



**LIONWELD  
KENNEDY**  
GRATINGS

Lionweld Kennedy Flooring Ltd  
Marsh Road  
Middlesbrough  
TS1 5JS

Reception: +44 (0) 1642 245151  
Sales: +44 (0) 1642 233299  
Technical: +44 (0) 1642 233297  
Email: [sales@lk-uk.com](mailto:sales@lk-uk.com)

Due to our policy of continual improvement, we reserve the right to change specifications at all times without prior notice.

September 2020

[LK-UK.COM](http://LK-UK.COM)



**LIONWELD  
KENNEDY**  
GRATINGS

**SAFEGRID**

# THE SAFEGRID RANGE

The number one choice for steel grating and open mesh flooring in the UK is Safegrid.

Used extensively in the design and manufacture of raised platforms, mezzanine flooring and steel walkways on many industrial applications.

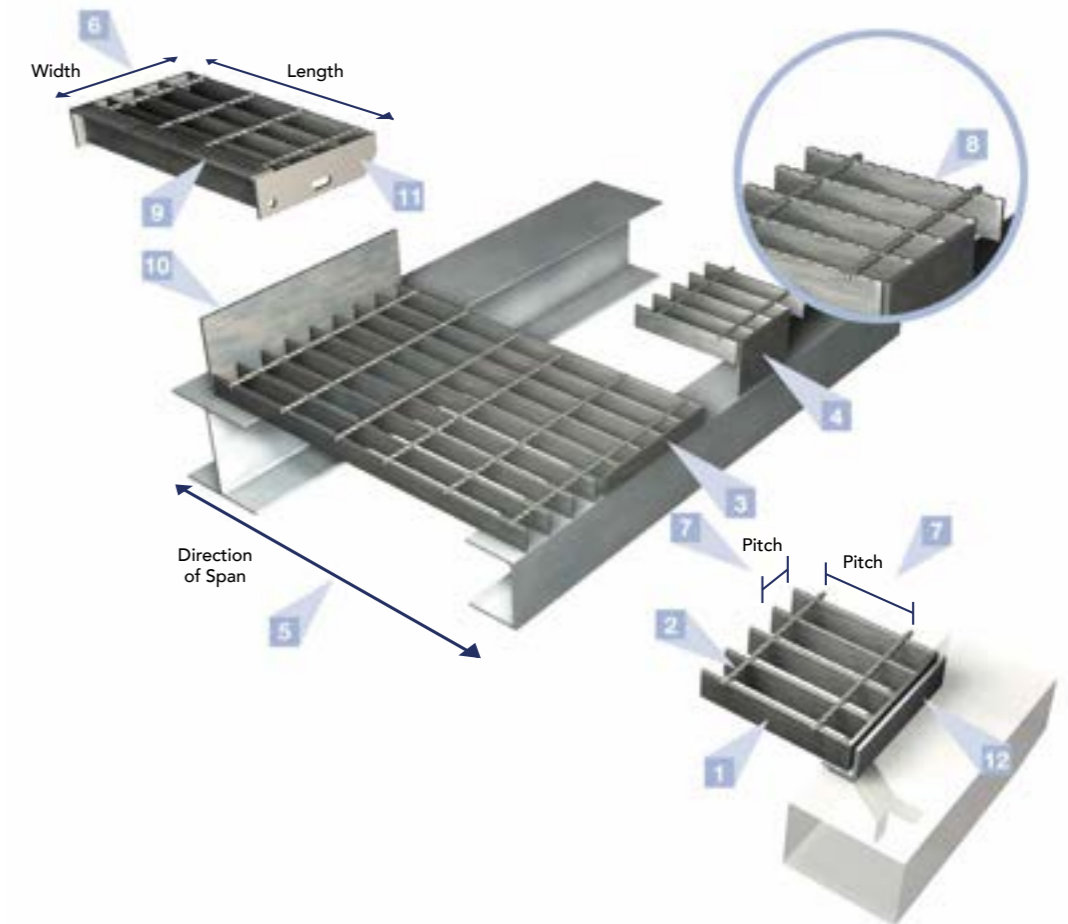
The British standard contains 35mm and 20mm ball proof requirements for steel gratings. This means that the traditional 41/100 grating is no longer compliant in many applications.

