

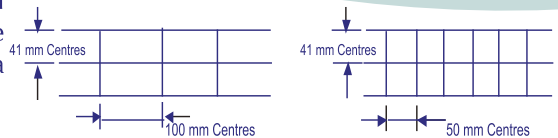
ELECTRO FORGED STEEL GRATING



ELECTRO FORGED GRATINGS

GRATING with load bearing bars @ 41 mm centres Cross bars @ 100 mm

Safe Uniformly distributed loads (U.D.L.) in kilonewtons per square metre on simply supported panels with deflections (D) in mm. Load table is made considering a maximum permissible stress of 165 N/mm² which allows for a safety factor of 1:6.



Safe Working Loads & Deflection Tables for 41mm Pitch

Note : For pedestrain traffic there are three loading categories which are (a) light duty, (b) normal duty and (c) heavy duty. These categories are described as (a) access limited to one person only, (b) regular two way pedestrain traffic and (c) high density pedestrain traffic, as per BS 4592, part one 1987.

Add 2.99kg/m² approx. finished weight for cross bars @ 50 mm centres

Max clear span for pedestrian Load (mm)		'D' (mm)	Bearing Bar (mm)	UNITS	MAXIMUM UNIFORMLY DISTRIBUTED LOAD IN kN/m2 AND MAXIMUM DEFLECTION IN mm @ INDIVIDUAL CLEAR SPANS SHOWN IN mm													Theoretical Finish Weight
					300	450	600	750	900	1000	1200	1350	1500	1650	1800	1950	2000	kg/m2
a	1380	6.90	25x3	kn/m2	126.95	56.42	31.74	18.67	10.81	7.88	4.56	3.20	2.33	1.75	1.35	1.06	0.98	19.84
b	1164	5.82		D (mm)	0.65	1.47	2.61	3.75	4.50	5.00	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
c	1017	5.08																
a	1656	8.28	30x3	kn/m2	182.81	81.25	45.70	29.25	18.67	13.61	7.88	5.53	4.03	3.03	2.33	1.84	1.70	23.21
b	1396	6.98		D (mm)	0.54	1.22	2.18	3.40	4.50	5.00	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
c	1220	6.10																
a	1931	9.66	35x3	kn/m2	248.82	110.59	62.21	39.81	27.65	21.62	12.51	8.79	6.40	4.81	3.71	2.92	2.70	26.59
b	1639	8.15		D (mm)	0.47	1.05	1.86	2.91	4.20	5.00	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
c	1423	7.12																
a	2154	10.00	40x3	kn/m2	325.00	143.00	81.25	52.00	36.11	29.25	18.67	13.11	9.56	7.18	5.53	4.35	4.03	29.95
b	1862	9.31		D (mm)	0.41	0.92	1.63	2.55	3.67	4.53	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
c	1626	8.13																
a	2305	10.00	40x4	kn/m2	429.00	190.00	106.50	68.30	47.40	38.40	24.55	17.22	12.56	9.43	7.27	5.71	5.30	38.94
b	2029	10.00		D (mm)	0.41	0.92	1.63	2.55	3.67	4.53	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
c	1700	7.40																
a	1636	8.18	25x5	kn/m2	211.59	94.04	52.90	31.12	18.01	13.13	7.60	5.34	3.89	2.92	2.25	1.77	1.64	31.08
b	1380	6.90		D (mm)	0.65	1.47	2.61	3.75	4.50	5.00	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
c	1205	6.03																
a	1963	9.81	30x5	kn/m2	304.68	135.41	76.17	48.75	31.12	22.69	13.13	9.22	6.72	5.05	3.89	3.06	2.84	36.69
b	1656	8.28		D (mm)	0.54	1.22	2.18	3.40	4.50	5.00	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
c	1446	7.23																
a	2062	10.00	32x5	kn/m2	335.00	146.00	84.00	55.00	34.70	27.15	15.70	11.02	8.04	6.04	4.65	3.66	3.39	38.94
b	1750	8.65		D (mm)	0.50	1.10	2.01	3.21	4.20	5.00	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
c	1500	7.00																
a	2214	10.00	35x5	kn/m2	414.71	184.31	103.68	66.35	46.08	36.03	20.85	14.64	10.67	8.02	6.18	4.86	4.50	42.31
b	1931	9.66		D (mm)	0.47	1.05	1.86	2.91	4.20	5.00	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
c	1687	8.44																
a	2447	10.00	40x5	kn/m2	541.66	240.74	135.41	86.67	60.18	48.75	31.12	21.86	15.93	11.97	9.22	7.25	6.72	47.92
b	2154	10.00		D (mm)	0.41	1.05	1.86	2.91	4.20	5.00	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
c	1928	9.64																
a	2893	10.00	50x5	kn/m2	846.34	376.15	211.59	135.41	94.04	76.17	52.90	41.79	31.12	23.38	18.01	14.17	13.13	59.16
b	2546	10.00		D (mm)	0.33	0.73	1.31	2.04	2.94	3.63	5.22	6.61	7.50	8.25	9.00	9.75	10.00	
c	2301	10.00																
a	3303	10.00	60x5	kn/m2	1100.00	488.89	275.00	176.00	122.00	90.00	68.75	54.32	44.00	39.78	30.64	24.10	19.00	70.39
b	2907	10.00		D (mm)	0.25	0.56	1.00	1.56	2.24	3.05	3.99	5.05	6.23	8.25	9.00	9.75	10.00	
c	2627	10.00																
a	3709	10.00	70 x 5	kn/m2	1498.00	665.00	374.00	239.00	166.00	123.00	93.00	74.00	60.00	49.50	48.00	38.00	29.50	81.62
b	3264	10.00		D (mm)	0.21	0.48	0.85	1.34	1.92	2.62	3.42	4.33	5.34	6.46	9.00	9.75	10.00	
c	2949	10.00																

