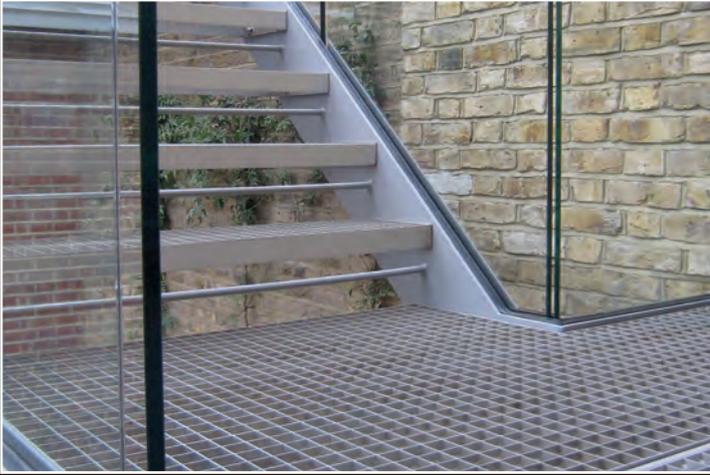




elefant gratings

"Our Strength is our Service"



PRODUCT CATALOGUE

Elefant Gratings Ltd has been successfully trading since 1998 specialising in the supply of bespoke metal gratings & planks.

We strive to find the best solution that suits your requirements. Utilising our experience & product knowledge, together with current British Standard guidelines; we provide unrivalled service.

Elefant have developed a quality management system which contributes to ensuring that quality is paramount in all processes from servicing and consulting through production to delivery of the finished product.

We are proud to be part of the PF Group, which enables Elefant to provide a wider range of products & services to an ever demanding marketplace. As a group our main objective is to provide you with a quality service & product, every time.

Our reputation is built on identifying customers' needs, providing the best solution and ultimately supplying the most suitable product within the agreed delivery period.

Quality

Quality management:

The quality management system of our factory must ensure efficient quality management of our products, from the supplier of raw materials to the delivery of finished products to our clients. It is one of our goals is to ensure our system complies fully with and is further developed in accordance with BS EN ISO 9001:2000.

Ambition:

We aim to exceed customers expectations with regards to service. As a minimum we must fulfil the requirements agreed with the client.

Environment:

It is the task of Elefant Gratings to deliver products and services using the least possible resources and without causing any harm to the internal or external environment which could have been avoided with due diligence.

Certifikat
Certificate

Det attesteres hermed, at kvalitetsstyringssystemet hos
This is to certify that the Quality System of

Elefantriste A/S
Ivar Lundgaards Vej 21
7500 Holstebro

er i overensstemmelse med kravene i
fulfills the requirements in

DS/EN ISO 9001:2008

Certifikatets gyldighedsområde er:
The scope of the certificate is:

Fremstilling, salg og udvikling af gitterriste- og plankeprodukter
Manufacturing, sales and design of gratings and steelplanks

Certifikatets danske tekst betragtes som den juridisk gældende i tilfælde af tvivl om oversættelsens korrekthed.
The Danish text of the certificate is considered to be legally binding in case of doubt with regard to the correctness of the translation.

Gyldigt fra: <i>Valid from:</i>	2012-02-20		ID Nr. : <i>ID No.</i>	DSC00402
Gyldigt til: <i>Valid until:</i>	2015-03-08		Side:	1 / 1
DS-certificeret siden: <i>DS certified since:</i>	1994-03-08		 Niels Falk <i>Adm. direktør</i>	
			<small>DS Certificering A/S, Kollegievej 5, 2920 Charlottenslund DS Certificering A/S is a member of IQNet, The International Certification Network</small>	



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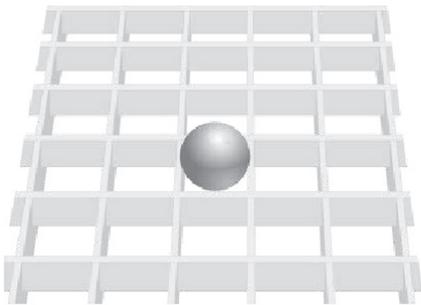
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How to Order/Specify

To enable us to offer the best service & advice, we recommend that our prospective clients consider several, if not all, of the following when enquiring/ordering gratings or planks:



Application:

The application determines everything! - Which product is best suited, which British Standard guidelines will be applicable and finally which loading criteria will be most relevant. However the clients preference regarding aesthetics will also be considered; therefore will always be asked when enquiring/ordering.

Load requirements:

The loading capacity of the grating/planks varies with the length of the bearing bar/plank height, thickness and material. Therefore, any special criteria such as vehicular traffic should always be stated when enquiring/ordering.

Standards & Regulations:

It is important to state whether the grating will be used for residential, public or industrial areas, due the different British Standards applicable to these areas.

Bearing direction (span):

The bearing direction (span) designates the width that the grating/plank will span without support (see figure). If the grating is supported on all 4 sides, the shortest direction should be chosen as the bearing direction. The maximum clear span for a grating is 3000mm, subject to loading criteria & specification. The maximum weight of a grating panel should ideally be kept to 100Kgs. Any panels weighing in excess of this do incur higher handling costs.



Walking direction:

When installing rectangular mesh sizes such as 9x30 or 20x30, it is important to know the walking direction to ensure that the meshes are installed correctly. This will provide the best non-slip results and the best visual impression. As a general rule, the primary direction of movement should be at a right angle to the longest side of the mesh.

Type of material:

Which material should be used for manufacturing the gratings:
Carbon steel, Corten A, Stainless steel or Aluminium etc.

Surface treatment:

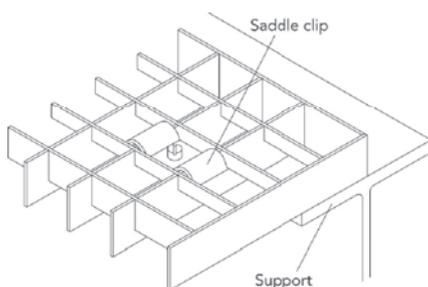
Which post treatment should the gratings be given:
Galvanised, Powder Coated, electro-polished, pickled, Anodised etc.

Fixing:

Bolt holes or notches in the edge bar (stair treads & vertical applications)
Welded fixing plates (vehicular & public areas)
Fixing clip assembly (maintenance & industrial applications)

Handling of the gratings:

If there is a maximum panel weight required, then please state this at initial contact so we can specify correctly. Otherwise we will work within our own guidelines of 100Kgs max panel weight.



Saddle clip
- top part of assembly

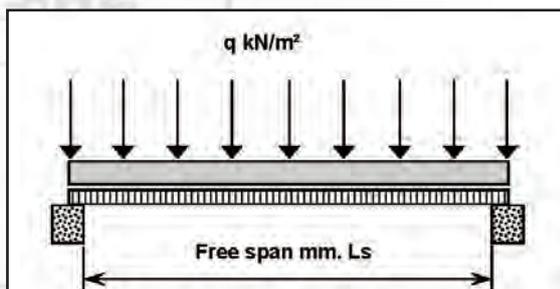
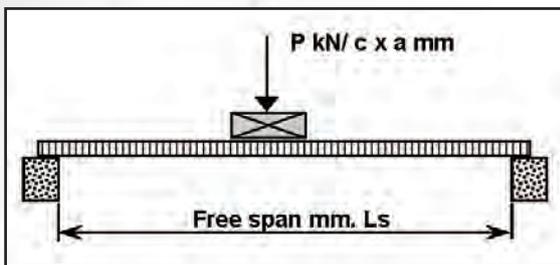
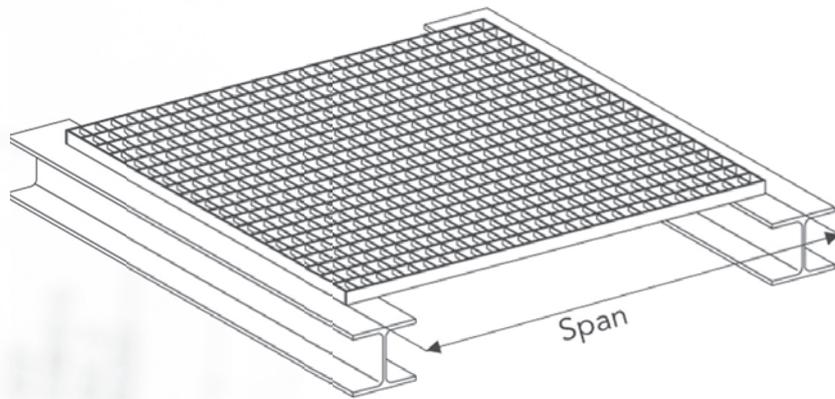


Figure 1: continuous support beam

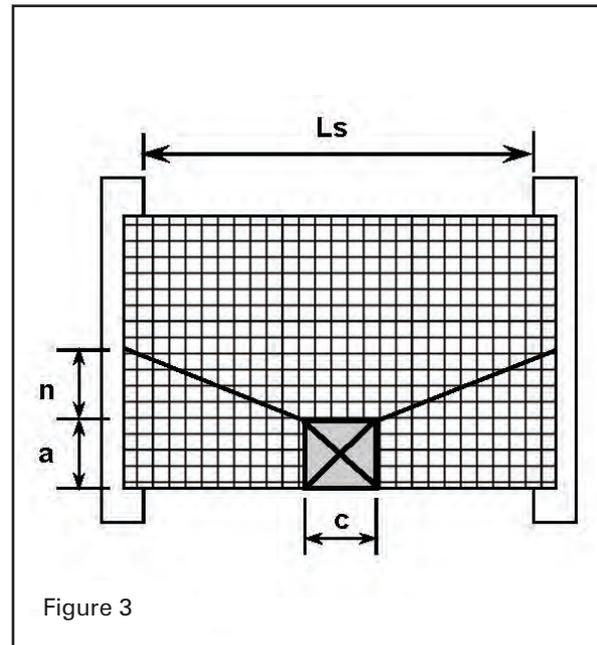


Figure 3

Pressure-welded Gratings

Manufacturing elephant® gratings

An elephant® grating consists of a combination of bearing bars that give the grating its strength, and filler/control bars. The bars are pressed and welded together in one process in the pressure welder.

The actual pressure welding involves electrical heating of the bar material and the subsequent joining of the bars under great pressure at a temperature of approx. 1500°C, thus ensuring fusion - in other words a spot weld.

This process binds the bars together in a grid. Because all intersections are welded, there is practically no risk that the bars work loose when cutting to size or when using the grating without edge bar.

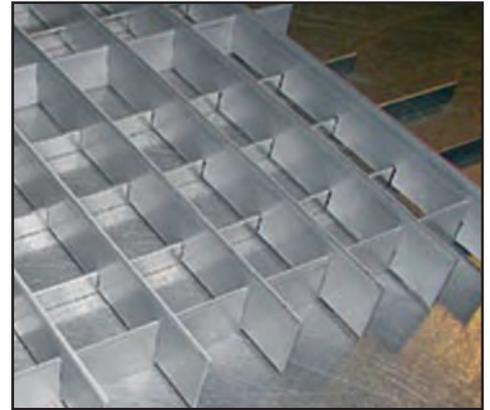
In order to finish the gratings and to protect against sharp edges, edge bar is normally welded on the sides. The edge bar is usually 3 mm thick plate, although thicker plates can be fitted if requested.

Material

Elefant gratings may be pressure-welded in steel S235JRG2 (240 Yield), 10149-2 (420 Yield), Corten A, Stainless Steel EN 1.4301 or 1.4404 and pressure-locked in aluminium.

Surface treatment

The gratings are primarily hot-dip galvanised according to BS EN ISO 1461 2009, but are also available in other finishes, depending on the material of the grating/specification. Please refer to individual specification parameter sheets for further information.



elefant® grating before pressure welding.
Type SP upside down.



Pressure welding



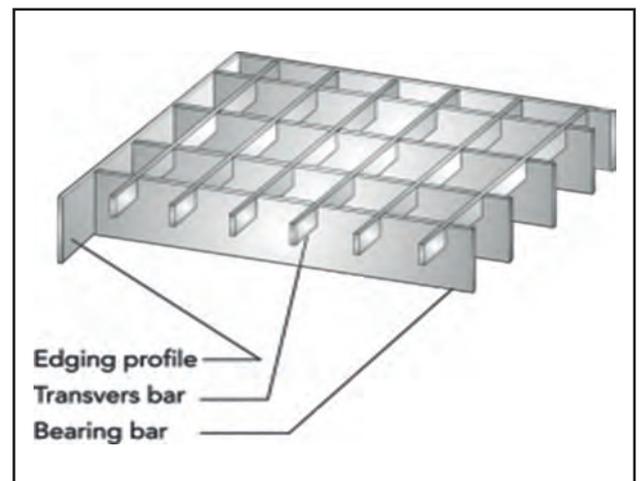
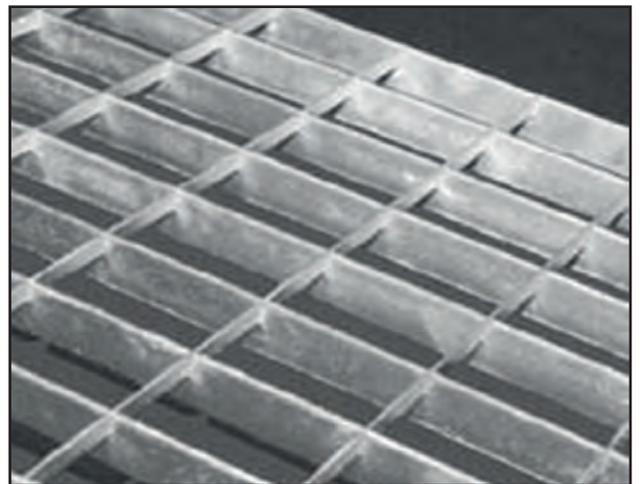
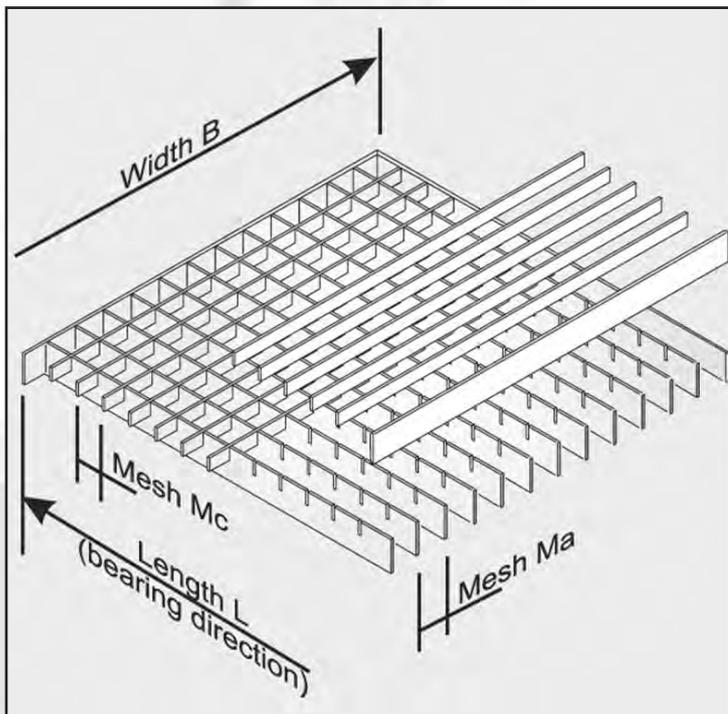
elefant® grating after pressure welding-
Type SP upside down.

Pressure-locked Gratings

Description and definition of pressure lock gratings

Unlike our pressure-welded range, pressure-locked gratings are simply pressed together under extreme force, resulting in a quicker assembly process. Once completed the performance results are similar to the pressure welded grating, with the exception that all bar centres are based on an 11.11mm increment in both directions.

Pressure locked gratings are specified and detailed in the same way our pressure welded range are. Therefore please refer to previous section for detailed information.