Lionweld Kennedy has invested a significant amount of time, effort and resource in to creating a new range of ball proof gratings, offering the most economical solution for your open mesh flooring requirements

## DESIGN CONSIDERATIONS:

- Ball Proof
- Deflection/panel joining
- Slip resistance
- Fixing Method
- Load Requirements

# TERMINOLOGY



## 1. LOAD BEARING BAR

A load bearing member spanning between supports.

## 2. TRANSVERSE BAR

A member fixed perpendicular to the load bearing bars.

## 3. BINDING BAR

A bar or section fixed to the edge of a flooring panel flush with the top of the load bearing bars.

## 4. DEEP BINDING BAR

A bar section, of greater depth than the load bearing bar, fixed to the edge of a flooring panel and projecting below the underside.

## 5 LENGTH (DIRECTION OF SPAN)

The overall dimension of a flooring panel parallel with the load bearing bars. (this dimension is always referred to as 'length' even if it is shorter than the width).

## 6. WIDTH

The overall dimension of a flooring panel measured perpendicular to the load bearing bars.

## 7. PITCH

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

## 8. SERRATIONS

Notches formed in the top surface of the load bearing bars to improve slip resistance.

## 9. NOSING BAR

A slip resistant member attached to the front of a stair tread or flooring panel.

## 10. TOE PLATE (KICK-PLATE)

A flat bar welded to a flooring panel projecting above the top of the load bearing bars.

## 11. END PLATE

A plate welded to a stair tread for fixing to a stringer.

## 12. CURB ANGLE

A rolled steel angle (RSA) fixed to concrete to support flooring.

# GRATING SERVICES

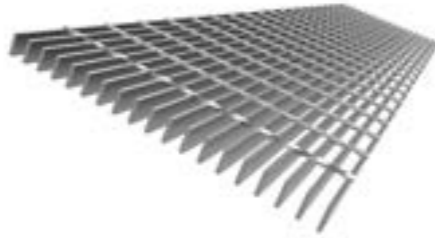
Lionweld Kennedy gratings are produced at our manufacturing facility in the north east of England. As the only UK manufacturer, we can offer our extensive knowledge and expertise to ensure your project utilises the most economical, environmentally friendly and compliant gratings.

Gratings can be supplied as standard 6m x 1m panels or as fully bespoke fabricated grating panels.

## 6m x 1m STANDARD PANELS

These panels are open ended and can be supplied with a self colour or galvanised finish from our extensive stock range.

Non-stock items are generally available in 3-5 working days.

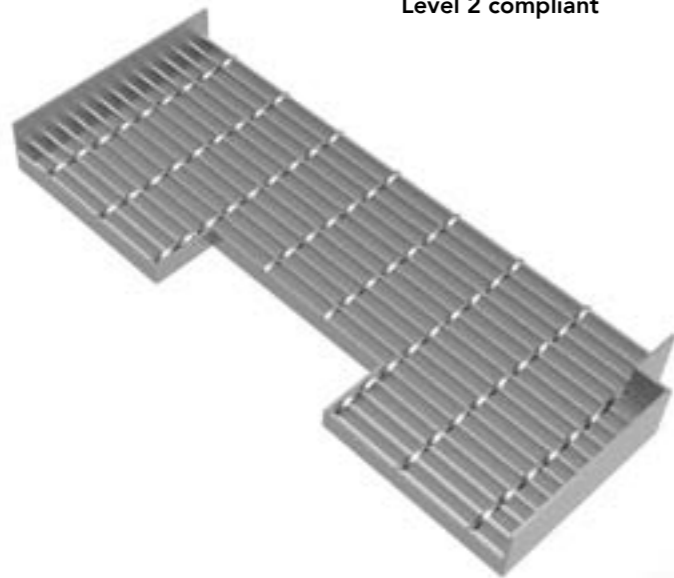


## FABRICATION

A full design and fabrication service is available for all size of project ranging from 1m<sup>2</sup> up to 20,000m<sup>2</sup>.

For larger projects, we have a comprehensive service offering, making Lionweld Kennedy the number one supplier of choice.