Serrated Conversion Factor: Calculating UDL and deflection for serrated gratings, allowance should be kept for the material removed from the load bearing bar to form the serration profile. Typically this is 0.9 % of the UDL and 1.05 % of the deflection. This figures vary depending on the type of serration. (To be confirmed during the design process.)



LOADING CONSIDERED		
a =	3.0	kN/m ²
b =	5.0	kN/m ²
c =	7.5	kN/m ²

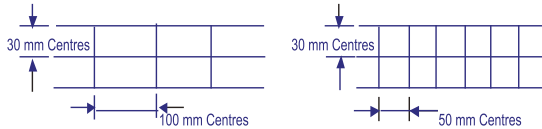




ELECTRO FORGED STEEL GRATING

ELECTRO FORGED GRATINGS

GRATING with load bearing bars @ 30 mm centres Cross bars @ 100 mm Safe Uniformly distributed loads (U.D.L.) in kilonewtons per square metre on simply supported panels with deflections (D) in mm. Load table is made considering a maximum permissible stress of 165 N/mm² which allows for a safety factor of 1:6.



Safe Working Loads & Deflection Tables for 30mm Pitch

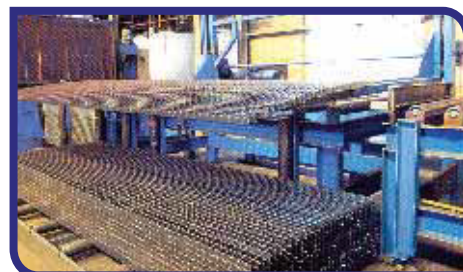
Note : For pedestrain traffic there are three loading categories which are (a) light duty. (b) normal duty and (c) heavy duty. These categories are described as (a) access limited to one person only, (b) regular two way traffic and (c) high density traffic, BS 4592, part one 1987.

Add 2.99kg/m² approx. finished weight for cross bars @ 50 mm centres.