- L : Span of grating
- B : Width of grating
- Mc : Transverse bar centres
- Ma : Bearing bar centres
- H : Height of bearing bar
- t : Thickness of bearing bar



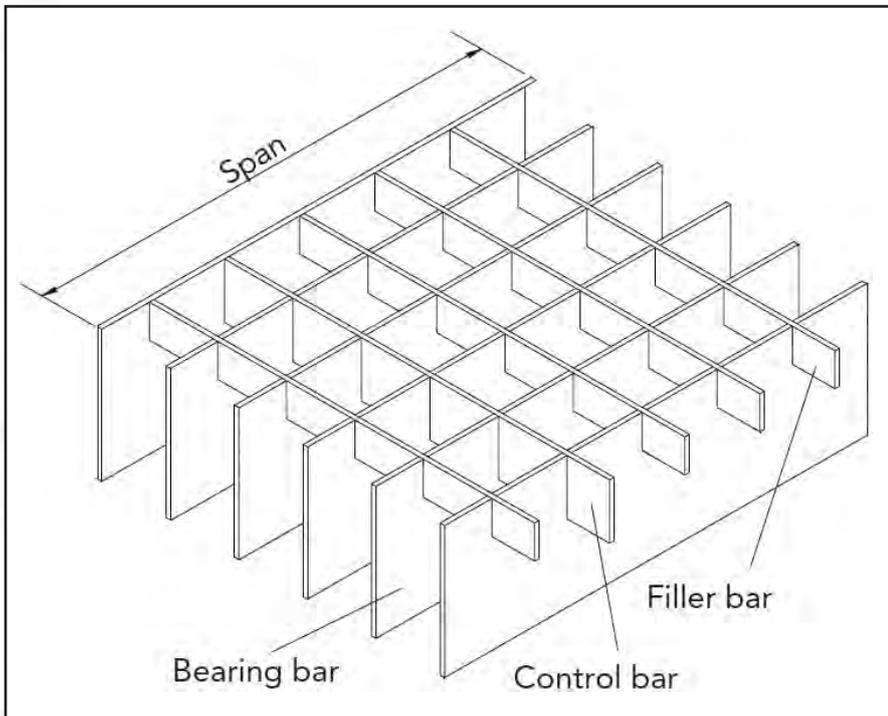
Predominantly supplied "made to order" however we do have a selection of standard stock sizes available (see relevant section for information). Comprising bars of full height in the span direction (bearing bars), with transverse bars of a reduced depth varying in height (known as filler and control bars). This design ensures maximum strength to weight ratio.

Applications

Primarily used as flooring and available in a variety of mesh sizes (apertures); Suitable for public, industrial, domestic and vehicular applications.



Type SP



Materials:

Carbon Steel Grade S235JRG2

(240 Yield) (available finishes 1, 2, 3)

Carbon Steel to BS EN 10149 2

(420 Yield) (available finishes 1, 2, 3)

Stainless Steel Grade to BS EN 1.4301

& 1.4404 (available finishes 4, 5, 6)

Finishes:

1 Hot Dipped Galvanised to
BS EN 1461:2009

2 Polyester Powder Coated
BS EN 13438: 2005

3 Electro Plated Zinc to BS EN 2081: 2008

4 Chemically Cleaned to BS EN 2516: 1997

5 Electro Polished to BS EN 15730: 2000

6 Bead Blast (Glass bead or Stainless
Steel Shot)

Mesh Sizes:

Generally From 8mm – 150mm

Bearing Bars:

20mm – 80mm in 2mm, 3mm,
3.5mm & 5mm thick

Panel Sizes:

Bespoke up to 3000x1250mm (subject to weight &
specification)

- larger sizes available upon agreement

- Standard stock sizes available

Notes:

Serrated bars can be supplied in one, both or even
on specific bars if required. Filler bars are reduced
in quantity the larger the mesh size increases. They
are omitted completely at 100mm thus becoming
Type NP by default.



For Stock Information see page 46

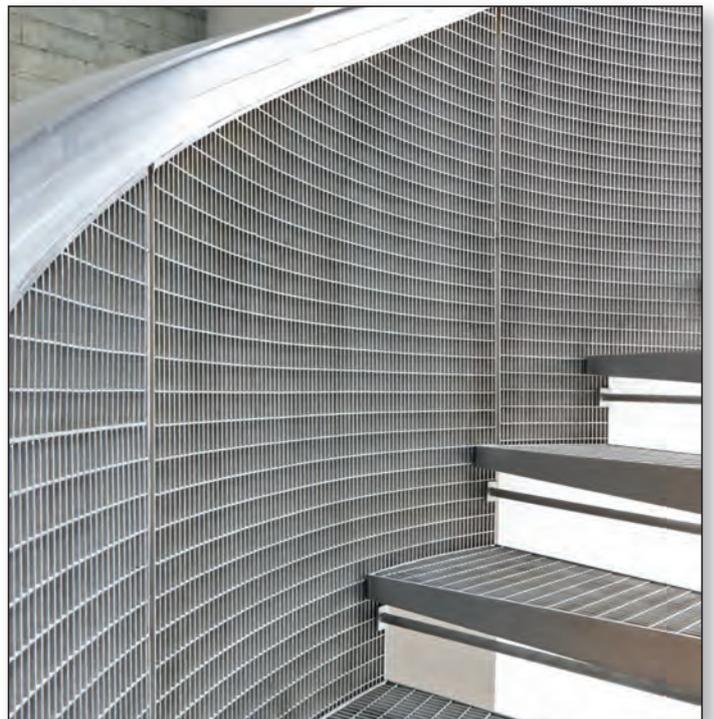
Type N



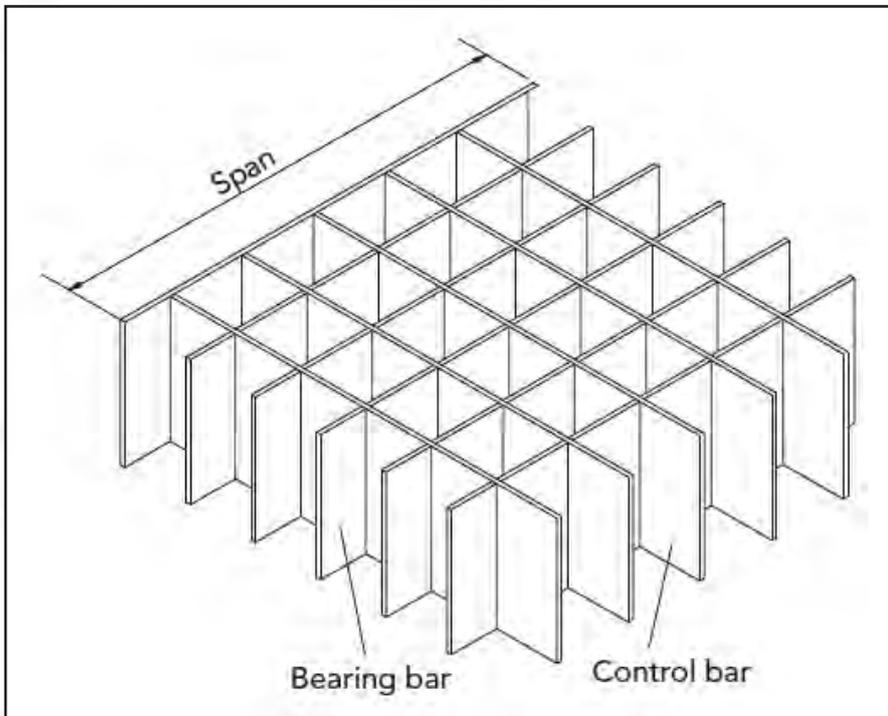
Comprising equal height bars in both directions providing an aesthetic uniform appearance from both sides.

Applications

Primarily used in vertical areas such as balustrade infill's, screens, fencing and Brise Soleil; available in a variety of mesh sizes (apertures).



Type N



Materials:

Carbon Steel Grade S235JRG2 (240 Yield)
(available finishes 1, 2, 3)

Carbon Steel to BS EN 10149 2 (420 Yield)
(available finishes 1, 2, 3)

Stainless Steel Grade to BS EN 1.4301 & 1.4404
(available finishes 4, 5, 6)

Corten A (3mm thick only) (supplied unfinished for weathering)

Aluminium (3mm thick bearing bars only) (available finishes 2, 7)

Finishes:

1 Hot Dipped Galvanised to
BS EN 1461:2009

2 Polyester Powder Coated
BS EN 13438: 2005

3 Electro Plated Zinc to BS EN 2081: 2008

4 Chemically Cleaned to BS EN 2516: 1997

5 Electro Polished to BS EN 15730: 2000

6 Bead Blast (Glass bead or Stainless
Steel shot)

7 Anodised to BS EN 7599: 2010

Mesh Sizes:

Generally From 8mm – 150mm

Bearing Bars:

20mm 80mm in 2mm, 3mm, 3.5mm & 5mm thick

Panel Sizes:

Bespoke up to 3000x1250mm (subject to weight & specification)

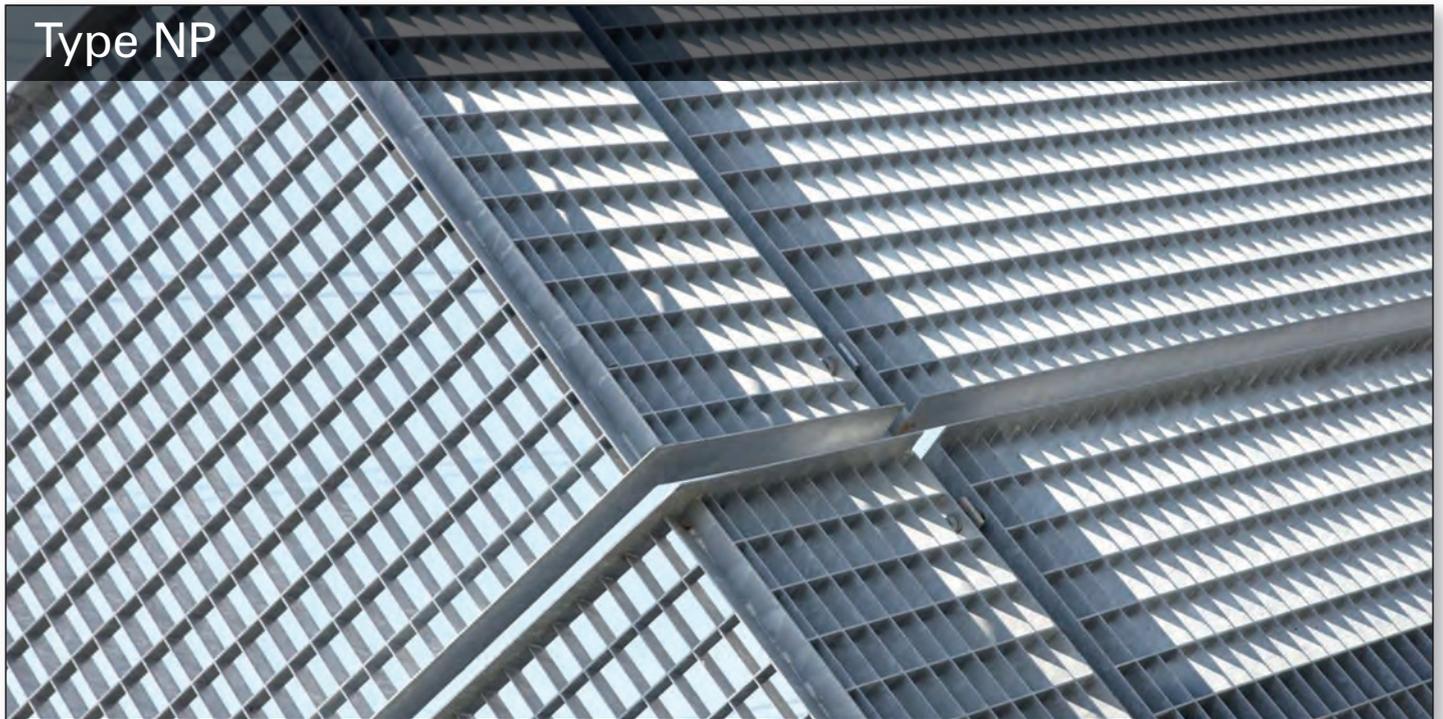
- larger sizes available upon agreement

- Standard stock sizes available

Notes:

Serrated bars can be supplied in one, both or even on specific bars if required.

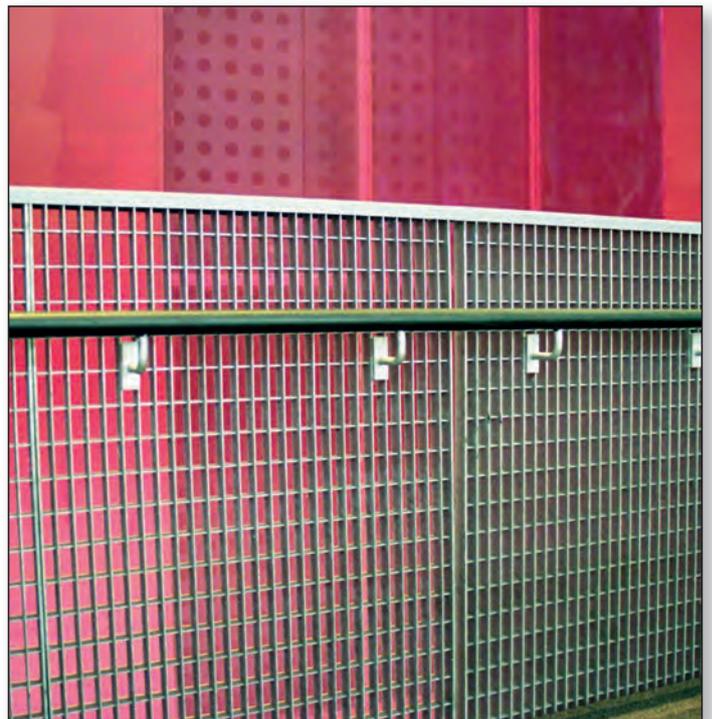
Gratings



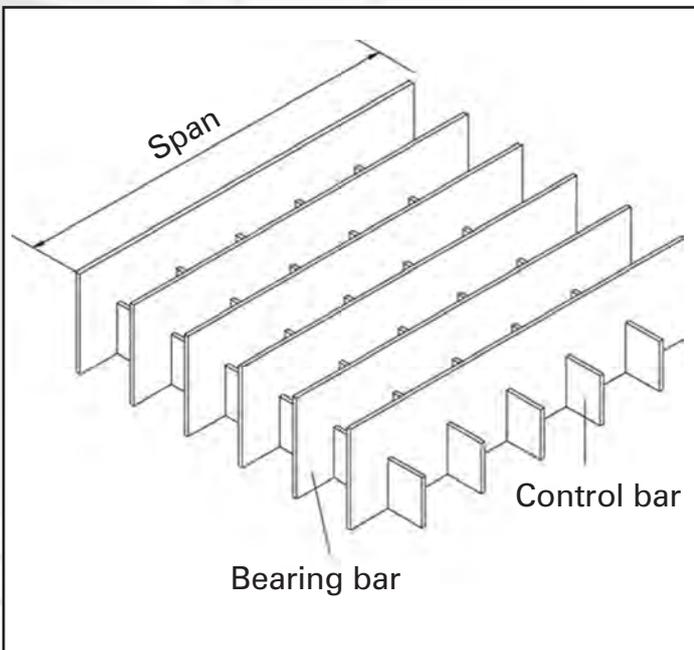
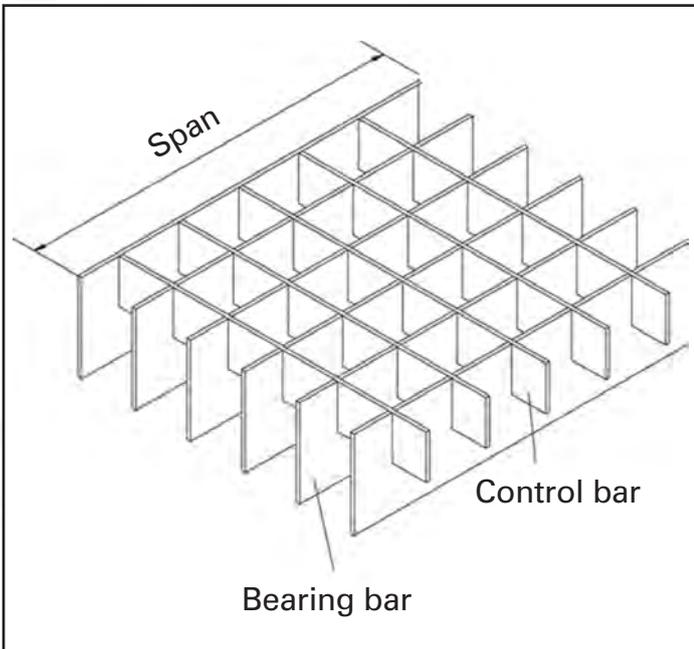
Comprising bars of full height in the span direction (bearing bars), with transverse bars of a reduced depth in height (known as control bars).

Applications

Primarily used as flooring and vertical screening; Available in a variety of mesh sizes (apertures). Suitable for public, industrial, domestic and vehicular applications. This design can be fitted upside down to provide a linear look if required.