- **Technical back up from the only UK forge welded steel grating manufacturer**
- **Standard or bespoke documentation pack**
- **Project management**
- **Weekly progress reporting**
- **Full drawing service**
- **Grating and handrail design**
- **Building Information Modelling (BIM) Level 2 compliant**

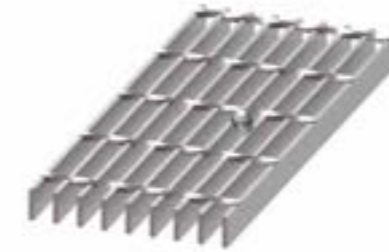


# BALL PROOF

The maximum openings within a working platform or walkway shall not permit the passage of a 35mm diameter sphere, except where the working platform or walkway is above a place where people are working, as opposed to passing occasionally, then the maximum openings shall not permit the passage of a 20mm diameter sphere.

Where metal treads or landings are used for fire escapes, the gratings shall not allow the passage of a 20mm ball.

British Standard, BS4592-0:2006+A1:2012.



## LK 20mm BALL PROOF

- Fire Escape Stairs, landings
- Where people may be working below the walkway
- Where the walkway is in constant use

## LK 35mm BALL PROOF

- Walkway where people may pass underneath occasionally

LK20BP MESH SIZE		
Bar Thickness	Load Bar Centres	Transverse Bar Centres
3mm	21mm	100mm*
5mm	23mm	100mm*

LK35BP MESH SIZE		
Bar Thickness	Load Bar Centres	Transverse Bar Centres
3mm	37mm	125mm*
5mm	38mm	125mm*

## LK UTILITY GRATING

- Walkways below head height and where people can not pass underneath
- Shelving
- Fencing

UTILITY GRATING (Non-ball proof)		
Bar Thickness	Load Bar Centres	Transverse Bar Centres
3mm	47mm	125mm*
5mm	47mm	125mm*



\* Other transverse bar centres are available on request.

# DEFLECTION

British Standards stipulate two deflection restrictions that need to be considered when designing grating.

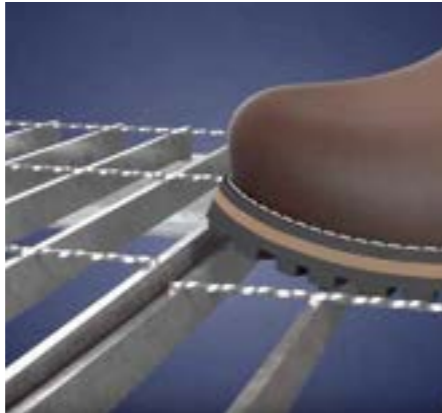
## 4mm DEFLECTION

To prevent grating panels becoming a trip hazard, the maximum allowable deflection between adjacent panels is 4mm.

If grating is designed to deflect to a maximum of 4mm, panel joining is NOT required.

## L/200 OR 10mm

Joining panels together allows adjacent panels to deflect, under load, as a single entity, eliminating trip hazards. This allows the grating to be designed to L/200 or 10mm deflection, whichever is the lesser and allows the use of a lighter, more cost effective grating.



## JOINING PANELS

Joining panels can easily be achieved but may require additional time on site or additions to your grating. Lionweld adopt two popular methods



## PANEL JOINTING CLIP

Used to clip adjacent panels together, using a saddle top clip and double sided bottom plate. Access to the underside of the grating is required for fixing.

## PANEL JOINTING PADS

Steel plates are welded to the underside of each grating panel, ensuring that adjacent panels are mutually supported and deflect as a single entity.

No additional fixing or bolting is required.



## SELECTING YOUR GRATING

The Lionweld Kennedy safegrid load tables allow you to easily select a grating with either a 4mm or L/200 deflection. See pages 9-11.



# SLIP RESISTANCE

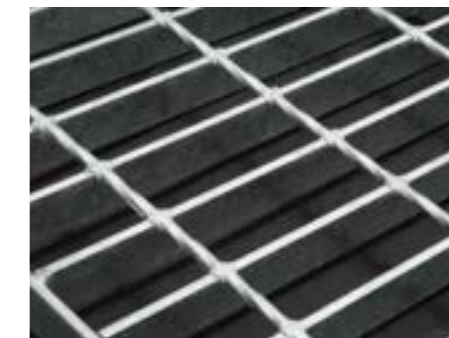
Lionweld Kennedy can offer a range of serrated surfaces to provide the necessary level of slip resistance to your grating.

The slip resistance classifications in accordance with BS4592-0:2006+A1:2012 are:

1

**Slip resistant 0.4 to less than 0.6 (CoF)**

Slip resistant flooring shall be used in all areas where the risk assessment indicates foreseeable water wet contamination.

