

# ELECTRO FORGED GRATING

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Manufacturing Standard - As Per BS4592-12006

Plant Capacity - 12000 MT Per Annum

Material - As Per IS-2062-2011 Gr. A

# ELECTRO FORGED GRATING

Operational since 2010, First Electro Forged Grating plant in Northern India. With an in-depth experience in the steel fabrication for over two decades and looking at the industrial requirement, Cellcom felt the need to improve upon the conventional manually fabricated gratings. Cellcom manufactures high quality and economical gratings in a wide range using the state of the art technology of Electro-forging.



## WHY ELECTRO FORGED GRATING

- CUSTOM MANUFACTURING
- NO CRACK OR OPEN JOINT & DEFECT FREE FORGE WELDS (WITHOUT ANY AIR GAPS)
- RETAINS STRENGTH OF BEARING BAR
- IMPROVES SLIP RESISTANCE
- VISUALLY ATTRACTIVE

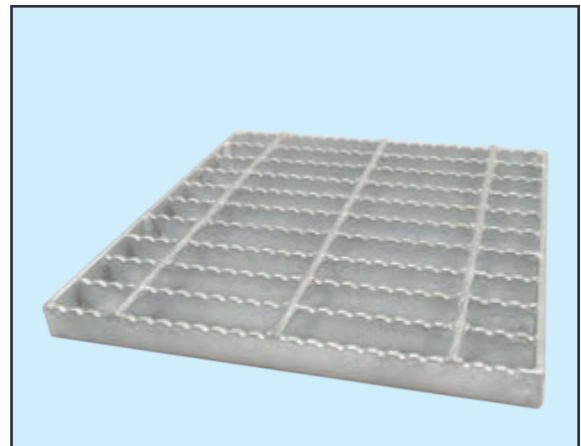
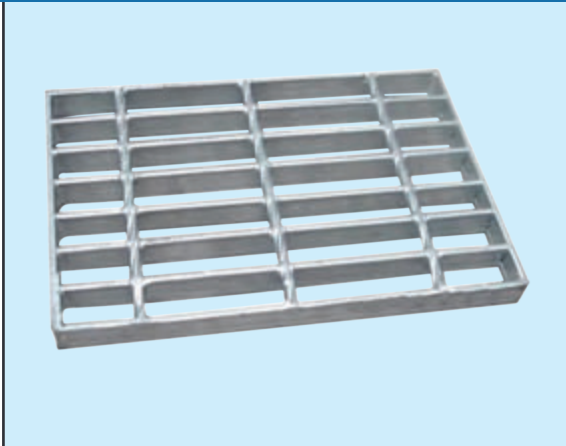


# TYPES OF STEEL GRATINGS

Gratings are manufactured in various mesh sizes as per EIL or customer specifications. The Electro-forging machine has the capacity of welding bearing bars of 25x3 mm - 50x8mm and cross bars from 6 mm to 10 mm.

They are further classified as PLAIN & SERRATED depending on the type of bearing bar used. Gratings could be supplied in various shapes and sizes

## • PLAIN GRATING



## • SERRATED GRATING

# APPLICATIONS AREAS



## • GRID TYPE FENCING

**WALK WAYS | STEP TREADS |  
TRENCH & DRAIN COVERS |  
CIRCULAR PLATFORMS | FENCING  
(GRID TYPE) BOUNDARY:**

- Cellcom has developed a robust and modular fencing solution using electro forged grating. Constituent members (flats/ twisted bars) cannot be cut by ordinary cutters unless torch cutting is done. This improves safety.
- Widely used as a replacement for chain link type modular fencing applications

### • TRENCH COVERS



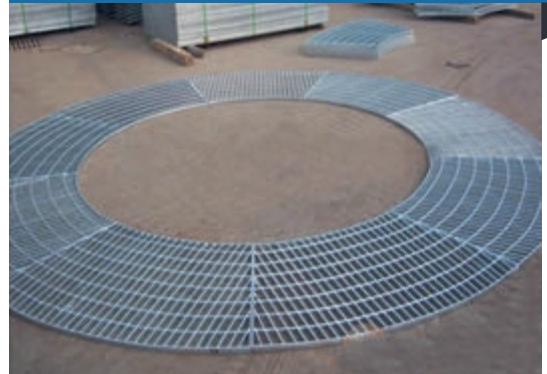
### • STEP TREAD



### • WALK WAYS

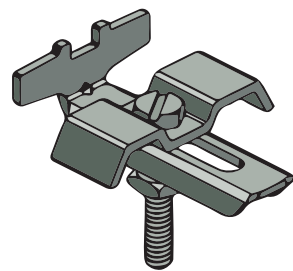


### • CIRCULAR PLATFORM



## SUPPORTING ACCESSORIES

Cellcom offers special Grating clamps & fixtures which do not require site welding and drilling and thus ideal where drilling & welding on site is not permitted.