Type NP



Materials:

Carbon Steel Grade S235JRG2

(240 Yield) (available finishes 1, 2, 3)

Carbon Steel to BS EN 10149 2

(420 Yield) (available finishes 1, 2, 3)

Stainless Steel Grade to BS EN 1.4301 & 1.4404

(available finishes 4, 5, 6)

Corten A (3mm thick only)

(supplied unfinished for weathering)

Aluminium (3mm thick bearing bars only)

(available finishes 2, 7)

Finishes:

1 Hot Dipped Galvanised to
BS EN 1461:2009

2 Polyester Powder Coated
BS EN 13438: 2005

3 Electro Plated Zinc to BS EN 2081: 2008

4 Chemically Cleaned to BS EN 2516: 1997

5 Electro Polished to BS EN 15730: 2000

6 Bead Blast (Glass bead or Stainless
Steel shot)

7 Anodised to BS EN 7599: 2010

Mesh Sizes:

Generally From 8mm – 150mm

Bearing Bars:

20mm – 80mm in 2mm, 3mm, 3.5mm & 5mm thick

Panel Sizes:

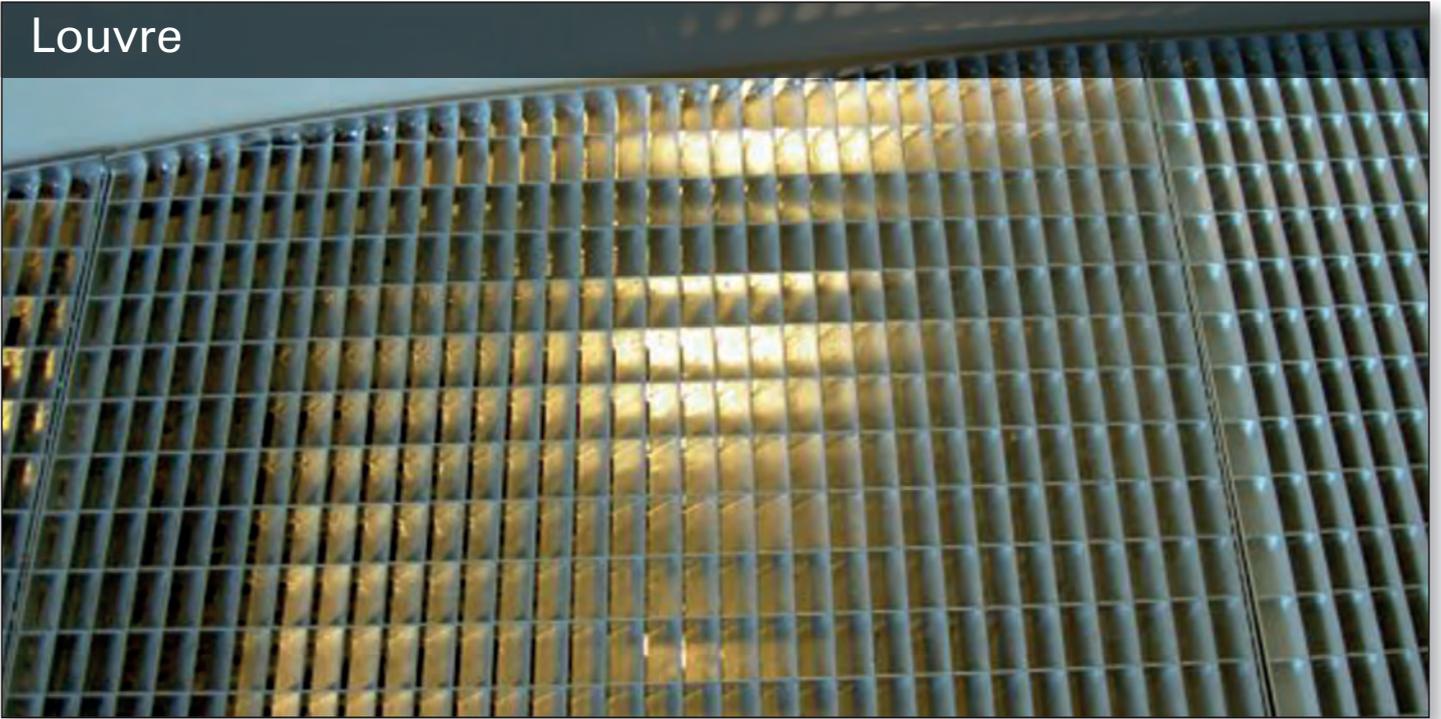
Bespoke up to 3000x1250mm (subject to weight & specification)

- larger sizes available upon agreement

Notes:

Serrated bars can be supplied in one, both or even on specific bars if required.

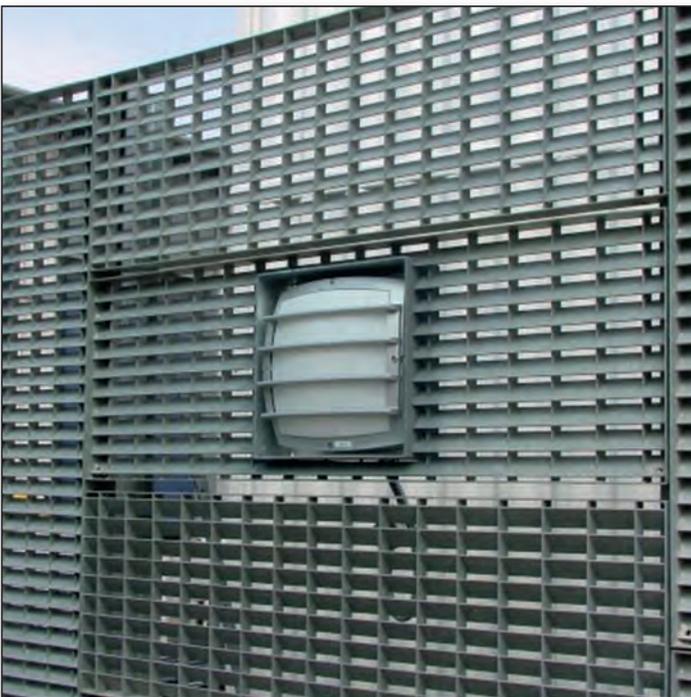
Louvre



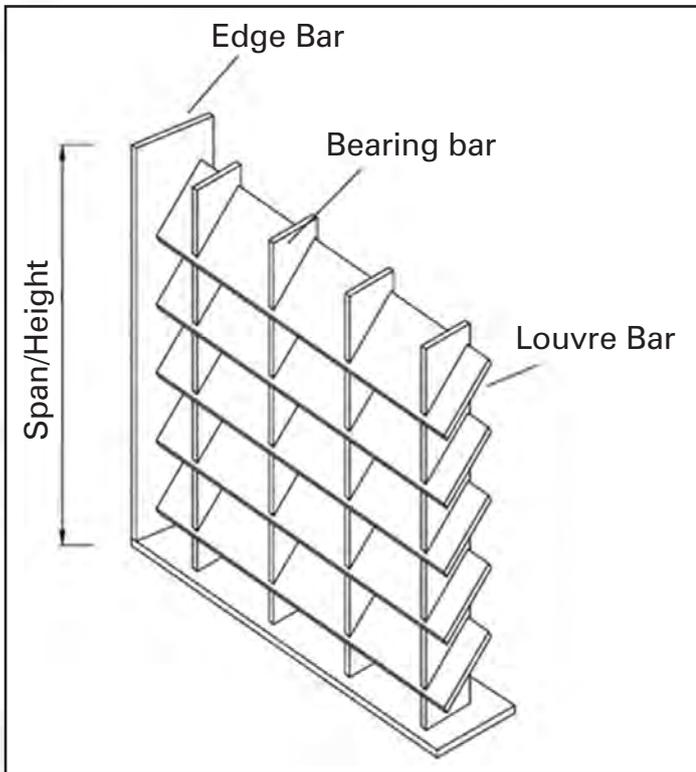
Comprising vertical (bearing bars) with angled horizontal (louvre bars) from 10° - 50° in increments of 5°. Available in two variants: Closed (meaning not possible to see through viewing straight on) or Open (meaning visible gaps offering a level of diffusion but allowing a view through the bars).

Applications

Primarily used as screening in bike stores, waste areas, car parks, plant areas and ventilation ducts. Can also be used as flooring, suitable for maintenance use.



Louvre



Materials:

Carbon Steel Grade S235JRG2 (240 Yield)
(available finishes 1, 2, 3)

Carbon Steel to BS EN 10149 2 (420 Yield)
(available finishes 1, 2, 3)

**Stainless Steel Grade to BS EN 1.4301
& 1.4404** (available finishes 4, 5, 6)

Corten A (3mm thick only)
(supplied unfinished for weathering)

Aluminium (3mm thick bearing bars only)
(available finishes 2, 7)

Finishes:

1 Hot Dipped Galvanised to
BS EN 1461:2009

2 Polyester Powder Coated
BS EN 13438: 2005

3 Electro Plated Zinc to BS EN 2081: 2008

4 Chemically Cleaned to BS EN 2516: 1997

5 Electro Polished to BS EN 15730: 2000

6 Bead Blast (Glass bead or Stainless
Steel shot)

7 Anodised to BS EN 7599: 2010

Mesh Sizes:

Generally From 10mm – 100mm

Bearing Bars: 20mm – 60mm in 2mm & 3mm thick

Louvre Bars: 30mm – 80mm in 2mm & 3mm thick

Panel Sizes:

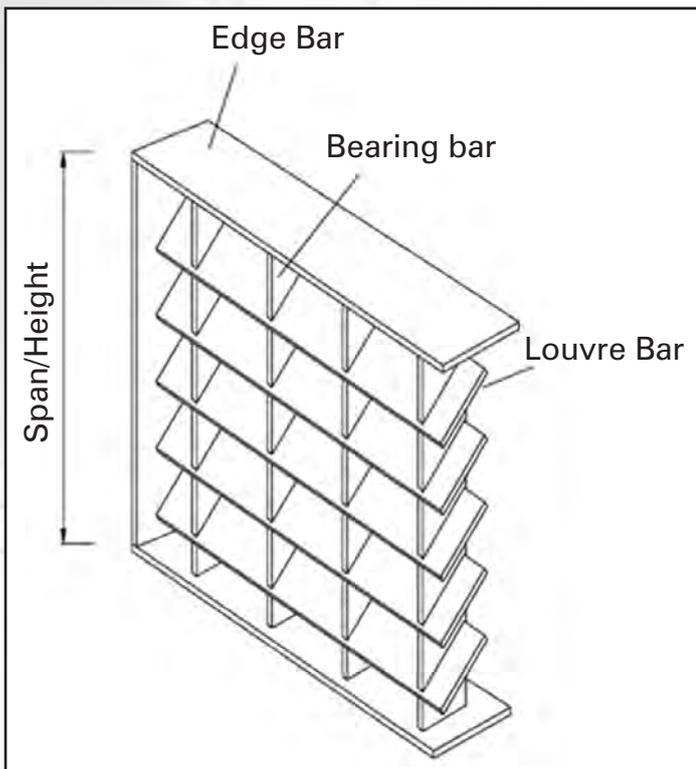
Bespoke up to 3000span x 1250mm
(subject to weight & specification)

- larger sizes available upon agreement

- Standard stock sizes available

Note:

Louvre bars can be supplied in 5° increments
between 10°-50°.



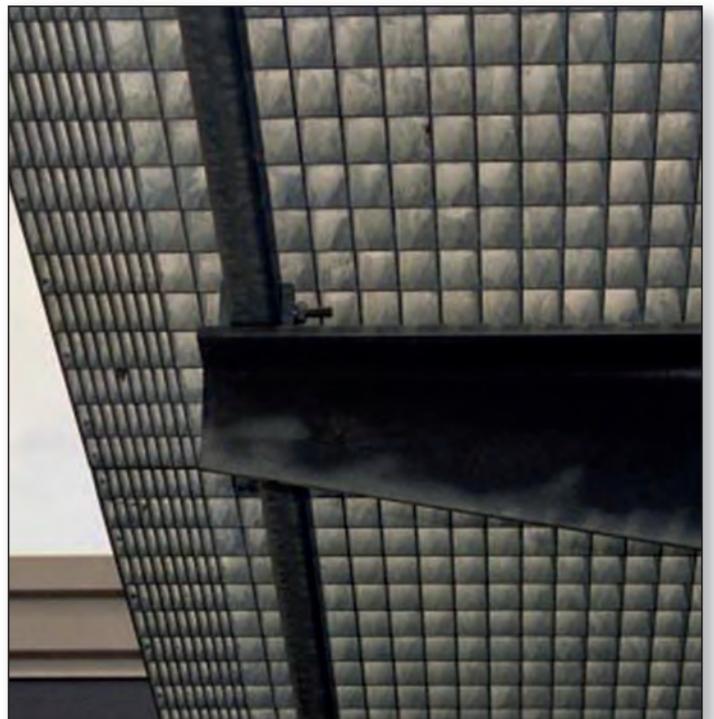
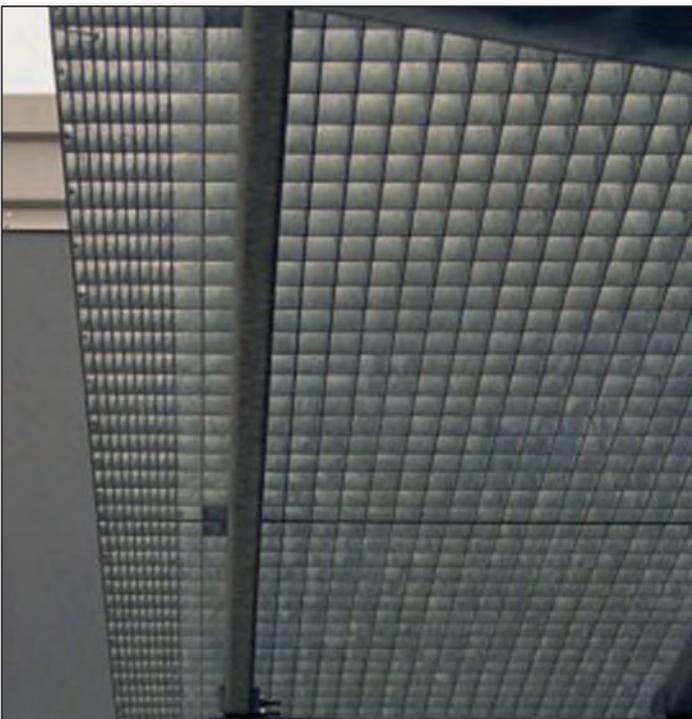
Variable



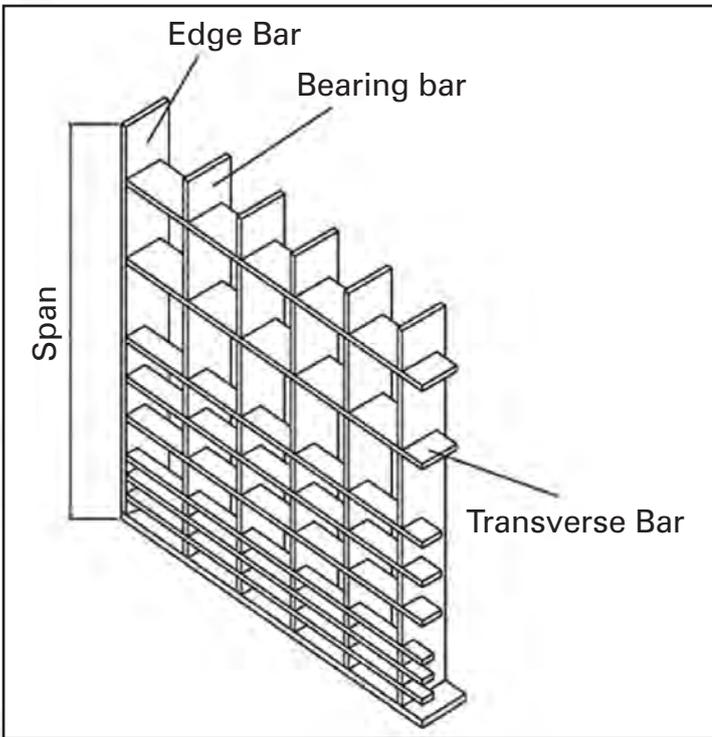
Comprising bearing bars of one dimension and pitch with various transverse bars at different centres. Available in Types SP, N, NP & Louvre.

Applications

Usually vertical screening or infill panels requiring a unique aesthetic appearance.