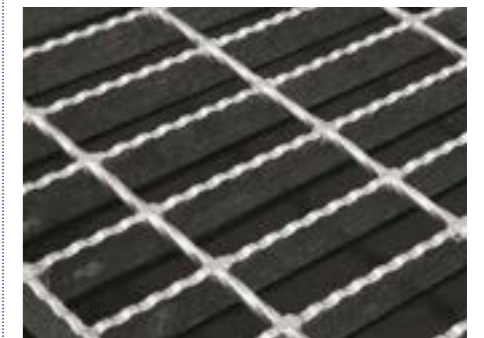


PLAIN

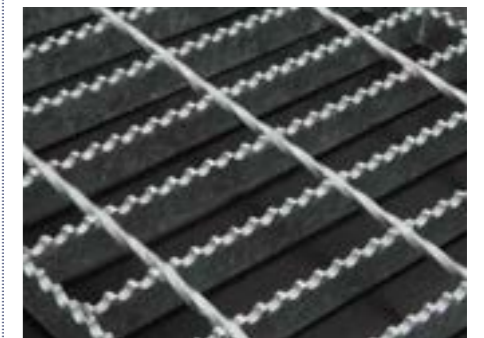
2

**Enhanced slip resistant 0.6 (CoF)**

Enhanced slip resistance shall be required where strenuous activity (for example, pushing and pulling equipment) is routinely undertaken on floorings under water wet contamination.



ROLLED SERRATED



MACHINE SERRATED

# FIXINGS

## Frictional Fixings

Frictional fixings can be used to secure steel grating to the supporting steel work.

The fixing assembly consists of a universal bottom clip (Type 5), M8 hex nut, bolt and a top clip. The top clip is interchangeable and should be selected to suit each particular open mesh flooring.

### TYPE 5 FIXING CLIP

#### With saddle top clip

- 35mm Ball Proof
- Utility Grating

#### With Narrow top clip

- 20mm Ball Proof



## Positive Fixings

Positive fixings are used to secure the open grid flooring by bolting or firing through the steel support. This method is generally used when the steel structure is subject to excessive vibrations.

### FIXING PAD

35mm x 5mm pad welded to the flooring with a 10mm hole to allow the grating to be fixed directly to the supporting structure.



### DEEP SADDLE WITH A SELF TAPPING BOLT

A deep saddle clip is supplied to suit the depth of grating. A self tapping bolt is then used to secure the grating to the steel support.



# LK 20mm BALL PROOF LOAD TABLES

3mm LK20BP (MESH SIZE 21/100)				20mm Ball Proof			
Bearing Bar Dimensions (mm)	Loading Category	Max Clear Span 4mm Deflection	Deflection (mm)	Max Clear Span L/200 or 10mm Max Deflection	Deflection (mm)	Self Colour Weights Per Square Metre (kgs)	Binding Bar Weight Based on 2x1m (kgs)
25 x 3	5kn/m <sup>2</sup>	1075	3.98	1300	6.16	30.49	1.18
	7.5kn/m <sup>2</sup>	1055	3.99	1155	5.73		
30 x 3	5kn/m <sup>2</sup>	1305	4.00	1580	7.90	36.03	1.41
	7.5kn/m <sup>2</sup>	1210	3.98	1390	6.90		
35 x 3	5kn/m <sup>2</sup>	1535	3.99	1840	9.17	41.56	1.65
	7.5kn/m <sup>2</sup>	1355	3.94	1620	8.05		
40 x 3	5kn/m <sup>2</sup>	1655	4.00	2080	9.98	47.09	1.88
	7.5kn/m <sup>2</sup>	1505	4.00	1855	9.23		