Max clear span for pedestrian Load (mm)			'D' (mm)	Bearing Bar (mm)	UNITS	MAXIMUM UNIFORMLY DISTRIBUTED LOAD IN kN/m2 AND MAXIMUM DEFLECTION IN mm @ INDIVIDUAL CLEAR SPANS SHOWN IN mm												Theoretical Finish Weight		
						300	450	600	750	900	1000	1200	1350	1500	1650	1800	1950		2000	kg/m2
a	b	c	1526 1287 1124	7.63 6.43 5.62	25x3	kn/m2	171.67	76.30	42.92	25.25	14.61	10.65	6.16	4.33	3.16	2.37	1.83	1.44	1.33	25.46
						D (mm)	0.65	1.47	2.61	3.75	4.50	5.00	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
a	b	c	1831 1544 1349	9.15 7.72 6.74	30x3	kn/m2	247.20	109.87	61.80	39.55	25.25	18.41	10.65	7.48	5.45	4.10	3.16	2.48	2.30	29.95
						D (mm)	0.54	1.22	2.18	3.40	4.50	5.00	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
a	b	c	2101 1801 1574	10.00 9.01 7.87	35x3	kn/m2	367.47	149.54	84.12	53.83	37.39	29.23	16.92	11.88	8.66	6.51	5.01	3.94	3.65	34.44
						D (mm)	0.47	1.05	1.86	2.91	4.20	5.00	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
a	b	c	2322 2044 1799	10.00 10.00 8.99	40x3	kn/m2	439.47	195.32	109.87	70.31	48.83	39.55	25.25	17.73	12.93	9.71	7.48	5.88	5.45	38.94
						D (mm)	0.41	0.92	1.63	2.55	3.67	4.53	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
a	b	c	2490 2191 1950	10.00 10.00 9.41	40x4	kn/m2	583.00	259.00	145.00	92.70	64.50	52.20	33.34	23.40	17.10	12.82	9.88	7.77	7.21	50.92
						D (mm)	0.41	0.92	1.63	2.55	3.67	4.53	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
a	b	c	1809 1526 1333	9.04 7.63 6.66	25x5	kn/m2	286.11	127.16	71.53	42.08	24.35	17.75	10.27	7.22	5.26	3.95	3.04	2.39	2.22	40.44
						D (mm)	0.65	1.47	2.61	3.75	4.50	5.00	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
a	b	c	2127 1831 1599	10.00 9.15 8.00	30x5	kn/m2	412.00	183.11	103.00	65.92	42.08	30.68	17.75	12.47	9.09	6.83	5.26	4.14	3.83	47.92
						D (mm)	0.54	1.22	2.18	3.40	4.50	5.00	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
a	b	c	2227 1900 1700	10.00 8.84 8.50	32x5	kn/m2	455.00	198.00	114.50	75.00	47.20	37.00	21.35	14.99	10.95	8.21	6.35	4.97	4.61	50.92
						D (mm)	0.50	1.10	2.01	3.21	4.20	5.00	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
a	b	c	2387 2101 1866	10.00 10.00 9.33	35x5	kn/m2	560.78	249.23	140.19	89.72	62.31	48.72	28.19	19.80	14.43	10.84	8.35	6.57	6.09	55.42
						D (mm)	0.47	1.05	1.86	2.91	4.20	5.00	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
a	b	c	2639 2322 2098	10.00 10.00 10.00	40x5	kn/m2	732.44	325.53	183.11	117.19	81.38	65.92	42.08	29.56	21.55	16.19	12.47	9.81	9.09	62.90
						D (mm)	0.41	0.92	1.63	2.55	3.67	4.53	6.00	6.75	7.50	8.25	9.00	9.75	10.00	
a	b	c	3119 2745 2481	10.00 10.00 10.00	50x5	kn/m2	1144.44	508.64	286.11	183.11	127.16	103.00	71.53	56.52	42.08	31.62	24.35	19.15	17.75	77.88
						D (mm)	0.33	0.73	1.31	2.04	2.94	3.63	5.22	6.61	7.50	8.25	9.00	9.75	10.00	
a	b	c	3567 3140 2837	10.00 10.00 10.00	60x5	kn/m2	1496.00	664.00	374.00	239.00	166.00	122.30	93.50	73.88	59.84	54.10	41.67	32.77	25.00	92.86
						D (mm)	0.25	0.56	1.00	1.56	2.24	3.05	4.00	5.05	6.23	8.25	9.00	9.75	10.00	
a	b	c	4005 3525 3185	10.00 10.00 10.00	70 x 5	kn/m2	2036.00	904.00	509.00	325.00	226.00	166.50	127.00	100.00	81.45	67.31	66.00	52.00	39.70	107.84
						D (mm)	0.21	0.48	0.85	1.34	1.92	2.62	3.42	4.33	5.34	6.46	9.00	9.75	10.00	

