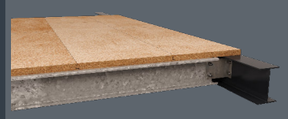
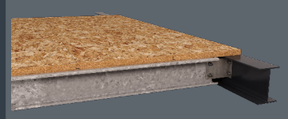
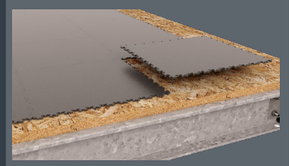
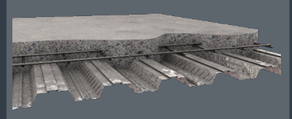
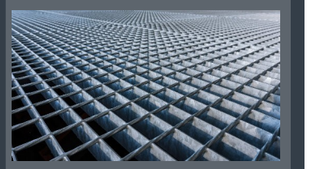
WHICH FLOOR TYPE?

Floor Type	Particle Board	OSB Decking	OSB or Particle Board with Textured Tile	Composite Decking	Composite Concrete	Durbar Plate	Forge Welded Grating
							
Main Applications	Warehouse, industrial, storage, retail, office	Warehouse, industrial, storage, retail, office	Warehouse, industrial, storage, retail, automation	Warehouse, logistics, industrial, automation, manufacturing, commercial	Warehouse, logistics, industrial, automation, manufacturing, wet rooms, commercial, car parks	Warehouse, logistics, industrial, stairs, landings, walkways, safety platforms	Warehouse, logistics, industrial, gangways, working platforms
Loading	Up to 1, 000kg/m²	Up to 1, 500kg/m²	Up to 1, 500kg/m²	Up to 2, 000kg/m²	Up to 4, 000kg/m²	1, 500kg/m²+	1, 500kg/m²+
Anti-slip	Optional	✗	✓	Optional	✓	✓	✓
Reduced Deflection & Vibration	✗	✗	✗	✗	✓	✗	✗
Reduced wear from moving or repetitive loads e.g. AGVs	✗	✗	✓	✗	✓	✓	✓
Moisture Resistant	Optional	✓	✓	Optional	✓	Optional	✓
Waterproof	✗	✗	✗	✗	✓	Optional	✓
Sound-proof qualities	✗	✗	✓	✓	✓	✗	✗
Colour options for health and safety and storage demarcation	✗	✗	✓	✗	✗	✗	✗

Durbar Plate up to 1,500 kgs/m2+ - with Maximum Span of 1m x 1m and thickness of 4.5mm

Durbar ultimate load capacity –various sized plates

Fixed on all four sides (encastré)

The ultimate uniformly distributed load for various sizes of Durbar plates fixed on all four sides and stressed to 275N/mm^2 can be determined by using the table. The values are based upon equations developed by C.C. Pounder and conform to the construction and fixing requirements in BS 4592-5 : 2006. The values in the tables are theoretical; in-use performance may vary. This information should not be used without the advice of a qualified structural engineer. Users of this information should satisfy themselves that it is suitable for their purpose.

Ultimate load capacity (kN/m^2) for Durbar fixed on all four sides and stressed to 275N/mm^2

Values obtained with plates secured to prevent uplift

Thickness (t)		Ultimate distributed load (kN/m^2) for length, L, (mm)							
(mm)	Breadth, B, (mm)	600	800	1000	1200†	1400 †	1600 †	1800 †	2000 †
3	600	21.2	16.3	14.9	14.3	14.1	13.9	13.9	13.8
	800		10.7§	8.4§	7.5§	7.1§	6.9§	6.8§	6.7§
	1000			5.6§	4.6§	4.2§	3.9§	3.8§	3.7§
	1200				3.4§	2.9§	2.6§	2.5§	2.4§
	1400					2.3§	2.0§	1.8§	1.7§
4.5	600	47.7	36.8	33.5	32.2	31.6	31.4	31.2	31.1
	800		26.8	21.5	19.5	18.6	18.1	17.9	17.7
	1000			17.2	14.2	12.9	12.2	11.8	11.6
	1200				10.8 §	9.1 §	8.2 §	7.7 §	7.4 §
	1400					7.0 §	6.0 §	5.5 §	5.1 §
6	600	84.8	65.4	59.5	57.3	56.2	55.7	55.5	55.3
	800		47.7	38.3	34.7	33.1	32.2	31.7	31.5
	1000			30.5	25.3	22.9	21.7	21.0	20.6
	1200				21.2	18	16.3	15.4	14.9
	1400					15.6	13.4	12.3	11.6
8	600	150.8	116.2	105.9	101.8	100	99.1	98.6	98.3
	800		84.8	68.1	61.7	58.8	57.3	56.4	56.0
	1000			54.3	44.9	40.7	38.6	37.4	36.7
	1200				37.7	31.9	29.0	27.4	26.5
	1400					27.7	23.9	21.8	20.6
10	600	235.5	181.5	165.4	159.1	156.2	154.8	154.1	153.6
	800		132.5	106.4	96.4	91.8	89.5	88.2	87.4
	1000			84.8	70.2	63.7	60.3	58.4	57.3
	1200				58.9	49.9	45.4	42.9	41.3
	1400					43.3	37.3	34.1	32.2
12.5	600	368.0	283.6	258.4	248.6	244.1	241.9	240.7	240.0
	800		207.0	166.2	150.7	143.5	139.8	137.8	136.6
	1000			132.5	109.7	99.5	94.2	91.2	89.5
	1200				92.0	77.9	70.9	67.0	64.6
	1400					67.6	58.3	53.3	50.3