Variable



Materials:

- Carbon Steel Grade S235JRG2**
(240 Yield) (available finishes 1, 2, 3)
- Carbon Steel to BS EN 10149 2**
(420 Yield) (available finishes 1, 2, 3)
- Stainless Steel Grade to
BS EN 1.4301 & 1.4404**
(available finishes 4, 5, 6)
- Corten A** (3mm thick only)
(supplied unfinished for weathering)

Finishes:

- 1 Hot Dipped Galvanised to
BS EN 1461:2009
- 2 Polyester Powder Coated
BS EN 13438: 2005
- 3 Electro Plated Zinc to BS EN 2081: 2008
- 4 Chemically Cleaned to BS EN 2516: 1997
- 5 Electro Polished to BS EN 15730: 2000
- 6 Bead Blast (Glass bead or Stainless Steel shot)

Mesh Sizes:

Generally From 8mm – 150mm

Bearing Bars:

20mm 80mm in 2mm, 3mm, 3.5mm
& 5mm thick

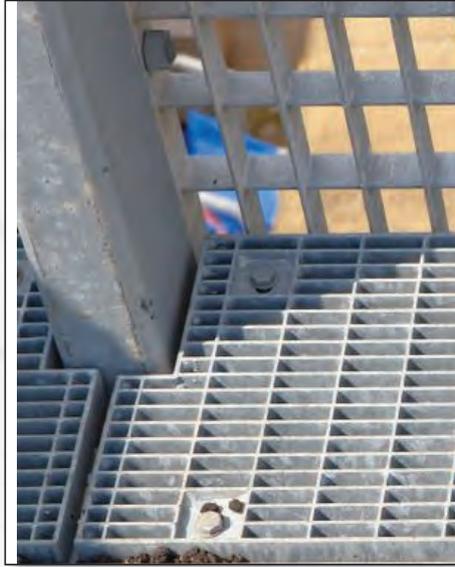
Panel Sizes:

Bespoke up to 3000x1250mm (subject to weight &
specification)
- larger sizes available upon agreement

Notes:

Bearing bars based on static depth/centres with
variable transverse bar depths/centres.

Grating Fixing Information



Mesh Gratings

General details:

Elefant Gratings operates with several fixing methods for our grating types. Welded Fixing Plates, Welded Cleats, Side Fixing Hole, Standard Clip Assembly.

Fixing plates:

Plates are welded within the grating generally between the bearing bars and subject to the mesh size will be located 3mm up from the underside or flush to the face side with a countersunk hole. Transverse bars are cut away to accommodate accordingly.

Fixing Cleats:

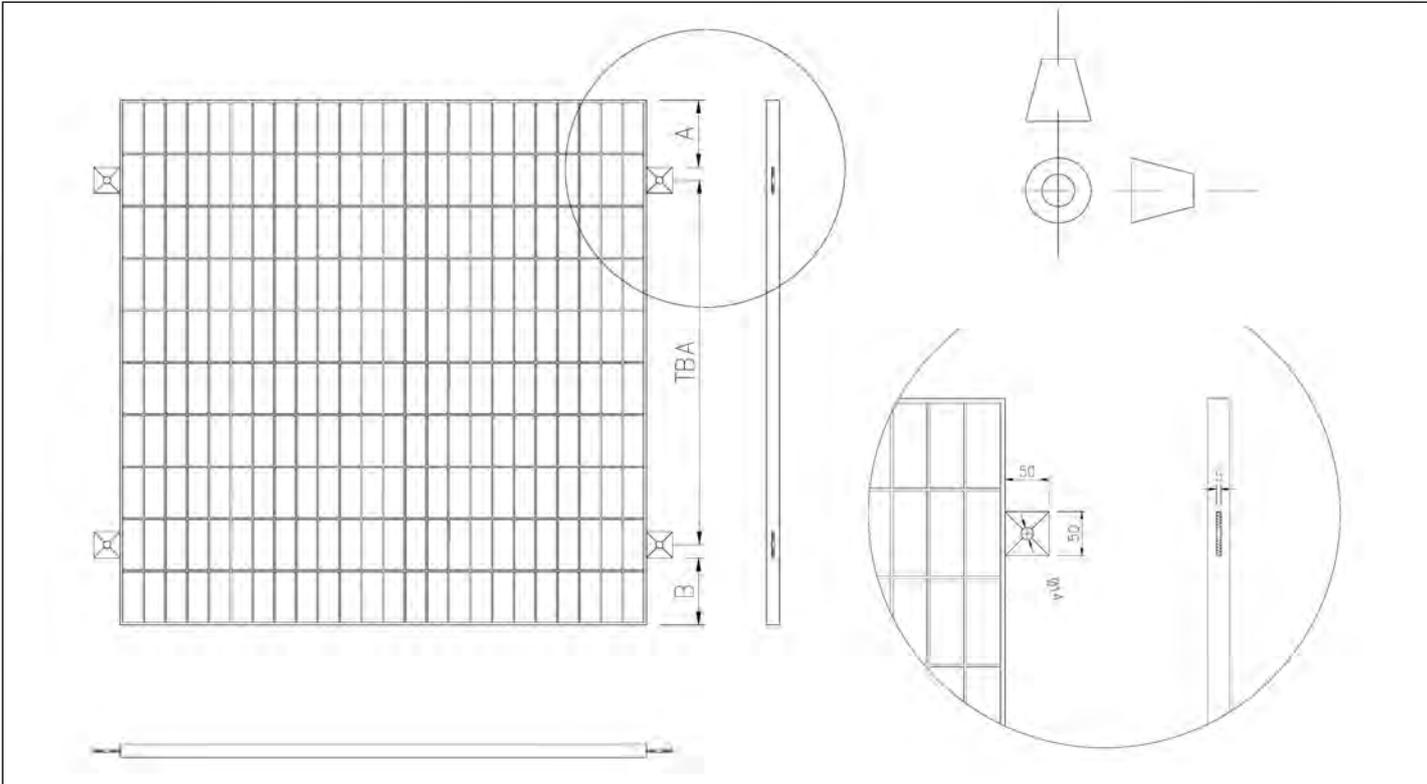
Welded plates or brackets to the edge perimeter - usually applied on balustrade/fencing type application.

Bolt hole sizes:

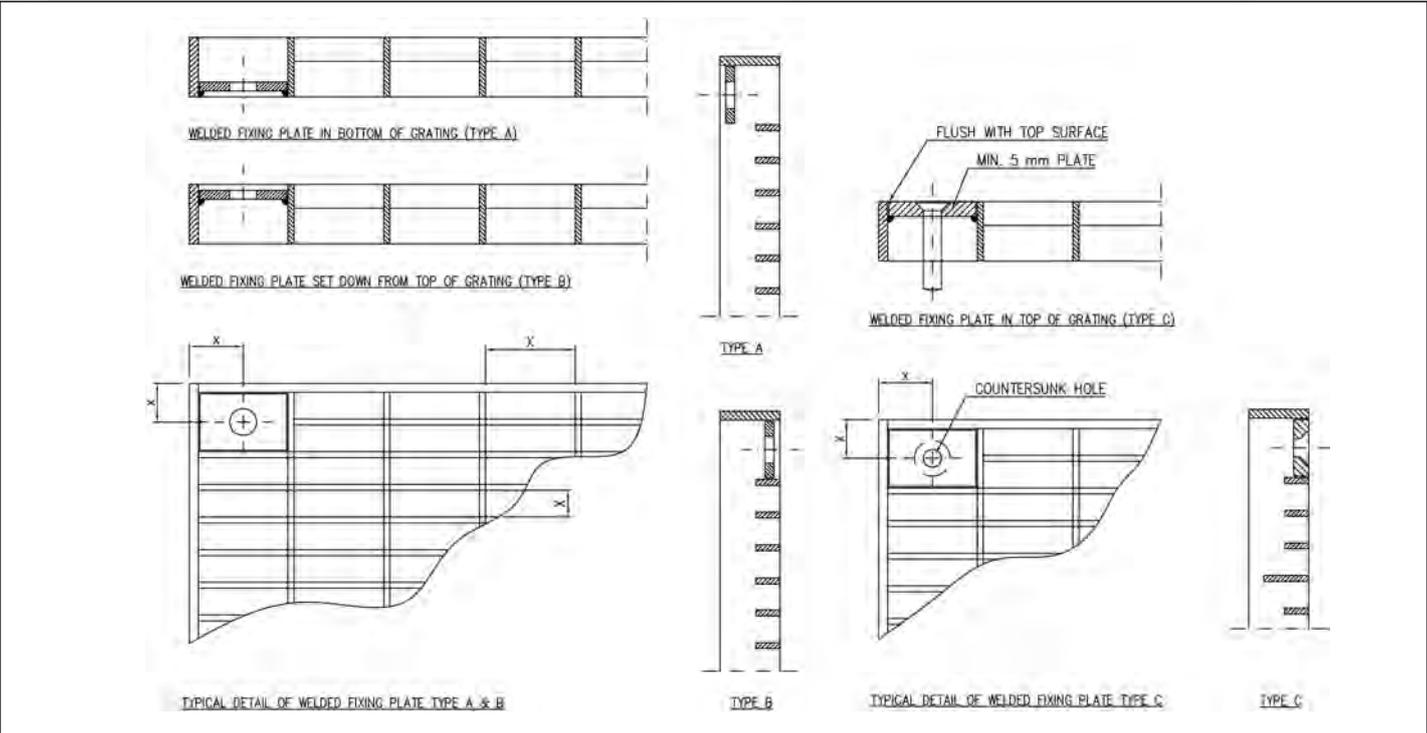
The standard bolt hole sizes are:

- Round: Ø6, Ø8, Ø10, Ø12 mm, Ø14mm
- Slotted: Ø9x15, Ø11x28, Ø14x28 mm
- Other hole sizes can be made to order.

Welded Cleat



Welded Fixing Plate



Grating Fixing Information



Side Fixing Holes

Fixing Holes/Notches:

Holes within the edge bar to enable mechanical fixing through to support - usually applied on vertical applications and louvre grilles.

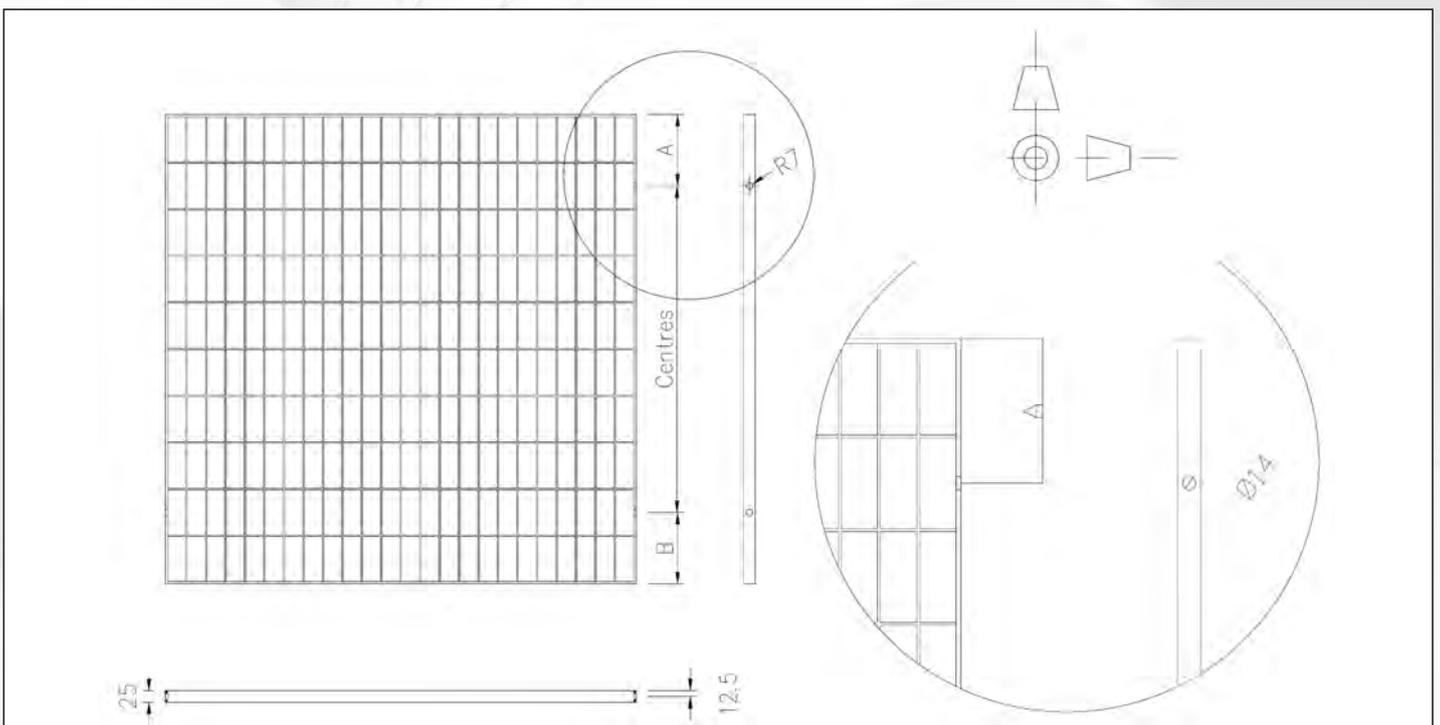
Bolt hole sizes:

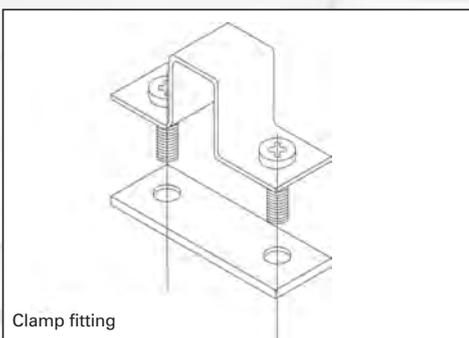
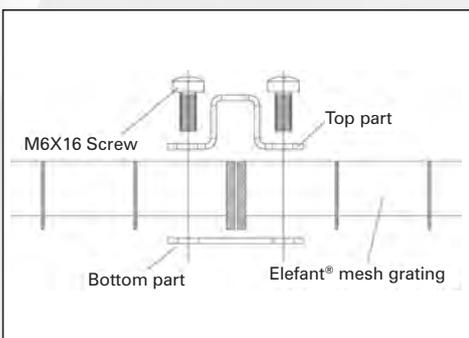
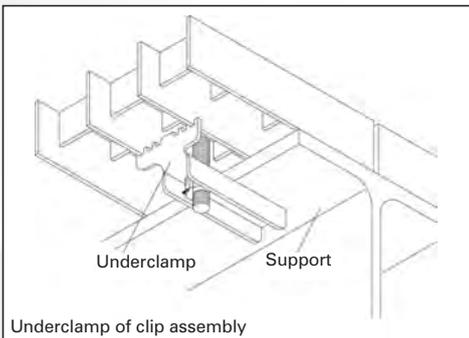
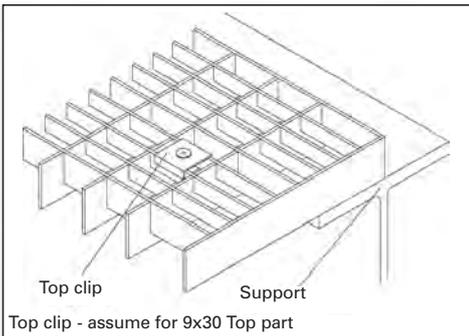
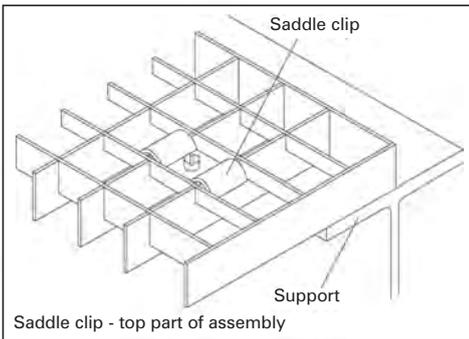
The standard bolt hole sizes are:

- Round: $\text{Ø}6$, $\text{Ø}8$, $\text{Ø}10$, $\text{Ø}12$ mm, $\text{Ø}14$ mm
- Slotted: $\text{Ø}9 \times 15$, $\text{Ø}11 \times 28$, $\text{Ø}14 \times 28$ mm
- Other hole sizes can be made to order.

Clip Assembly:

Standard saddle clip with bolt, underclamp & nut. - Only available for flooring application with mesh size of 20, 30, 40-50mm. See Fixing Clips section with illustrations.





Fixing Clips

Fixing clip assemblies for bearing bar centres:- 22mm, 33mm or 40-50mm:

Universal retainer clamp for attachment of gratings to a support. Available for transverse mesh of 20mm upwards and applicable for grating heights from 20-70 mm.

The complete clip assembly consists of:
1 saddle clip for 22mm, 33mm or 40-50mm
1 bolt M8x60 or M8x80
1 underclamp 11/22/33 or 40-50mm
1 nut M8

All of the assemblies are manufactured in hot-dip galvanised steel or stainless 1.4404 (except 40-50mm clip assembly).

Fixing clip assemblies for mesh size 9-15mm: (Not suitable for all applications. Please consult our technical department)

Universal retainer clamp for attachment of gratings with mesh 9x30 mm and 15x30 mm to a support. Applicable for grating heights from 20-70 mm.