5mm LK20BP (MESH SIZE - 23/100)				20mm Ball Proof			
Bearing Bar Dimensions (mm)	Loading Category	Max Clear Span 4mm Deflection	Deflection (mm)	Max Clear Span L/200 or 10mm Max Deflection	Deflection (mm)	Self Colour Weights Per Square Metre (kgs)	Binding Bar Weight Based on 2x1m (kgs)
25 x 5	5kn/m <sup>2</sup>	1290	3.90	1525	7.62	45.01	1.96
	7.5kn/m <sup>2</sup>	1180	3.98	1340	6.63		
30 x 5	5kn/m <sup>2</sup>	1485	3.98	1825	9.09	53.45	2.36
	7.5kn/m <sup>2</sup>	1350	3.95	1610	8.00		
35 x 5	5kn/m <sup>2</sup>	1665	4.00	2090	9.91	61.89	2.75
	7.5kn/m <sup>2</sup>	1515	3.96	1880	9.39		
40 x 5	5kn/m <sup>2</sup>	1830	3.94	2305	9.92	70.33	3.14
	7.5kn/m <sup>2</sup>	1675	3.98	2105	9.94		
45 x 5	5kn/m <sup>2</sup>	2005	3.97	2525	9.99	78.77	3.53
	7.5kn/m <sup>2</sup>	1830	3.97	2305	9.99		
50 x 5	5kn/m <sup>2</sup>	2160	4.00	2715	9.98	87.21	3.93
	7.5kn/m <sup>2</sup>	1975	3.99	2485	9.99		
60 x 5	5kn/m <sup>2</sup>	2460	3.98	3095	9.98	104.09	4.71
	7.5kn/m <sup>2</sup>	2255	3.98	2835	9.95		

### NOTES

1. The tables are based on BS4595-0:2006+A1:2012 and BS5950-1:2000 which is a 5kN/m<sup>2</sup> / 7.5kN UDL or a 1.5kN point load over a 200mm x 200mm contact area, whichever is the more onerous.
2. The tables take into consideration MINIMUM bearing bar rolling tolerances as defined by LKFS-STD-98
3. Material is BS EN 10025 Grade S275JR
4. These load tables are applicable to gratings with plain load bearing bars only. For serrated grating load tables, contact our sales team on 01642 233299 or sales@lk-uk.com



# LK 35mm BALL PROOF LOAD TABLES

3mm LK35BP (MESH SIZE - 37/125)		35mm Ball Proof					
Bearing Bar Dimensions (mm)	Loading Category	Max Clear Span 4mm Deflection	Deflection (mm)	Max Clear Span L/200 or 10mm Max Deflection	Deflection (mm)	Self Colour Weights Per Square Metre (kgs)	Binding Bar Weight Based on 2x1m (kgs)
25 x 3	5kn/m <sup>2</sup>	875	3.99	930	4.61	18.74	1.18
	7.5kn/m <sup>2</sup>	875	3.99	930	4.61		
30 x 3	5kn/m <sup>2</sup>	1060	4.00	1170	5.05	22.03	1.41
	7.5kn/m <sup>2</sup>	1060	4.00	1170	5.82		
35 x 3	5kn/m <sup>2</sup>	1240	3.96	1420	5.43	25.33	1.65
	7.5kn/m <sup>2</sup>	1195	3.97	1365	6.77		
40 x 3	5kn/m <sup>2</sup>	1430	3.98	1700	7.35	28.63	1.88
	7.5kn/m <sup>2</sup>	1320	3.95	1565	7.79		

5mm LK35BP (MESH SIZE - 38/125)		35mm Ball Proof					
Bearing Bar Dimensions (mm)	Loading Category	Max Clear Span 4mm Deflection	Deflection (mm)	Max Clear Span L/200 or 10mm Max Deflection	Deflection (mm)	Self Colour Weights Per Square Metre (kgs)	Binding Bar Weight Based on 2x1m (kgs)
25 x 5	5kn/m <sup>2</sup>	1145	3.99	1310	6.51	28.74	1.96
	7.5kn/m <sup>2</sup>	1050	3.96	1150	5.70		
30 x 5	5kn/m <sup>2</sup>	1330	4.00	1575	7.86	34.04	2.36
	7.5kn/m <sup>2</sup>	1205	3.96	1385	6.91		
35 x 5	5kn/m <sup>2</sup>	1490	3.97	1835	9.13	39.34	2.75
	7.5kn/m <sup>2</sup>	1355	3.98	1615	8.03		
40 x 5	5kn/m <sup>2</sup>	1645	3.97	2070	9.96	44.64	3.14
	7.5kn/m <sup>2</sup>	1495	3.95	1845	9.18		
45 x 5	5kn/m <sup>2</sup>	1800	3.98	2265	9.98	49.94	3.53
	7.5kn/m <sup>2</sup>	1635	3.96	2060	9.98		
50 x 5	5kn/m <sup>2</sup>	1940	3.98	2440	9.95	55.24	3.93
	7.5kn/m <sup>2</sup>	1765	3.96	2225	9.99		
60 x 5	5kn/m <sup>2</sup>	2200	4.00	2790	9.98	65.84	4.71
	7.5kn/m <sup>2</sup>	2020	3.96	2545	9.98		