### • GRATING FIXTURE



### • GRATING CLAMP

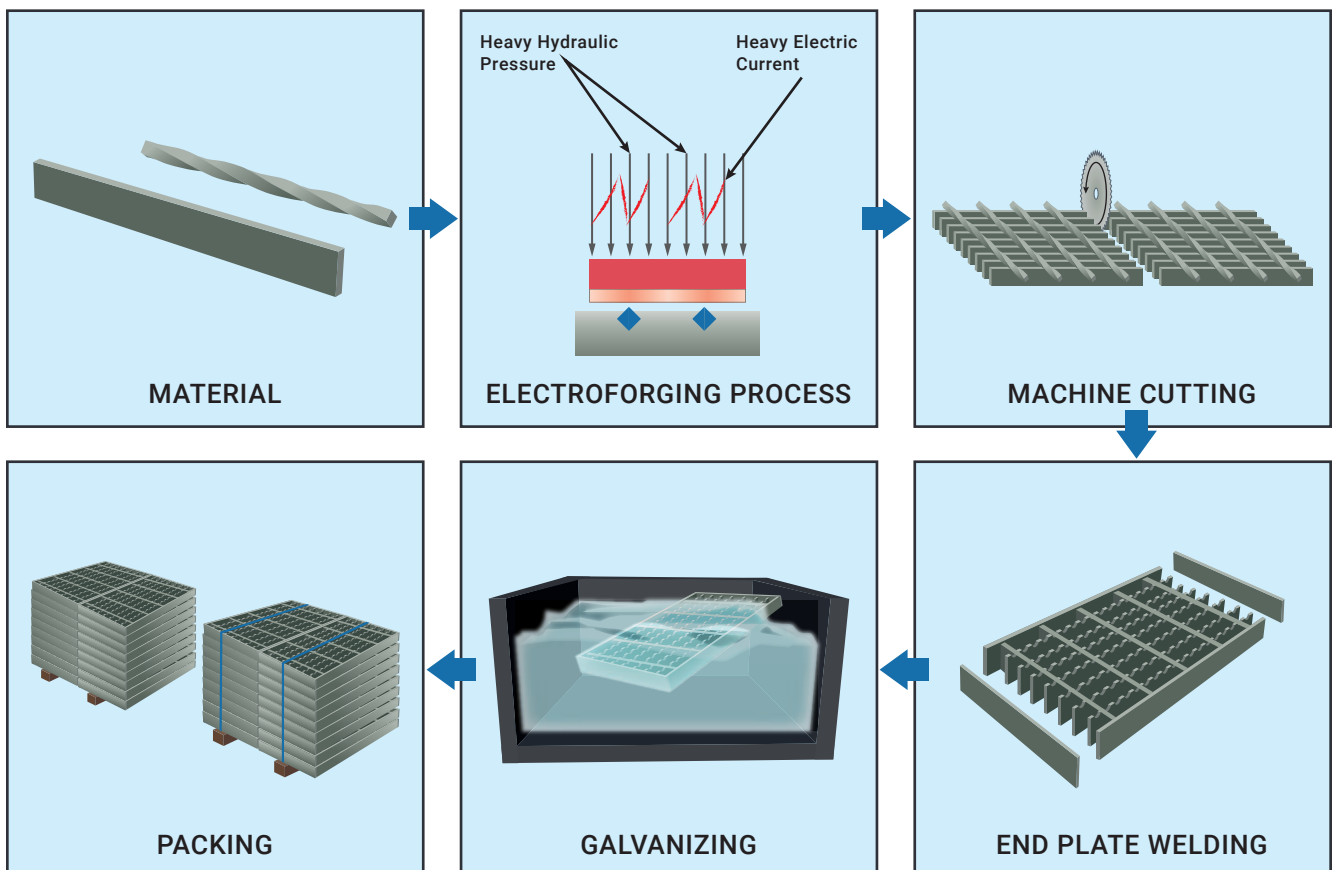


## ADVANTAGES

- High load-bearing capacity (almost 20% more than manual gratings).
- Durable in the harshest environment
- Easy to install and maintain/repair
- Minimum distortion and accuracy of dimensions.
- High rate of production (fast deliveries).
- Corrosion resistant
- Suitable for ventilation and natural lighting.

## MANUFACTURING PROCESS

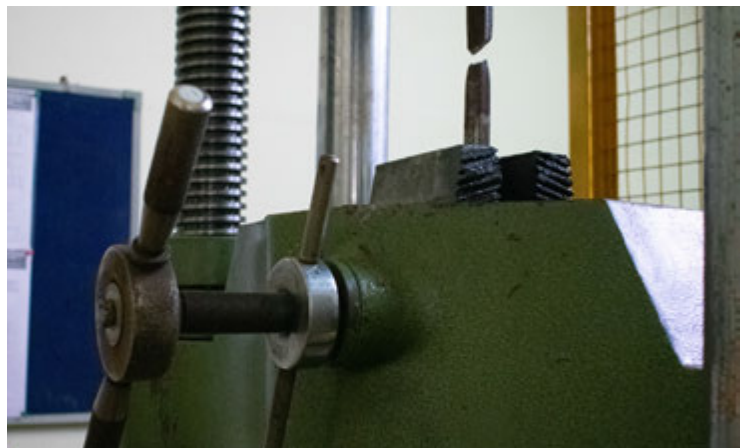
- Twisted Bars are aligned on Bearing Bars for the desired mesh size on the Electro-forging machine.
- Heat is generated at the metal intersection by passing a high Electrical current through the copper electrodes.
- As the forging temperature is reached, high tonnage pressure is applied hydraulically on twisted bars, so as to forge weld every intersection of cross bars and bearing bars.
- The Welded Cross bar is dragged automatically to bring the next cross bar under the welding electrodes. The grating panels are made in standard size of 1 mx6 m and the same process as above is repeated again and again till full length of panel (1m x 6m) is achieved.
- The panels are then cut to the required grating sizes on circular power saw cutting machine & edge bearing bars (caging flats) are manually welded.
- In house galvanizing or painting as required of the gratings is done before dispatch to customers.