†. Stiffeners should be considered for spans in excess of 1100mm to avoid excessive deflections.
§. Loads have been limited so that deflection ≤B/100 at serviceability, where serviceability is due to the imposed load only

Forge Welded Grating up to 1,500 kgs/m2+ – if exceeds the 15.35kN/2 load use Pressure Locked Gratings (High Load Capacity)

SP Load table for Forge-Welded Gratings

Grating type	Bearing bar	Pitch	approx. gal. weight kg/m²	*	Clear span in mm 500	600	700	800	900	1000	1100	1200	1300	1400
SP 225-34/38-3	25 x 2 mm	34 x 38 mm	18,7	F_v					9,60	7,75	6,40	5,40		
				f					0,51	0,63	0,77	0,91		
				F_p					1,35	1,20	1,05	1,00		
				f_1					0,45	0,55	0,67	0,78		
SP 230-34/38-3	30 x 2 mm	34 x 38 mm	21,5	F_v							9,25	7,75	6,60	5,70
				f							0,64	0,76	0,89	1,04
				F_p							1,50	1,40	1,30	1,20
				f_1							0,55	0,66	0,76	0,88
SP 240-34/38-3	40 x 2 mm	34 x 38 mm	27,2	F_v										10,15
				f										0,78
				F_p										2,05
				f_1										0,66
SP 325-34/38-3	25 x 3 mm	34 x 38 mm	24,5	F_v						11,65	9,60	8,10	6,90	5,95
				f						0,64	0,77	0,91	1,07	1,24
				F_p						1,80	1,60	1,45	1,35	1,25
				f_1						0,55	0,67	0,79	0,92	1,06
SP 330-34/38-3	30 x 3 mm	34 x 38 mm	28,5	F_v								11,65	9,90	8,55
				f								0,76	0,89	1,04
				F_p								2,10	1,90	1,75
				f_1								0,66	0,77	0,89
SP 340-34/38-3	40 x 3 mm	34 x 38 mm	36,5	F_v										
				f										
				F_p										
				f_1										
SP 440-34/38-4	40 x 4 mm	34 x 38 mm	47	F_v										
				f										
				F_p										
				f_1										
SP 530-34/38-5	30 x 5 mm	34 x 38 mm	46,1	F_v										14,25
				f										1,04
				F_p										2,95
				f_1										0,88
SP 540-34/38-5	40 x 5 mm	34 x 38 mm	59,4	F_v										
				f										
				F_p										
				f_1										
SP 550-34/38-5	50 x 5 mm	34 x 38 mm	72,7	F_v										
				f										
				F_p										
				f_1										
SP 560-34/38-5	60 x 5 mm	34 x 38 mm	86	F_v										
				f										
				F_p										
				f_1										
SP 570-34/38-5	70 x 5 mm	34 x 38 mm	99,3	F_v										
				f										
				F_p										
				f_1										
SP 580-34/38-5	80 x 5 mm	34 x 38 mm	112,5	F_v										
				f										
				F_p										
				f_1										