The complete clip assembly consists of:
1 Top clip
1 M8x80 allen key headed bolt
1 Underclamp 11/22/33
1 nut M8

Manufactured in hot-dip galvanised steel.

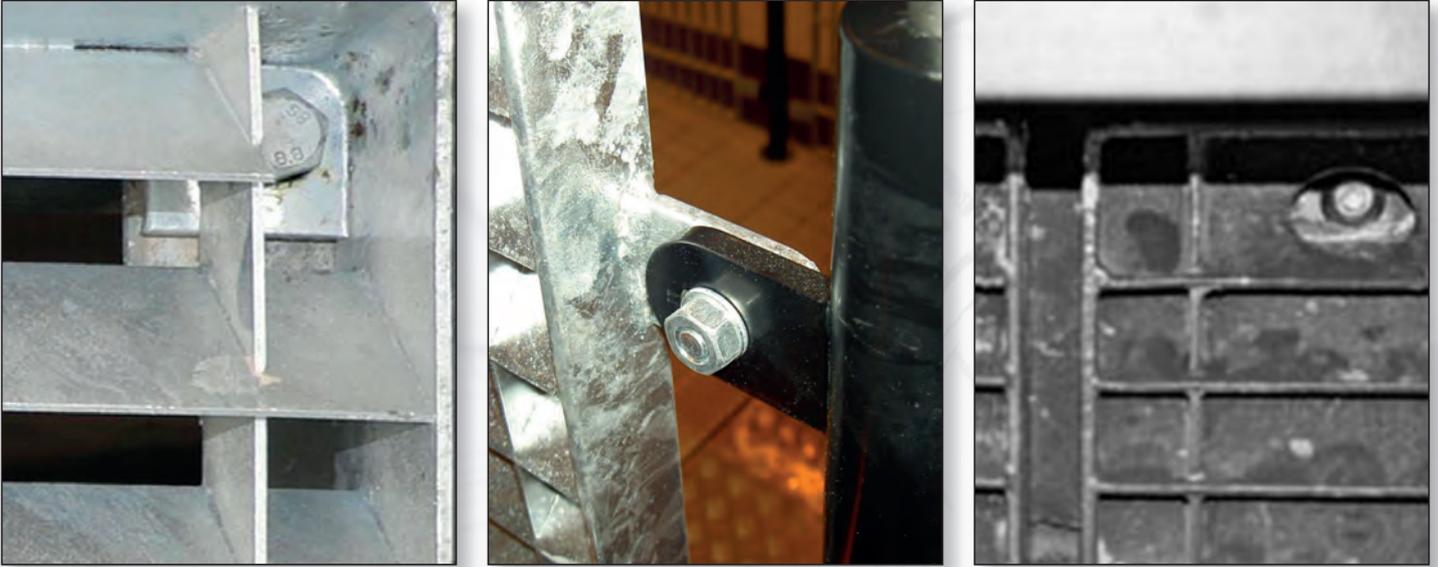
Connecting clip assembly:

Universal connecting clip for gratings. Used for connecting two gratings and may be used for grating heights from 20-50 mm.

Consists of:
2 machine screws M6x16 or M6x40
1 bottom part clamp fitting with threaded hole
1 upper part clamp fitting

Manufactured in hot-dip galvanised steel

Grating Fixing Information



Louvre fixings

General details:

Elefant Gratings operates with 8 universal fixing methods for our louvre gratings.

Further, we have developed special fitting methods for individual projects on several occasions in collaboration with clients, architects and consulting engineers.

Fixing plates:

Fitting plates are welded between the bearing bar and the edge bar 3 mm from the underside of the grating.

They are available with round or slotted bolt holes. The angled louvre bars are removed locally where the fixing plate is positioned.

Fastening with bolt holes or notches in edge bar:

Elefant® gratings can be fixed using bolt holes in the edge bars. Another suitable method for fixing louvre grating are notches in the edge bar.

Bolt holes in the edge bar can be used for louvre gratings with normal edge bars and for louvre gratings with deep edge bars.

Notches in the edge bars can only be used for louvre gratings with deep edge bars.

Bolt hole sizes:

The standard bolt hole sizes are:

Round: Ø6, Ø8, Ø10, Ø12 mm

Slotted: Ø9x15, Ø11x28, Ø14x28 mm

Other hole sizes can be made to order.

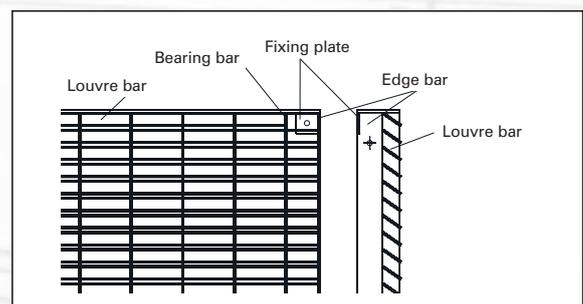
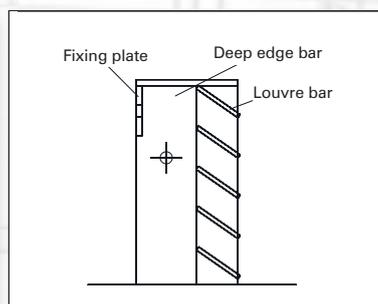
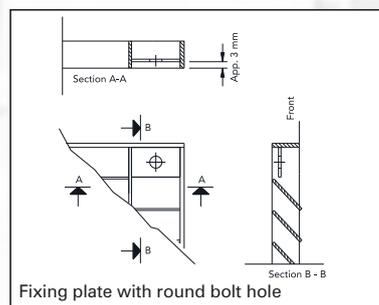
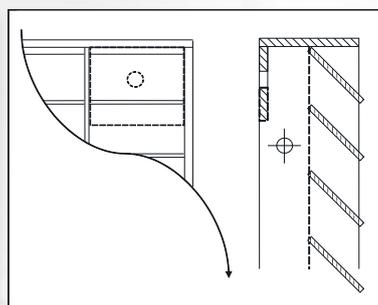
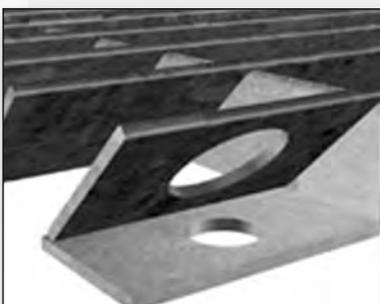
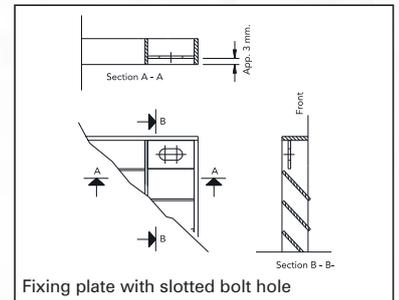
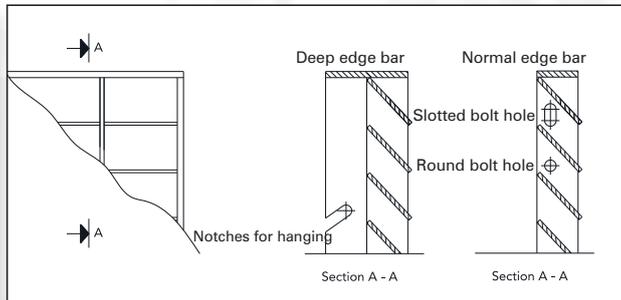
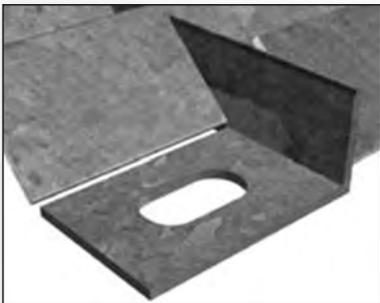
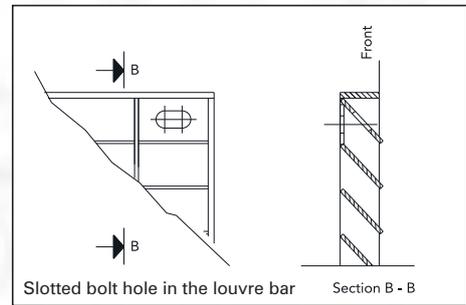
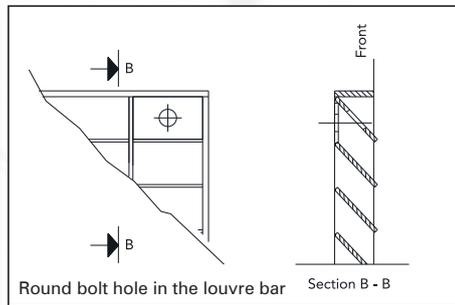
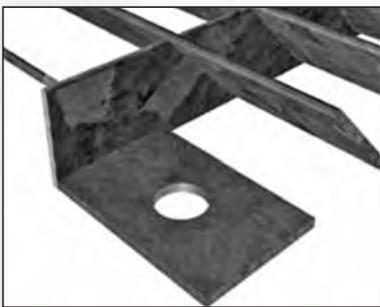
Grating Fixing Information

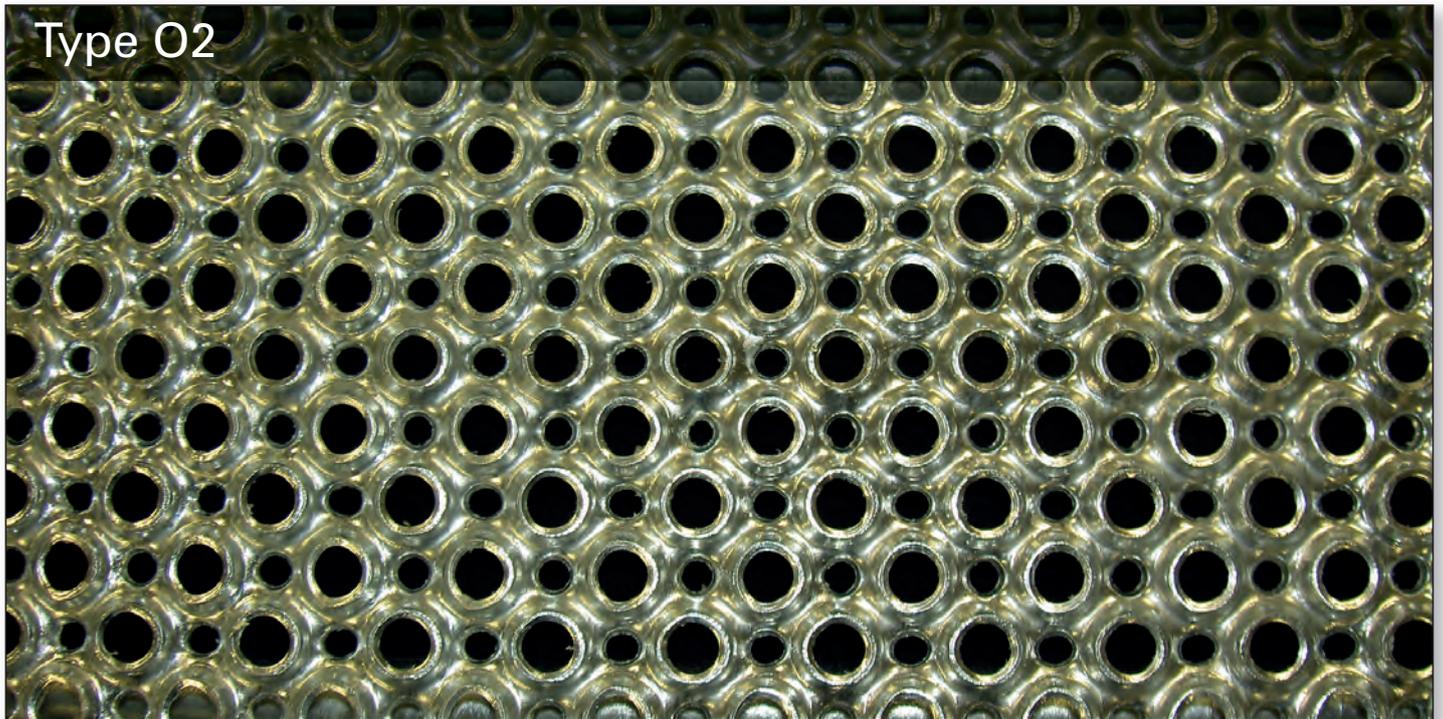
Fixing of louvre gratings with hidden fixing plates:

This fixing method consists of plates welded flush to the rear. At the same time, round or slotted bolt holes are made in the louvre bars so that the fixing plate is hidden behind. When mounted, the bolt is placed through the hole in the inclined louvre bar down into the fixing plate. In this way, an almost hidden fixing of the grating is obtained.

A different variant of this type of fastening is also available. This is a semicircular hole notched from the outer edge to the middle of the louvre bar.

The above methods are recommended if the gratings are used in an aesthetic application, requiring the fixing to be discreet. However, they require that the fixing holes are adjusted to fit within the configuration.





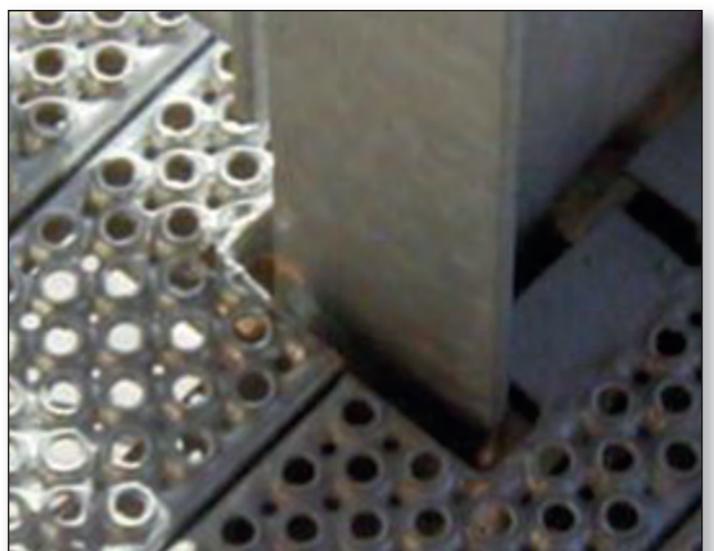
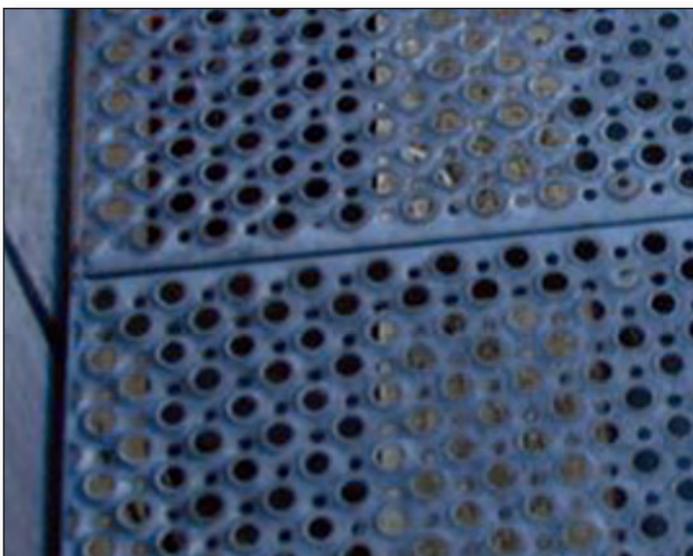
Comprising of 9mm dia punched raised holes and 5mm dia depressed drainage holes, in 2mm thick material. This punched profile provides an even surface with excellent slip resistance, unsurpassed high strength to weight ratio and low transparency of 20-25%.

Manufactured in various combinations in relation to: - width, height, length and profile.