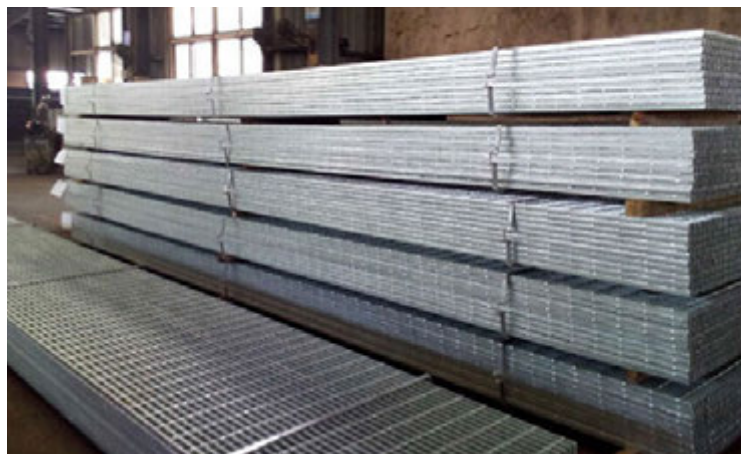
## TESTING

Cellcom has an ultra-modern lab for testing all incoming, outgoing & in process material. The lab has complete Equipments to carry out physical & chemical properties of steel through UTM machine, Rockwell Hardness Tester, Carbon Apparatus, Hygrometer, etc., as per relevant IS codes. Testing Rig is used for load deflection test & UTM machine is used to carry out pull out test to check the strength of electro forged gratings.



## PACKING

Gratings are numbered according to drawing part number and are packed in bundles on steel/wooden pallets by means of steel strips.



# LOAD DEFLECTION TABLE

**LOAD DEFLECTION TABLE FOR ELECTROFORGE GRATINGS**  
40 MM - BEARING BARS CENTRE TO CENTRE

BEARING BAR SIZE IN MM	SPAN														
		300	450	600	750	900	1050	1200	1350	1650	1800	1950	2100	2250	2400
25 X 3	U	11000	4880	2740	1760	1230	900	680			U = Uniformly distributed load in kg/sq.m C = Concentrated load in kg/sq.m D = Deflection in millimetres				
	D	0.6	1.4	2.6	3.9	5.9	7.9	10.0							
	C	1660	1100	820	680	550	470	410							
	D	0.5	1.1	2.0	3.1	4.3	6.1	8.0							
25 X 5	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 X 3	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	1.5	2.6	3.7	5.0	6.6	8.3	9.4	10.3				
30 X 5	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				
40 X 3	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 X 5	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

1. Spans to the left of red line (Heavy Line) produces a deflection of 6 mm or less under a uniform load of 500kg./sqm. which is recommended as per BS 4592-0-2006
2. For Gratings with Bearings bars center to center distance 35 mm, multiply the above load figures by 1.2
3. For Gratings with Bearings bars center to center distance 30 mm, multiply the above load figures by 1.3

# GRATING WEIGHT TABLE

(Approx. theoretical Grating Weight in Kg./Sqm. for square twisted cross bar size 6mm diagonal)

MESS SIZE	BEARING BAR SIZE							
	25 X 3	25 X 5	30 X 3	30 X 5	32 X 3	32 X 5	40 X 3	40 X 5
40 X 100	18.5	29.5	21.8	35.0	23.1	37.2	28.4	46.0
35 X 100	20.8	33.4	24.6	39.7	26.1	42.2	32.2	52.3
30 X 100	23.2	37.3	27.5	44.4	29.1	47.3	36.0	58.6
40 X 75	19.3	30.4	22.7	35.9	24.0	38.1	29.3	46.9
35 X 75	21.7	34.3	25.5	40.6	27.0	43.1	33.0	53.2
30 X 75	24.1	38.2	28.3	45.3	30.0	48.1	36.8	59.5
40 X 50	20.7	31.7	24.0	37.2	25.3	39.4	30.6	48.2
35 X 50	23.0	35.6	26.8	41.9	28.3	44.4	34.4	54.5
30 X 50	25.4	39.6	29.7	46.6	31.3	49.5	38.1	60.8





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