Clear span in mm 1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
5,00										
1,19										
1,10										
1,01										
8,85	7,75	6,90	6,15	5,50	5,00					
0,89	1,02	1,15	1,29	1,43	1,59					
1,90	1,80	1,65	1,60	1,50	1,40					
0,76	0,86	0,96	1,08	1,20	1,33					
5,20										
1,43										
1,15										
1,21										
7,45	6,55	5,80	5,20							
1,19	1,35	1,53	1,71							
1,65	1,50	1,45	1,35							
1,01	1,15	1,29	1,44							
	11,65	10,30	9,20	8,25	7,45	6,75	6,15	5,65	5,20	
	1,02	1,15	1,29	1,43	1,59	1,75	1,92	2,10	2,29	
	2,70	2,50	2,35	2,20	2,10	2,00	1,90	1,80	1,70	
	0,86	0,97	1,08	1,20	1,33	1,46	1,60	1,75	1,90	
		13,75	12,30	11,00	9,95	9,00	8,20	7,50	6,90	6,35
		1,15	1,29	1,43	1,59	1,75	1,92	2,00	2,29	2,48
		3,35	3,15	2,95	2,80	2,65	2,55	2,40	2,30	2,25
		0,97	1,08	1,20	1,33	1,46	1,60	1,75	1,90	2,06
12,40	10,90	9,70	8,65	7,75	7,00	6,35	5,80	5,30		
1,19	1,35	1,53	1,71	1,91	2,12	2,33	2,56	2,80		
2,70	2,55	2,40	2,25	2,10	2,00	1,90	1,80	1,75		
1,01	1,15	1,29	1,44	1,60	1,77	1,95	2,14	2,33		
			15,35	13,80	12,40	11,30	10,30	9,40	8,65	7,95
			1,29	1,43	1,59	1,75	1,92	2,10	2,29	2,48
			3,95	3,70	3,50	3,35	3,20	3,05	2,90	2,80
			1,08	1,20	1,33	1,46	1,60	1,75	1,90	2,06
								14,70	13,50	12,40
								1,68	1,83	1,98
								4,70	4,45	4,30
								1,40	1,52	1,65

Data

Material stress (permissible tension):
16 kN/cm² (material S235JR ≙ St 37-2)

Safety factor to yield point: 1,5

Safety factor to breaking limit: 2,05

The **grating support** should provide a bearing distance at each end of at least 30 mm. Under working conditions the grating support should be at least 25 mm. Deviations may be permitted, providing suitable measures are taken to prevent excessive movement in the direction of bearing bars (see instruction sheet BGI 588).

Pedestrian traffic

Yellow: Gratings manufactured in accordance with the requirements of instruction sheet BGI 588 of the Berufsgenossenschaft professional association and to quality instructions RAL-GZ 638, are considered suitable for pedestrian traffic when they meet the following design criteria:
The maximum permissible deflection 'f', does not exceed 1/200th of the span 'L'or 4 mm whichever is the lesser, under a concentrated load of 1,5 kN applied in the most unfavourable position, over a concentrated load area of 200 x 200 mm.

Green: The maximum permissible deflection 'f', does not exceed 1/200th of the span 'L', under a concentrated load of 1,5 kN applied in the most unfavourable position, over a concentrated load area of 200 x 200 mm.

Blue: The maximum permissible deflection 'f', does not exceed 1/200th of the span 'L', under a uniformly distributed load of 5 kN/m².

The multiplication factor for gratings with a pitch of approx. 34 x 50 mm is 0,95.

Example: SP 330-34/50-3
Clear span 1100 mm
load according to table
13,90 kN x 0,95 = 13,20 kN/m².

* Key to symbols

F_v = uniformly distributed load (UDL) in kN/m²
f = deflection in cm at load F_v
F_p = concentrated load in kN uniformly distributed over an area of 200 x 200 mm
f_1 = deflection values in cm at load F_p

1 kN = 1000 N = approx. 100 kg

Composite Concrete up to 3,000 kgs/m2+ – Max Span of 3m – Concrete Grade C25/30(Minimum)
Note: Load can still increase but subject to design considerations – adjustment on Thickness of Slab including the grade of concrete and Steel decking thickness.

MULTIDECK - KINGSPAN:														
MAX SPAN OF SLAB:	3000.00	mm												
SLAB WIDTH:	1000.00	mm												
MAX THICKNESS OF SLAB	150.00	mm												
REINFORCEMENT:	A142													
DECK PROFILE:	MD80 V2	MD80 V2	MD80 V2		MD60 V2	MD60 V2	MD60 V2	MD60 V2		MD50 V3	MD50 V3	MD50 V3	MD50 V3	MD50 V3
GAUGE in mm:	1.00	1.10	1.20		0.90	1.00	1.10	1.20		0.85	0.90	1.00	1.10	1.20
Maximum Load:	25kN/m2		27kN/m2		23kN/m2			28kN/m2		30kN/m2				40kN/m2
Critical Ratio(Fire Moment):	0.992		0.973		0.98			0.984		0.979				0.946

Calculation based on Kingspan Toolkit 7