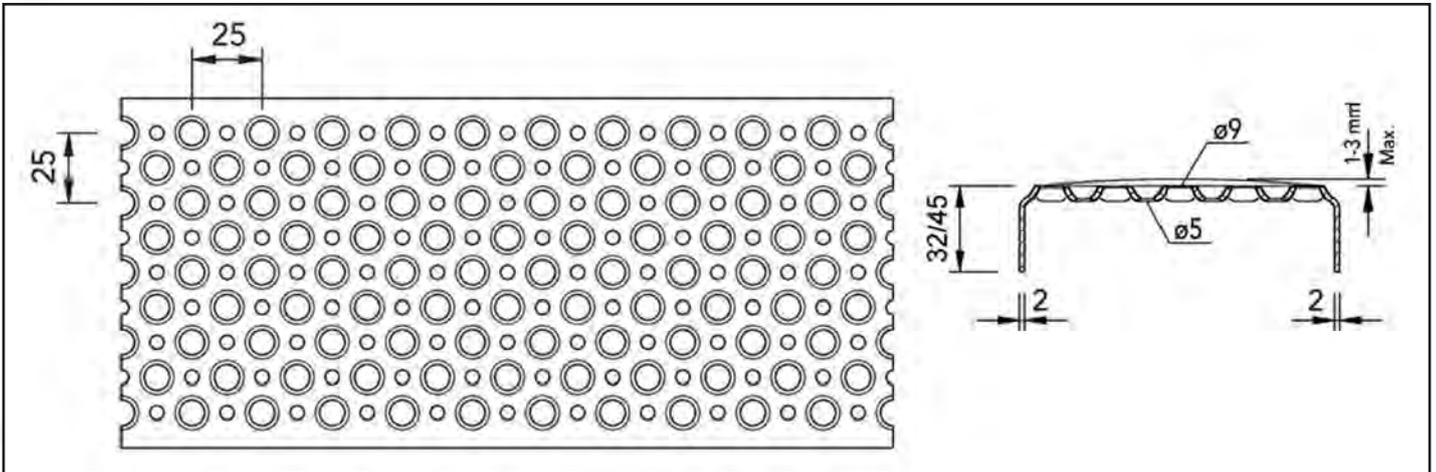
Supplied combined together as welded modules for easy fitting or individually to sub-contractors if preferred.

Applications

Type O2 is used in all sectors of industrial, commercial and residential buildings. This pattern is also used in our "Achil" range of stair treads.



Type O2



Materials:

Carbon Steel Grade S235JRG2

(240 Yield) (available finishes 1, 2)

Stainless Steel Grade to BS EN 1.4301 & 1.4404 (available finishes 3, 4, 5)

Finishes:

- 1 Hot Dipped Galvanised to BS EN 1461:2009
- 2 Polyester Powder Coated BS EN 13438: 2005
- 3 Chemically Cleaned to BS EN 2516: 1997
- 4 Electro Polished to BS EN 15730: 2000
- 5 Bead Blast (Glass bead or Stainless Steel shot).

Plank Sizes:

From: 30mm – 300mm, in 2mm thick.
Standard stock planks available.

Plank Heights:

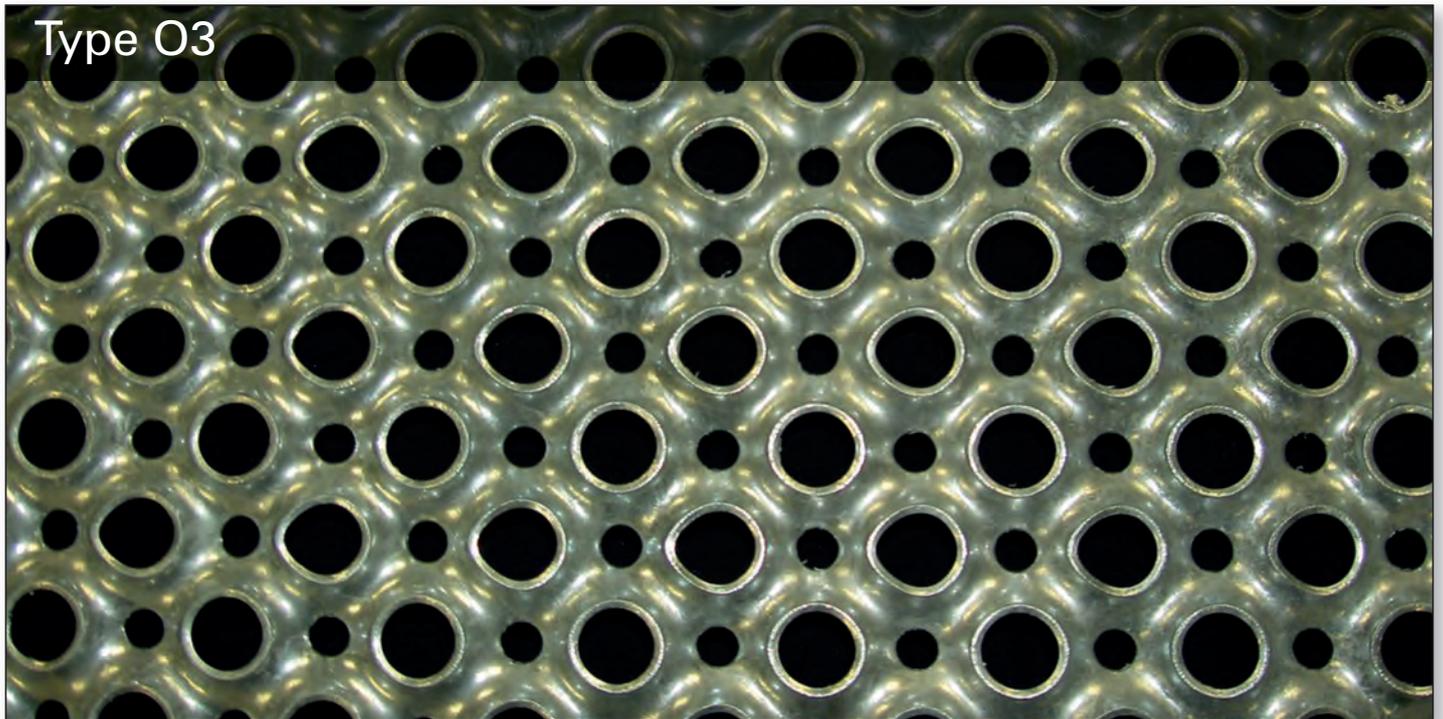
32mm & 45mm (other sizes available as bespoke).

Slip Resistance:

Average Wet PTV 50 (Pendulum Test Value).

Notes:

Plank widths/heights are specified to suit the application and intended use.
Please Contact for further advice.



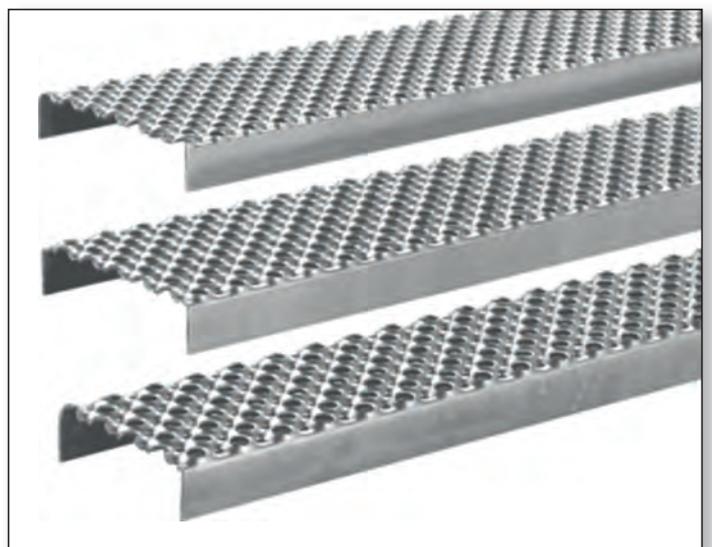
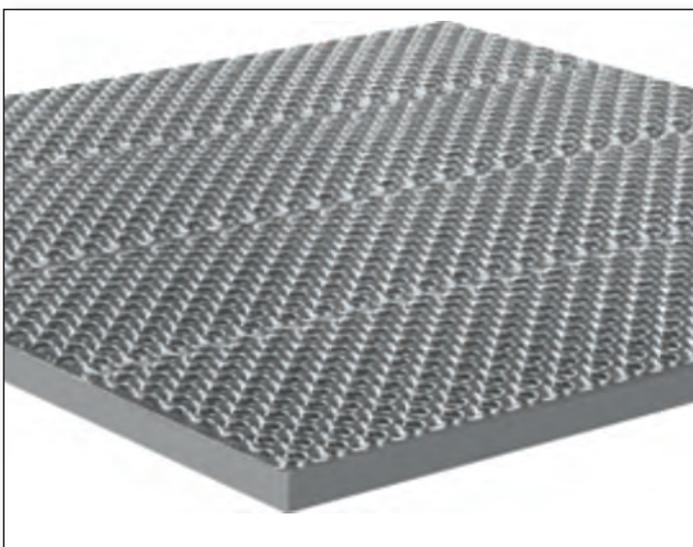
Comprising of 14mm dia punched raised holes and 8.5mm dia depressed drainage holes, in 3mm thick material. This punched profile provides excellent slip resistance, unsurpassed high strength to weight ratio and increased drainage owing to the larger holes giving a transparency of 28-32%.

Manufactured in various combinations in relation to: - width, height, length and profile.

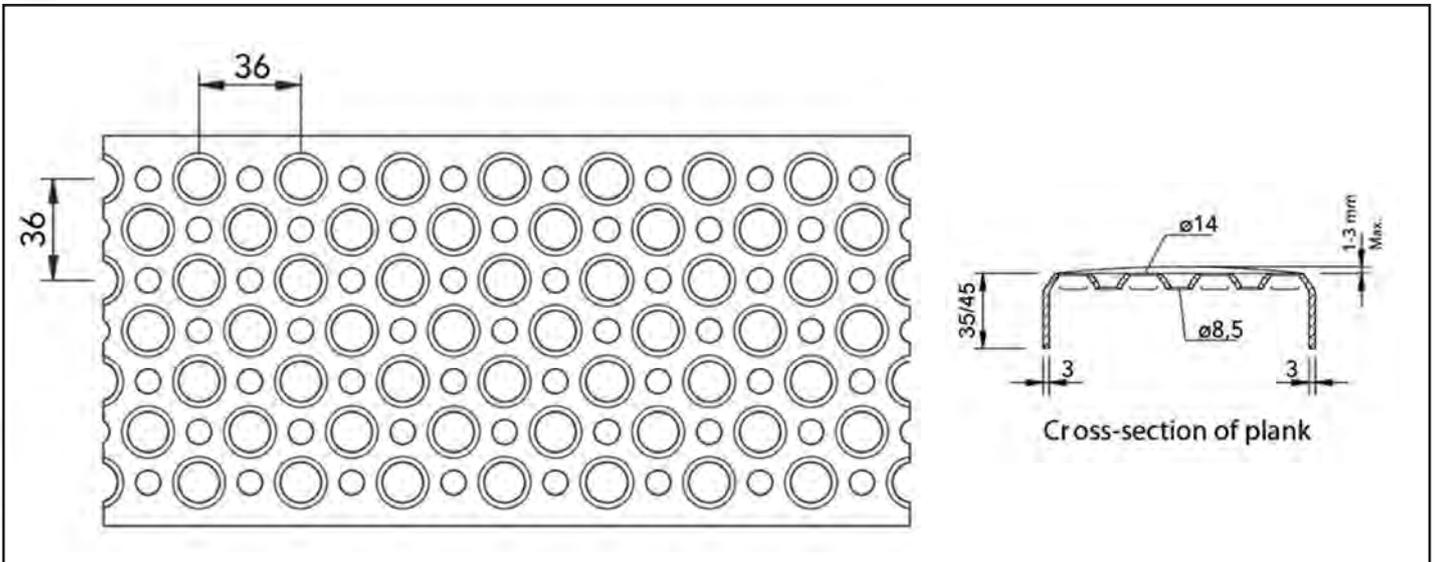
Supplied combined together as welded modules for easy fitting or individually to sub-contractors if preferred.

Applications

Type O3 is used in all sectors of industrial and commercial buildings that require high loading criteria.



Type O3



Materials:

Carbon Steel Grade S235JRG2

(240 Yield) (available finishes 1, 2)

Aluminium (available finishes 2, 3)

Finishes:

1 Hot Dipped Galvanised to
BS EN 1461:2009

2 Polyester Powder Coated
BS EN 13438: 2005

3 Anodised to BS EN 15730: 2000

Plank Sizes:

From: 63mm – 333mm, in 3mm thick

Standard stock planks available

Plank Heights:

35mm & 45mm (other sizes available as bespoke)

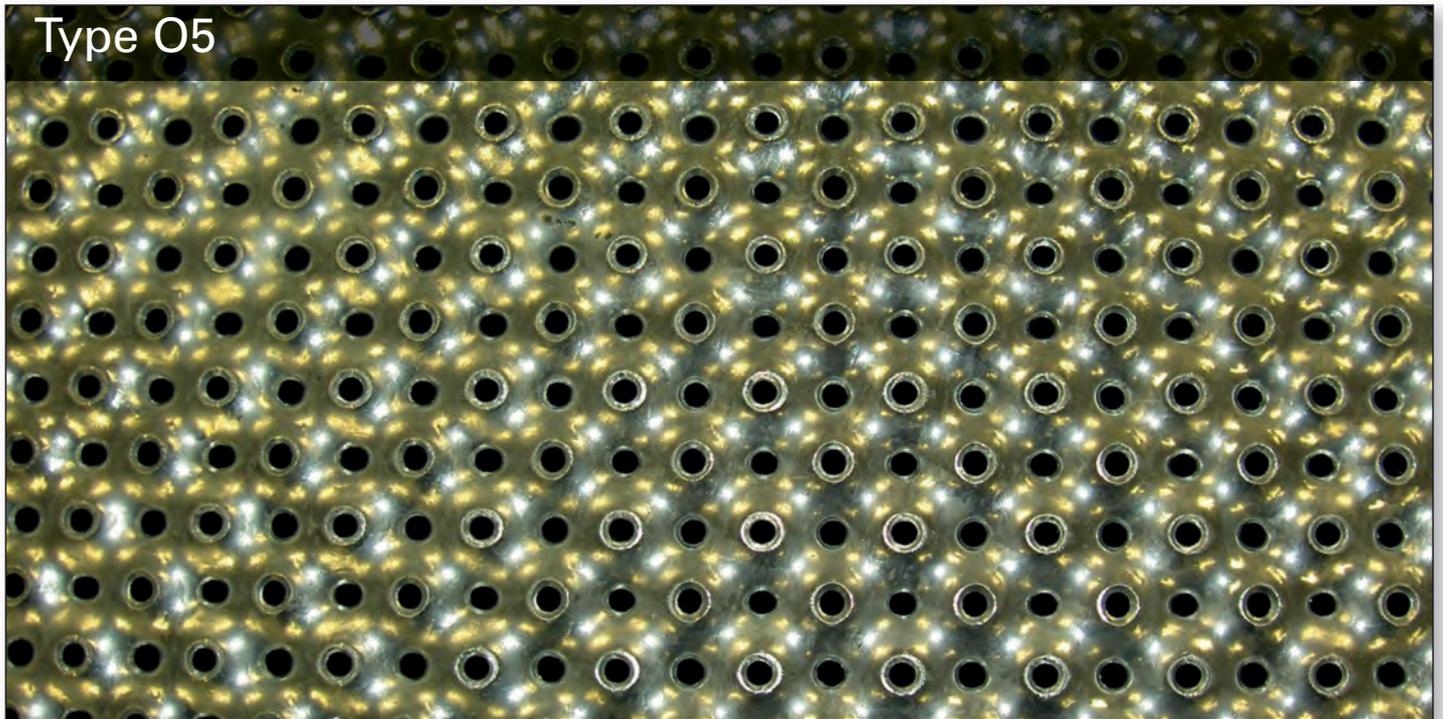
Slip Resistance:

Average Wet PTV 51 (Pendulum Test Value)

Notes:

Plank widths/heights are specified to suit the application and intended use.

Please Contact for further advice.



Comprising of 5mm dia punched raised and depressed holes, in 2mm/3mm thick material.

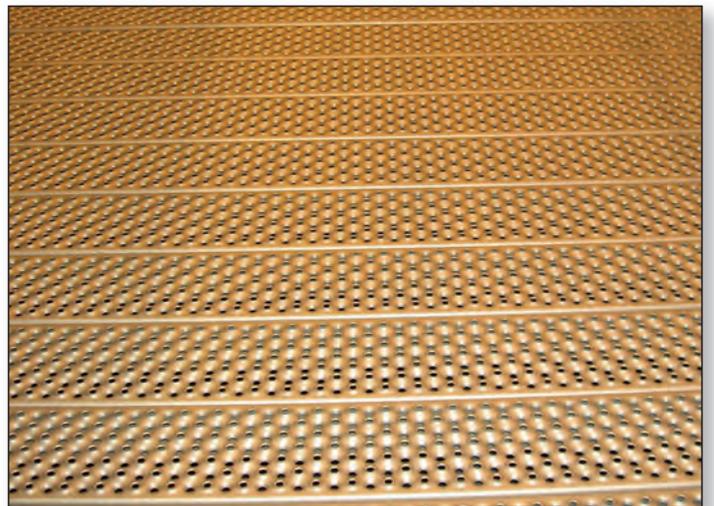
This unique punched profile is stiletto proof with exceptional slip resistance and low visual transparency of 8-9%.

Manufactured in various combinations in relation to: - width, height, length and profile.