Note :

- ☞ For 3mm load bars subtract 2 mm from widths
- ☞ width dimensions can vary due to manufacturing process
- ☞ In addition to 30 and 41 mm pitch we also manufacture the gratings with 33 mm c/c. 35 mm c/c, 40mm c/c and 60 mm c/c



HEAVY DUTY PRESS LOCKED GRATINGS

Heavy duty gratings are press locked gratings. The bearing bars and the cross bars are inter-locked with one another and then processed at a pressure of 12,000 kN.

Due to their high stability and safety, heavy duty gratings are used where large support widths and high wheel loads are required.

Heavy duty gratings can be also produced in stainless-steel

 Vehicle access: trucks up to 3 tonnes in overall weight.

 Vehicle access: trucks up to 9 tonnes in overall weight.

 Vehicle access: trucks up to 30 tonnes in overall weight.

 Vehicle access: trucks up to 60 tonnes in overall weight.

* Support width = clearance between the supports.

F_P Point load in kN

The values shown have been calculated for maximum permissible load rating on the basis of the relevant load carrying area and bearing bar spacing of 50 mm.

Conversion factor for kg into kN

10 kN - 1 tonne

1 kN - 100 kg

Bearing bars (mm) other bearing bars upto 200x12 on request.												
	80 x 8	90 x 8	100 x 8	110 x 8	120 x 8	130 x 8	140 x 8	150 x 8	80 x 10	90 x 10	100 x 10	110 x 10
Support width * (mm)	F_P	F_P	F_P	F_P	F_P	F_P	F_P	F_P	F_P	F_P	F_P	F_P
300	163,84	207,36	256,00	309,76	368,64	432,64	501,76	576,00	204,80	259,20	320,00	387,20
400	122,88	155,52	192,00	232,32	276,48	324,43	376,32	432,00	153,60	194,40	240,00	290,40
500	81,92	124,42	153,60	185,86	221,18	259,58	301,06	345,60	122,88	155,52	192,00	232,32
600	61,44	103,68	128,00	154,88	184,32	216,32	250,88	288,00	102,40	129,60	160,00	193,60
700	43,12	62,21	76,80	116,16	138,24	162,24	188,16	216,00	61,44	77,76	120,00	145,20
800	36,68	51,84	64,00	77,44	110,59	129,79	150,53	172,80	51,20	64,80	80,00	116,16
900	31,92	40,39	54,86	66,38	78,99	108,16	125,44	144,00	39,90	55,54	68,57	82,97
1000	27,31	35,75	44,14	58,08	69,12	81,12	107,52	123,43	35,31	44,69	60,00	72,60
1100	24,58	32,07	39,59	51,63	61,44	72,11	83,63	108,00	31,67	40,08	53,33	64,53
1200	22,34	28,28	35,89	43,42	55,30	64,90	75,26	86,40	27,93	36,34	44,86	58,08
1300	20,48	25,92	32,82	39,71	50,27	59,00	68,42	78,55	25,60	33,23	41,03	52,80
1400	18,90	23,93	30,24	36,59	43,54	54,08	62,72	72,00	23,63	30,61	37,80	45,73
1500	17,55	22,22	27,43	33,92	40,36	47,37	57,90	66,46	21,94	27,77	35,04	42,39
1600	16,38	20,74	25,60	31,61	37,62	44,15	53,76	61,71	20,48	25,92	32,65	39,51
1700	15,36	19,44	24,00	29,04	35,22	41,34	50,18	57,60	19,20	24,30	30,57	36,99
1800	14,46	18,30	22,59	27,33	33,11	38,86	45,07	54,00	18,07	22,87	28,24	34,78
1900	13,65	17,28	21,33	25,81	31,24	36,66	42,52	50,82	17,07	21,60	26,67	32,81
2000	12,93	16,37	20,21	24,45	29,10	34,70	40,25	46,20	16,17	20,46	25,26	31,06