## NOTES

- The tables are based on BS4595-0:2006+A1:2012 and BS5950-1:2000 which is a 5kn/m<sup>2</sup> / 7.5kn UDL or a 1.5kN point load over a 200mm x 200mm contact area, whichever is the more onerous.
- The tables take into consideration MINIMUM bearing bar rolling tolerances as defined by LKFS-STD-98
- Material is BS EN 10025 Grade S275JR
- These load tables are applicable to gratings with plain load bearing bars only. For serrated grating load tables, contact our sales team on 01642 233299 or sales@lk-uk.com



# LK UTILITY GRATING LOAD TABLES

3mm UTILITY GRATING (MESH SIZE - 47/125)		Non-Ball Proof					
Bearing Bar Dimensions (mm)	Loading Category	Max Clear Span 4mm Deflection	Deflection (mm)	Max Clear Span L/200 or 10mm Max Deflection	Deflection (mm)	Self Colour Weights Per Square Metre (kgs)	Binding Bar Weight Based on 2x1m (kgs)
25 x 3	5kn/m <sup>2</sup>	775	3.69	775	3.69	15.20	1.18
	7.5kn/m <sup>2</sup>	775	3.69	775	3.69		
30 x 3	5kn/m <sup>2</sup>	965	3.98	1035	4.70	17.79	1.41
	7.5kn/m <sup>2</sup>	965	3.98	1035	4.70		
35 x 3	5kn/m <sup>2</sup>	1135	3.99	1255	5.05	20.38	1.65
	7.5kn/m <sup>2</sup>	1125	3.99	1255	6.17		
40 x 3	5kn/m <sup>2</sup>	1305	3.98	1495	5.46	22.97	1.88
	7.5kn/m <sup>2</sup>	1245	3.98	1440	7.12		

5mm UTILITY GRATING (MESH SIZE - 47/125)		Non-Ball Proof					
Bearing Bar Dimensions (mm)	Loading Category	Max Clear Span 4mm Deflection	Deflection (mm)	Max Clear Span L/200 or 10mm Max Deflection	Deflection (mm)	Self Colour Weights Per Square Metre (kgs)	Binding Bar Weight Based on 2x1m (kgs)
25 x 5	5kn/m <sup>2</sup>	1050	3.98	1225	6.10	23.84	1.96
	7.5kn/m <sup>2</sup>	995	3.92	1075	5.34		
30 x 5	5kn/m <sup>2</sup>	1265	4.00	1470	7.29	28.16	2.36
	7.5kn/m <sup>2</sup>	1145	3.96	1290	6.38		
35 x 5	5kn/m <sup>2</sup>	1415	3.95	1715	8.52	32.47	2.75
	7.5kn/m <sup>2</sup>	1285	3.95	1510	7.53		
40 x 5	5kn/m <sup>2</sup>	1565	3.97	1960	9.77	36.79	3.14
	7.5kn/m <sup>2</sup>	1420	3.95	1725	8.59		
45 x 5	5kn/m <sup>2</sup>	1710	3.96	2155	9.98	41.11	3.53
	7.5kn/m <sup>2</sup>	1555	3.97	1955	9.91		
50 x 5	5kn/m <sup>2</sup>	1850	3.99	2325	9.97	45.43	3.93
	7.5kn/m <sup>2</sup>	1680	3.97	2115	9.97		
60 x 5	5kn/m <sup>2</sup>	2115	3.99	2660	9.98	54.06	4.71
	7.5kn/m <sup>2</sup>	1925	3.98	2420	9.95		

## NOTES

- The tables are based on BS4595-0:2006+A1:2012 and BS5950-1:2000 which is a 5kn/m<sup>2</sup> / 7.5kn UDL or a 1.5kN point load over a 200mm x 200mm contact area, whichever is the more onerous.
- The tables take into consideration MINIMUM bearing bar rolling tolerances as defined by LKFS-STD-98
- Material is BS EN 10025 Grade S275JR
- These load tables are applicable to gratings with plain load bearing bars only. For serrated grating load tables, contact our sales team on 01642 233299 or sales@lk-uk.com