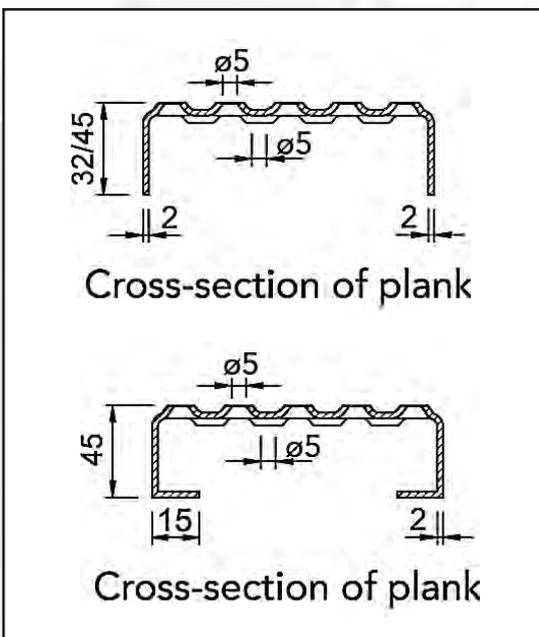
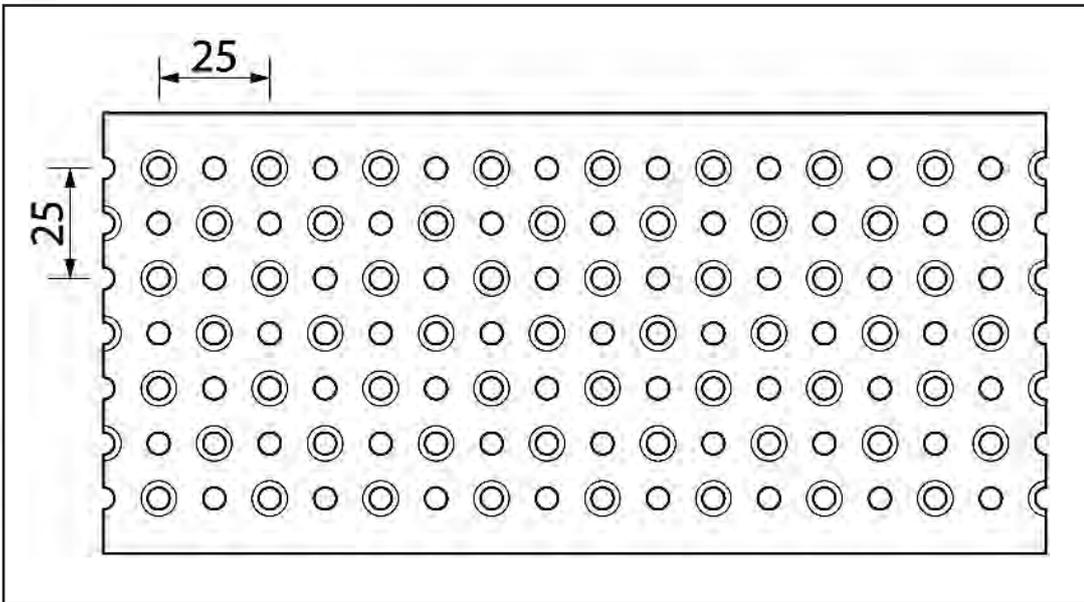
Supplied combined together as welded modules for easy fitting or individually to sub-contractors if preferred.

Applications

Type O5, with its heel proof properties, is used in public and institutional areas; predominantly as main access and fire escape routes. In industrial areas, the small 5mm dia holes ensure no falling objects pass through injuring people below such as motorway gantries.



Type O5



Materials:

- Carbon Steel Grade S235JRG2**
(240 Yield) (available finishes 1, 2)
- Aluminium** (3mm thick only)
(available finishes 2, 3)

Finishes:

- 1 Hot Dipped Galvanised to
BS EN 1461:2009
- 2 Polyester Powder Coated
BS EN 13438: 2005
- 3 Anodised to BS EN 15730: 2000

Plank Sizes:

From: 50mm – 300mm

Plank Heights:

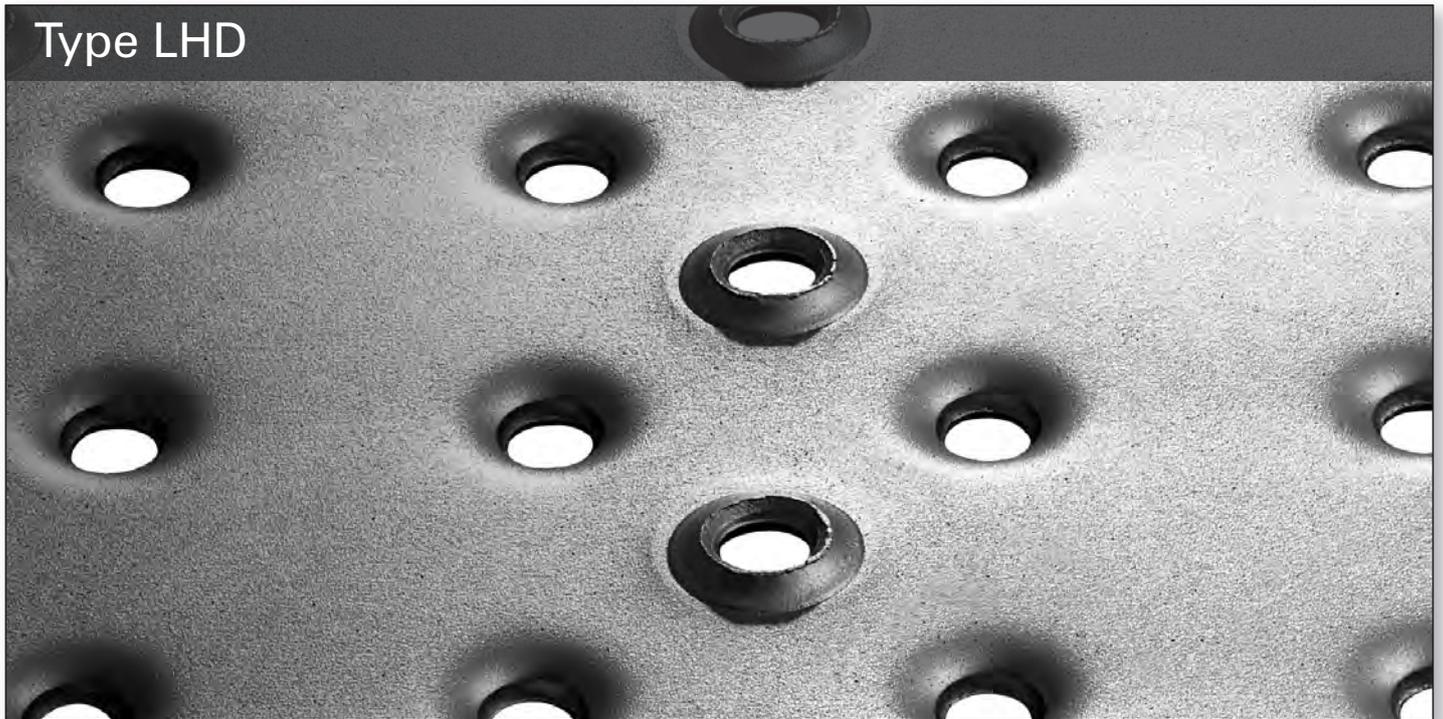
32mm & 45mm (other sizes available as bespoke)
Standard stock planks available

Slip Resistance:

Average Wet PTV 79 (Pendulum Test Value)

Notes:

Plank widths/heights are specified to suit the application and intended use. Please Contact for further advice.



Comprising of 7mm dia punched raised and depressed holes, in 3mm thick material.

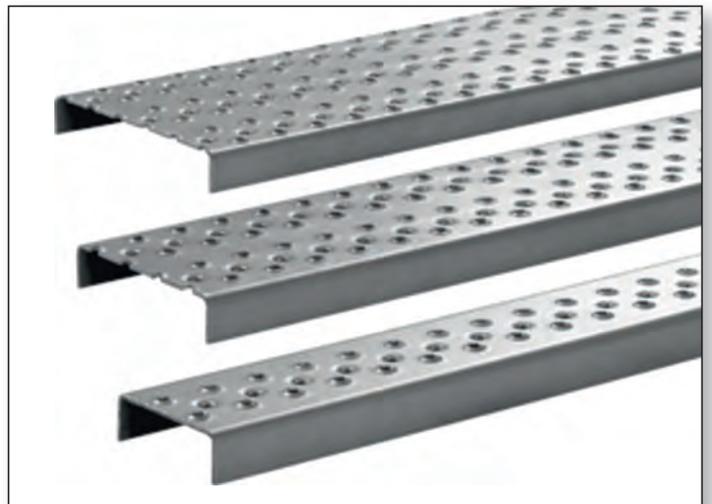
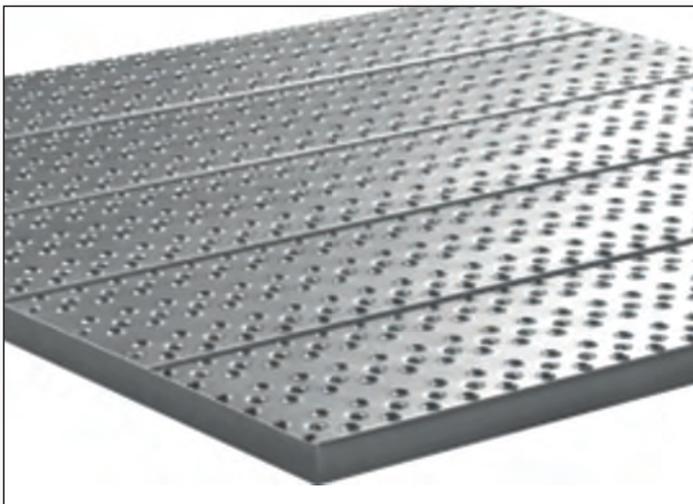
This punched profile is heel friendly with good slip resistance and very low visual transparency of 3-5%.

Manufactured in various combinations in relation to: - width, height, length and profile.

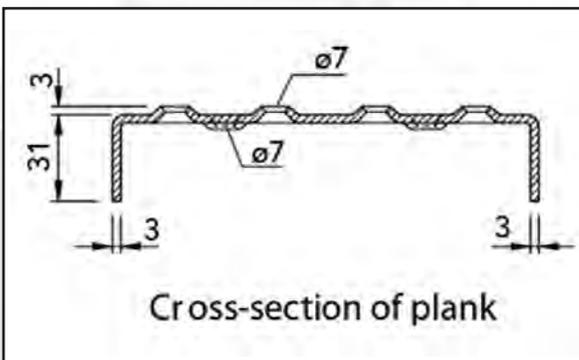
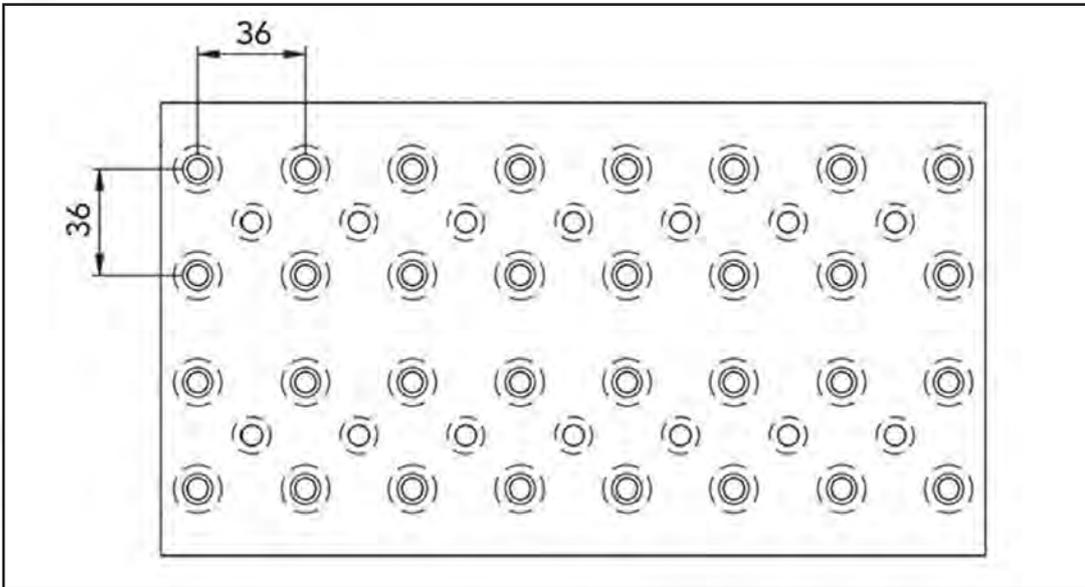
Supplied combined together as welded modules for easy fitting or individually to sub-contractors if preferred.

Applications

Type LHD is used in industrial applications requiring low hole density and public areas such as balconies.



Type LHD



Materials:

Carbon Steel Grade S235JRG2

(240 Yield) (available finishes 1, 2)

Stainless Steel Grade to BS EN 1.4301 & 1.4404

(available finishes 3, 4, 5)

Aluminium (available finishes 2, 6)

Finishes:

- 1 Hot Dipped Galvanised to BS EN 1461:2009
- 2 Polyester Powder Coated BS EN 13438: 2005
- 3 Chemically Cleaned to BS EN 2516: 1997
- 4 Electro Polished to BS EN 15730: 2000
- 5 Bead Blast (Glass bead or Stainless Steel shot)
- 6 Anodised to BS EN 15730: 2000

Plank Sizes:

From: 63mm – 225mm, in 3mm thick

Plank Heights:

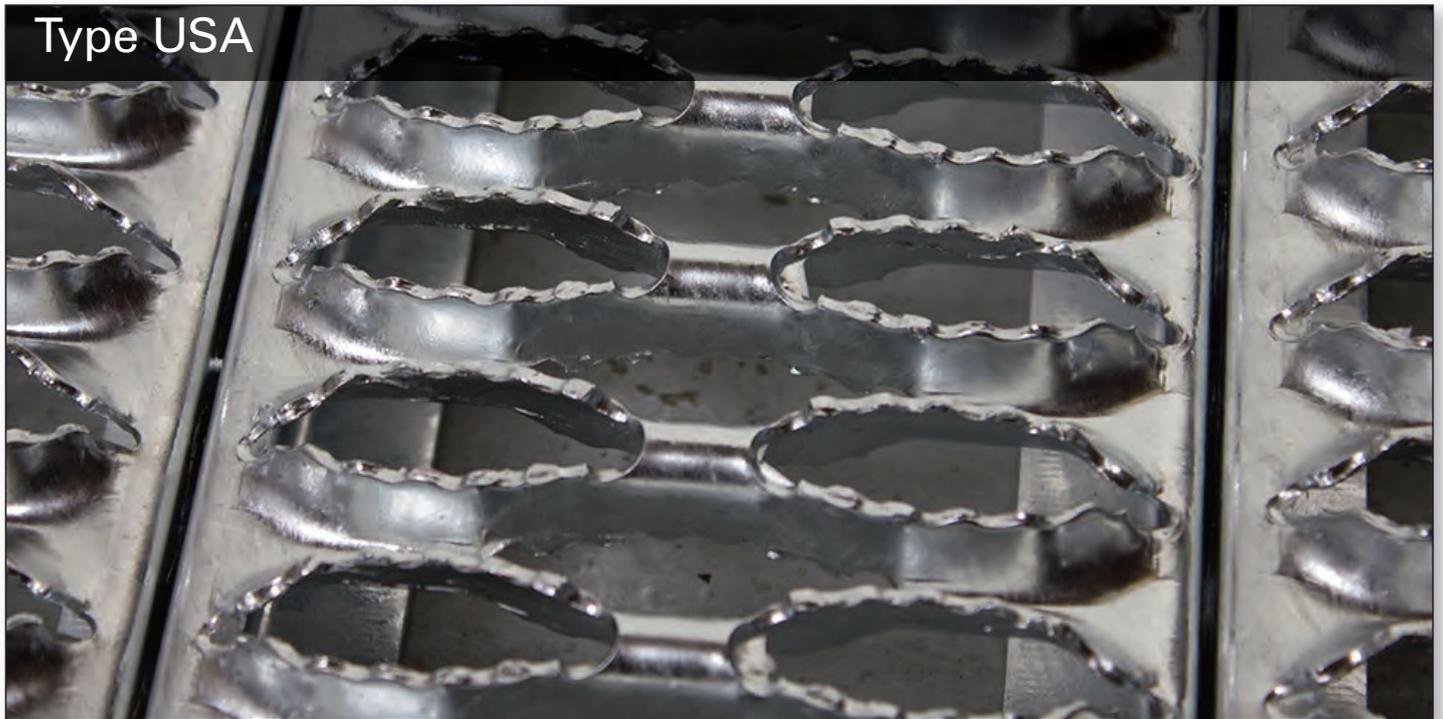
35mm (other sizes available as bespoke)

Slip Resistance:

Average Wet PTV 55 (Pendulum Test Value)

Notes:

Plank widths/heights are specified to suit the application and intended use. Please Contact for further advice.