HEAVY DUTY PRESS LOCKED GRATINGS



Bearing bar	Cross bar
80x8	15x6
90x8	25x6
100x8	25x6
110x8	25x6
120x8	25x6
130x8	25x6
140x8	40x6
150x8	40x6
80x10	40x8
90x10	40x8
100x10	40x8
110x10	40x8
120x10	40x8
130x10	40x8
140x10	40x8
150x10	40x8
100x12	40x10
110x12	40x10
120x12	40x10
130x12	40x10
140x12	40x10
150x12	40x10
160x12	40x10
170x12	40x10
180x12	40x10
bearing bar length max. 2500 mm	

If the gratings you order are for vehicular use, you must give us details in advance – wheel load, load carrying area, clear span and direction of travel so that we can calculate the grating flooring.

Standard Mesh Spacing			
Bearing bar	Cross bar		
25	x	50	100
50	x	50	100
75	x	50	75 100
100	x	50	75 100

Bridge class	Colour key	Wheel load	Load carrying area
3/3	Vehicle up to 3 t	10 kN	200 x 200 mm
9/9	Vehicle up to 9 t	30 kN	200 x 260 mm
30/30	Vehicle up to 30 t	50 kN	200 x 400 mm
60/30	Vehicle up to 60 t	100 kN	200 x 600 mm

Bearing bars (mm)												
120 x 10	130 x 10	140 x 10	150 x 10	100 x 12	110 x 12	120 x 12	130 x 12	140 x 12	150 x 12	160 x 12	170 x 12	180 x 12
F _p	F _p	F _p	F _p	F _p	F _p	F _p	F _p	F _p	F _p	F _p	F _p	F _p
460,80	540,80	627,20	720,00	384,00	464,64	552,96	648,96	752,64	864,00	983,04	1109,76	1244,16
345,60	405,60	470,40	540,00	288,00	348,48	414,72	486,72	564,48	648,00	737,28	832,32	933,12
276,48	324,48	376,32	432,00	230,40	278,78	331,78	389,38	451,58	518,40	589,82	665,86	746,50
230,40	270,40	313,60	360,00	192,00	232,32	276,48	324,48	376,32	432,00	491,52	554,88	622,08
172,80	202,80	235,20	270,00	144,00	174,24	207,36	243,36	282,24	324,00	368,64	416,16	466,56
138,24	162,24	188,16	216,00	115,20	139,39	165,89	194,69	225,79	259,20	294,91	332,93	373,25
115,20	135,20	156,80	180,00	82,29	116,16	138,24	162,24	188,16	216,00	245,76	277,44	311,04
86,40	115,89	134,40	154,29	72,00	87,12	118,49	139,06	161,28	185,14	210,65	237,81	266,61
76,80	101,40	117,60	135,00	64,00	77,44	103,68	121,68	141,12	162,00	184,32	208,08	233,28
69,12	81,12	104,53	120,00	57,60	69,70	82,94	108,16	125,44	144,00	163,84	184,96	207,36
62,84	73,75	85,53	108,00	52,36	63,36	75,40	88,49	112,90	129,60	147,46	166,46	186,62
57,60	67,60	78,40	90,00	45,35	58,08	69,12	81,12	102,63	117,82	134,05	151,33	169,66
53,17	62,40	72,37	83,08	42,04	53,61	63,80	74,88	86,84	108,00	122,88	138,72	155,52
47,02	57,94	67,20	77,14	39,18	47,41	59,25	69,53	80,64	92,57	113,43	128,05	143,56
44,03	54,08	62,72	72,00	36,69	44,39	55,30	64,90	75,26	86,40	105,33	118,90	133,30
41,39	50,70	58,80	67,50	34,49	41,73	51,84	60,84	70,56	81,00	92,16	110,98	124,42
39,05	45,83	55,34	63,53	32,54	39,38	46,86	57,26	66,41	76,24	86,74	104,04	116,64
36,96	43,38	52,27	60,00	30,80	37,27	44,36	54,08	62,72	72,00	81,92	92,48	109,78