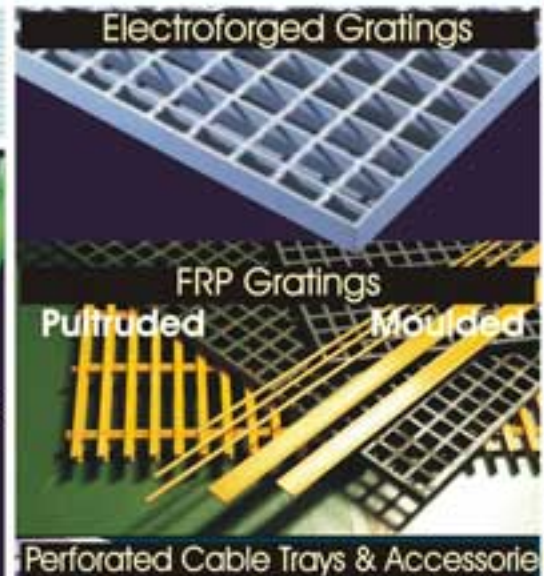
METRIC/U.S. CUSTOMARY UNIT EQUIVALENTS

Multiply:	by:	to get:	Multiply :	by :	to get:
LINEAR					
inches	X 25.540	= millimetres (mm)		x 0.03937	= inches
feet	X 0.3048	= metres (m)		X 3.281	= feet
yards	X 0.9144	= metres (m)		X 1.0938	= yards
miles	X 1.6093	= kilometres (km)		X 0.6214	= miles
inches	X 2.540	= centimetres (cm)		X 0.3937	= inches
microinches	X 0.0254	= micrometres (um)		X 39.37	= microinches
AREA					
inches ²	X 645.16	= millimetres ² (mm ²)		X 0.00155	= inches ²
inches ²	X 6.452	= centimetres ² (cm ²)		X 0.155	= inches ²
feet ²	X 0.0929	= metres ² (m ²)		X 10.764	= feet ²
yards ²	X 0.8361	= metres ² (m ²)		X 1.196	= yards ²
acres	X 0.4047	= hectares (10 ² m ²) or (ha)		X 2.471	= acres
miles ²	X 2.590	= kilometres ² (km ²)		X 0.3861	= miles ²
VOLUME					
inches ³	X 16.387	= millimetres ³ (mm ³)		X 0.000061	= inches ³
inches ³	X 16.387	= centimetres ³ (cm ³)		X 0.06102	= inches ³
inches ³	X 0.01639	= litres (L)		X 61.024	= inches ³
quarts	X 0.94635	= litres (L)		X 1.0537	= quarts
gallons	X 3.7854	= litres (L)		X 0.2642	= gallons
feet ³	X 28.317	= litres (L)		X 0.03531	= feet ³
feet ³	X 0.02832	= metres ³ (m ³)		X 35.315	= feet ³
fluid oz	X 29.57	= millilitres (mL)		X 0.03381	= fluid oz
yards ³	X 0.7646	= metres ³ (m ³)		X 1.3080	= yards ³
teaspoons	X 4.929	= millilitres (mL)		X 0.2029	= teaspoons
cups	X 0.2366	= litres (L)		X 4.227	= cups
MASS					
ounces (av)	X 28.35	= grams (g)		X 0.03527	= ounces (av)
pounds (av)	X 0.4536	= kilograms (kg)		X 2.2046	= pounds (av)
tons (2000 lb)	X 907.18	= kilograms (kg)		X 0.001102	= tons (2000 lb)
tons (2000 lb)	X 0.90718	= metric tons (t)		X 1.1023	= tons (2000 lb)
FORCE					
ounces-f	X 0.278	= newtons (N)		X 3.597	= ounces-f
pounds-f	X 4.448	= newtons (N)		X 0.2248	= pounds-f
kilograms-f	X 9.807	= newtons (N)		X 0.10197	= kilograms-f

TEMPERATURE



We can also design and manufacture Tailor-made FRP Sections as per your requirements.



Our other products

Floor Gratings in Mild Steel, Aluminum, Stainless Steel and FRP

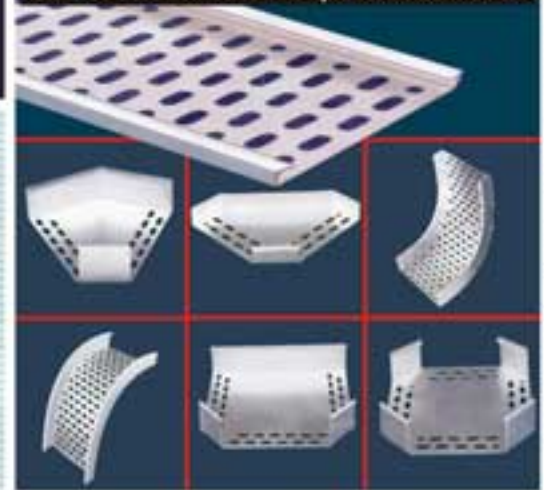
Ladder Type Cable Trays & Accessories in MS, SS, Aluminum and FRP

Perforated Cable Trays & Accessories in MS, SS, Aluminum and FRP

Trunkings, Support Systems and Hardwares

Trash Racks in FRP

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