Comprising of large elliptical shaped serrated holes, in 2mm thick material.

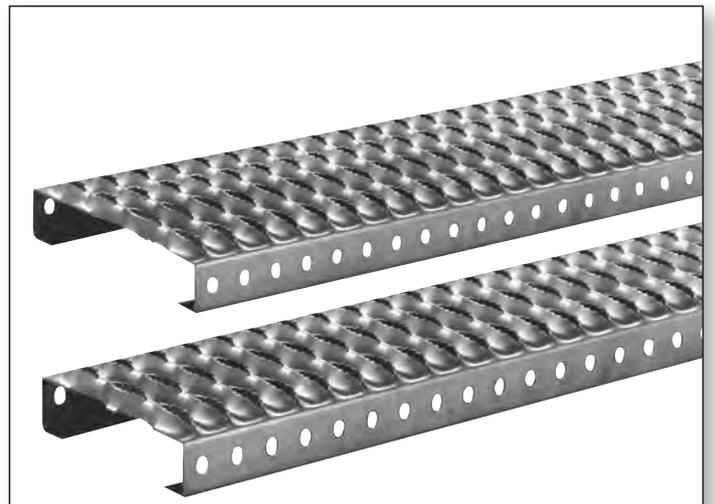
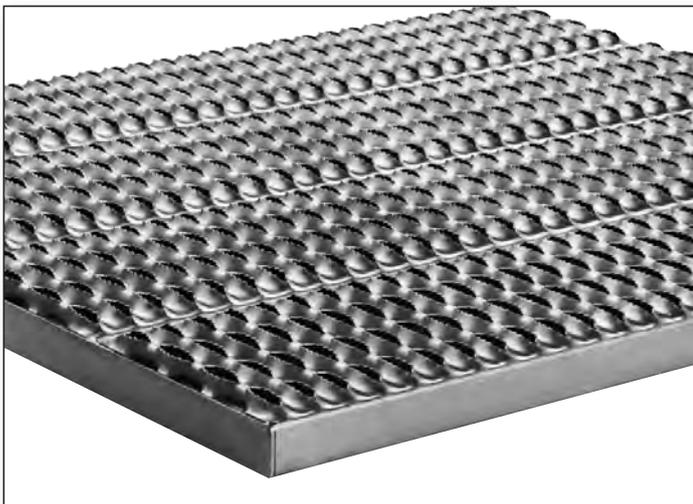
Providing an extreme anti-slip surface with maximum drainage offering high loading capabilities and maximum strength to weight ratio. This punched profile has a high transparency of 35-45%.

Manufactured in 2 heights with various combinations in relation to: - width and length.

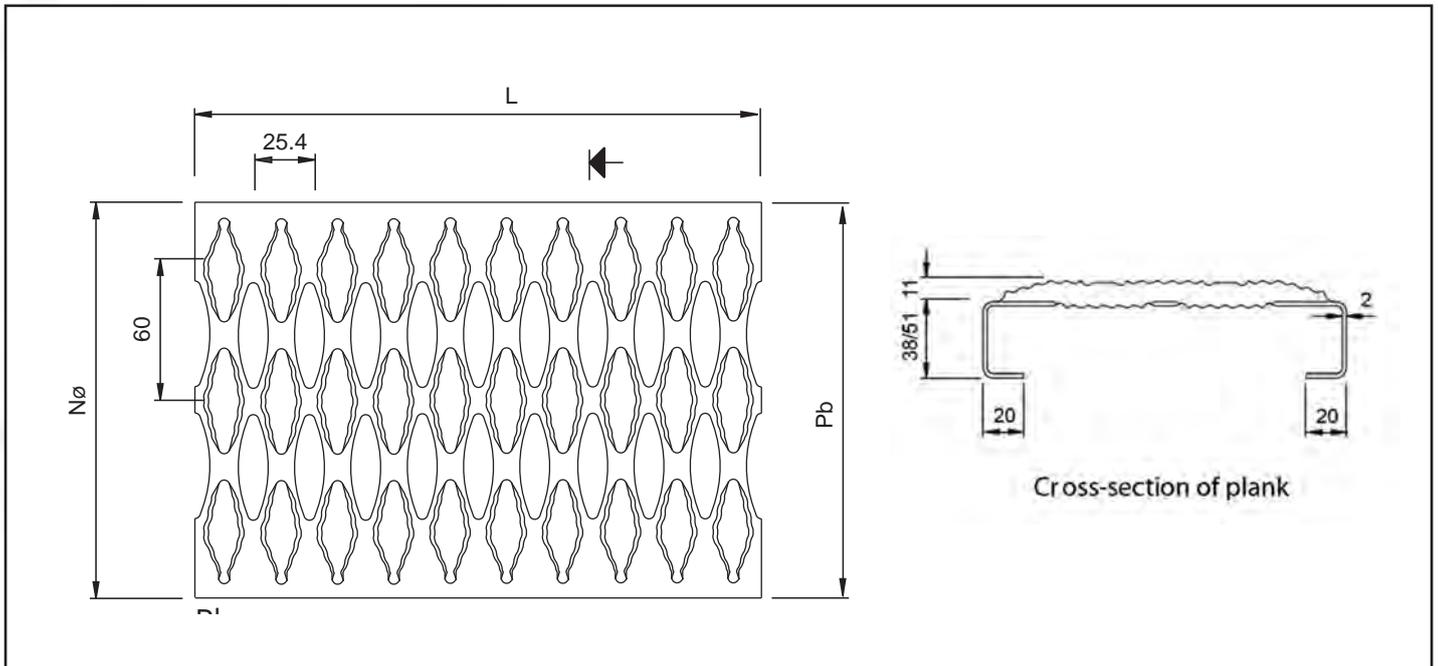
Can be used individually or mechanically fixed together for increased loadings.

Applications

Type USA is very common within the oil, marine, HGV and agricultural industries, owing to its high slip resistance.



Type USA



Materials:

Carbon Steel Grade S235JRG2

(240 Yield) (available finish 1)

Pre Galvanised Steel 275Z

(mill finish)

Stainless Steel Grade to BS EN 1.4301 & 1.4404

(mill finish)

Aluminium

(3mm thick only) (mill finish)

Finish:

1 Hot Dipped Galvanised to
BS EN 1461:2009

Plank Sizes: Widths:

120, 180, 240, 300, 360 & 420mm, in 2mm thick

Plank Heights:

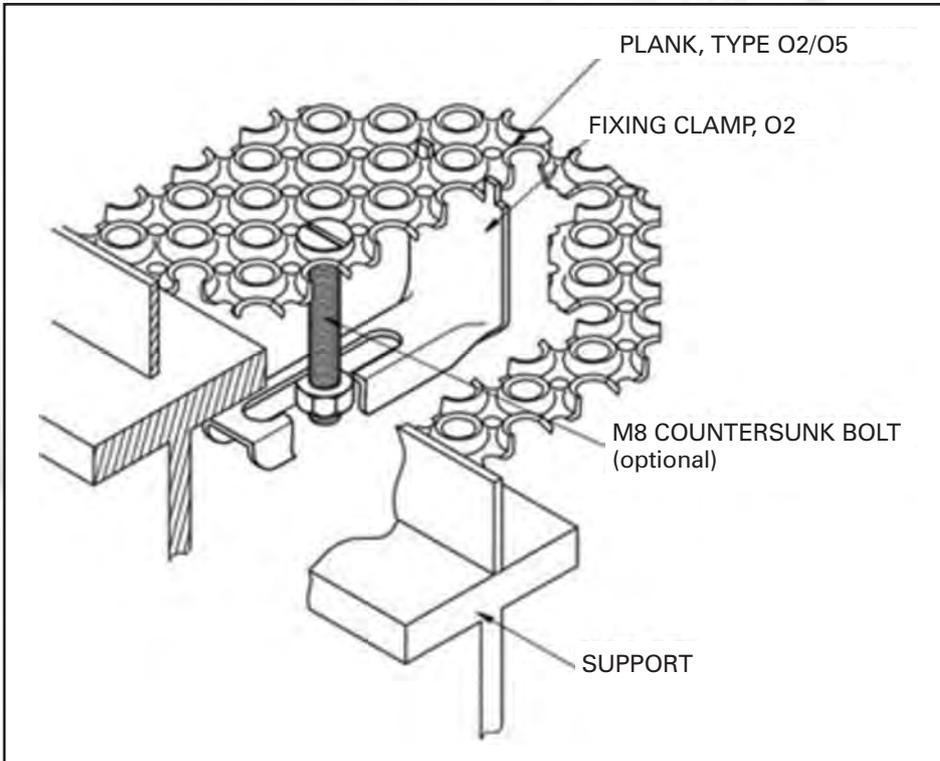
38mm & 51mm

Notes:

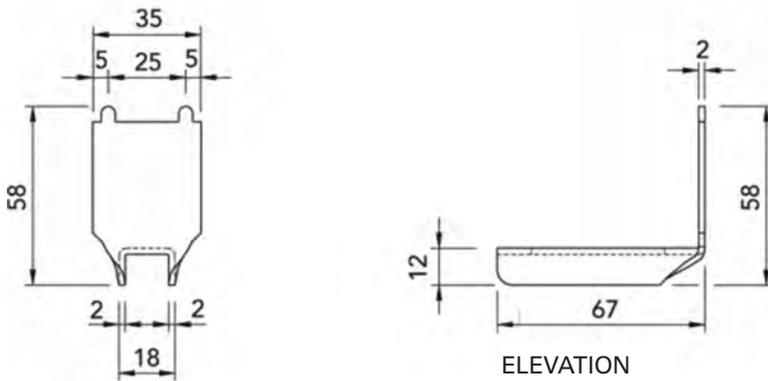
Plank widths/heights are specified to suit the application and intended use.
Please Contact for further advice.

Planks Fixing Information

Fixing clip assembly for Planks Type O2/O5

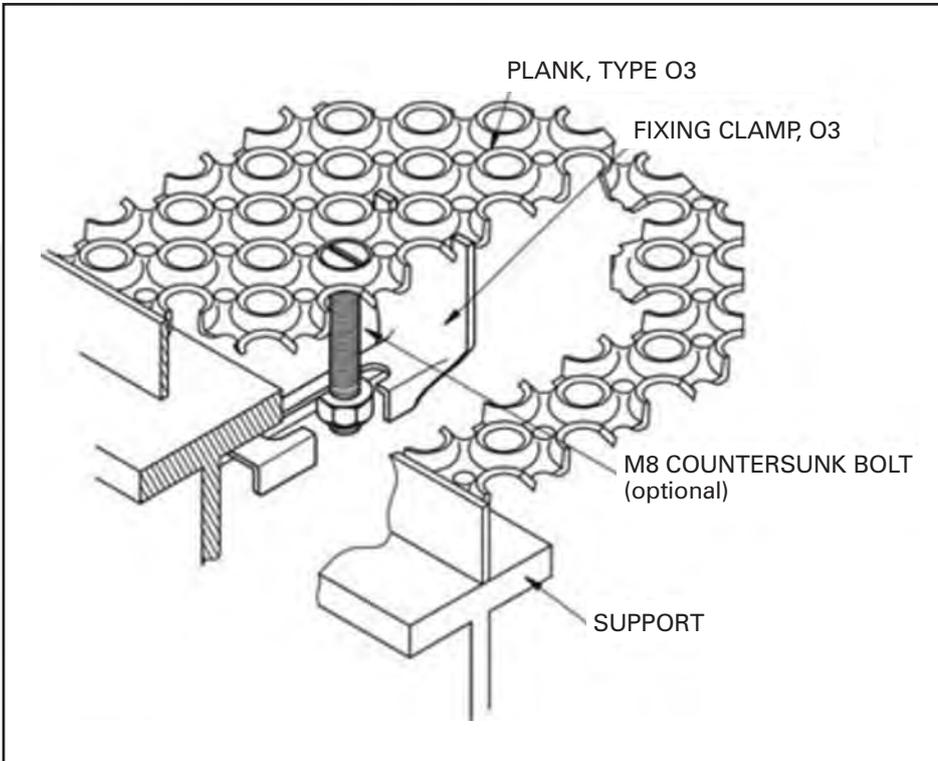


Detail of clamp Type O2/O5

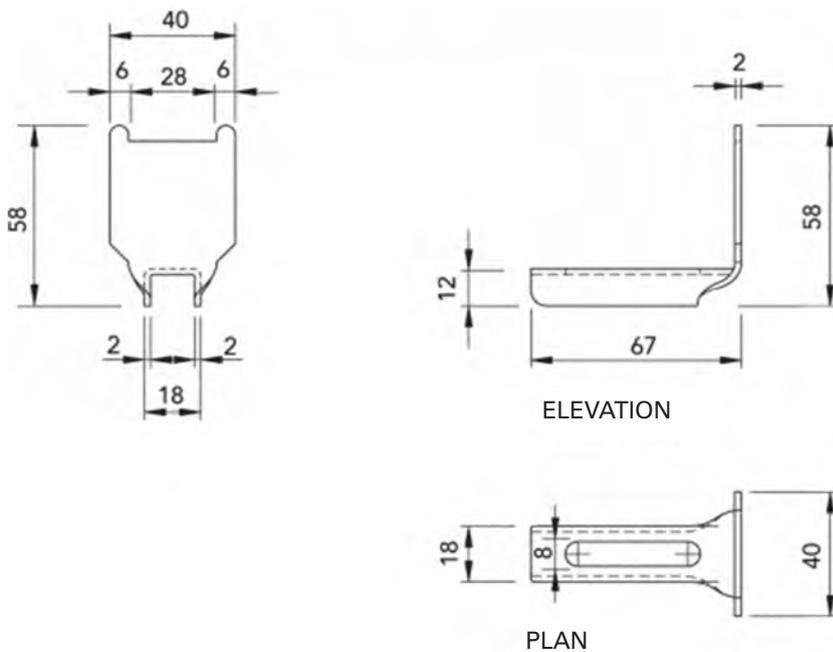


All dimensions in mm

Fixing clip assembly for Planks Type O3



Detail of clamp Type O3



All dimensions in mm

Stair Treads

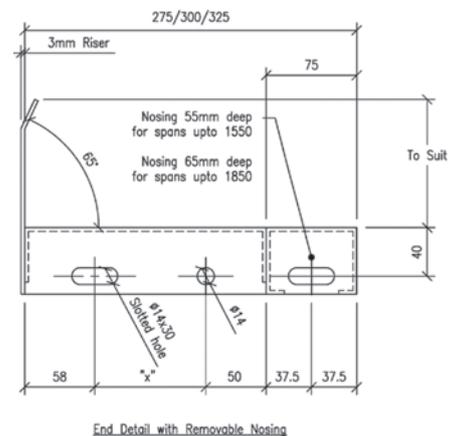
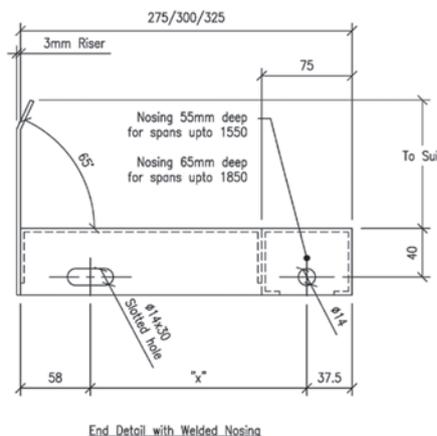
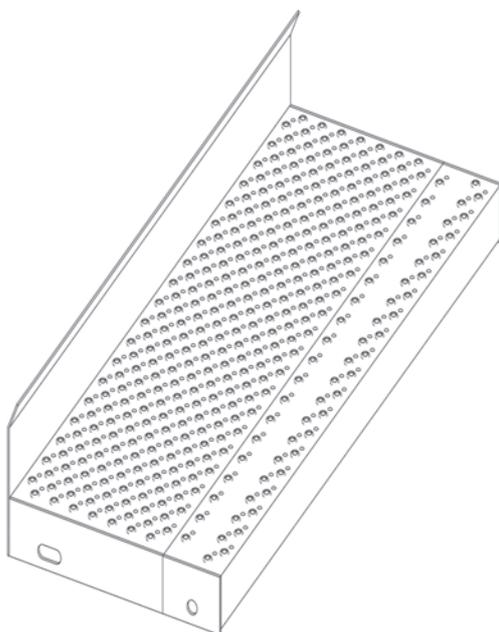
Type O5-M



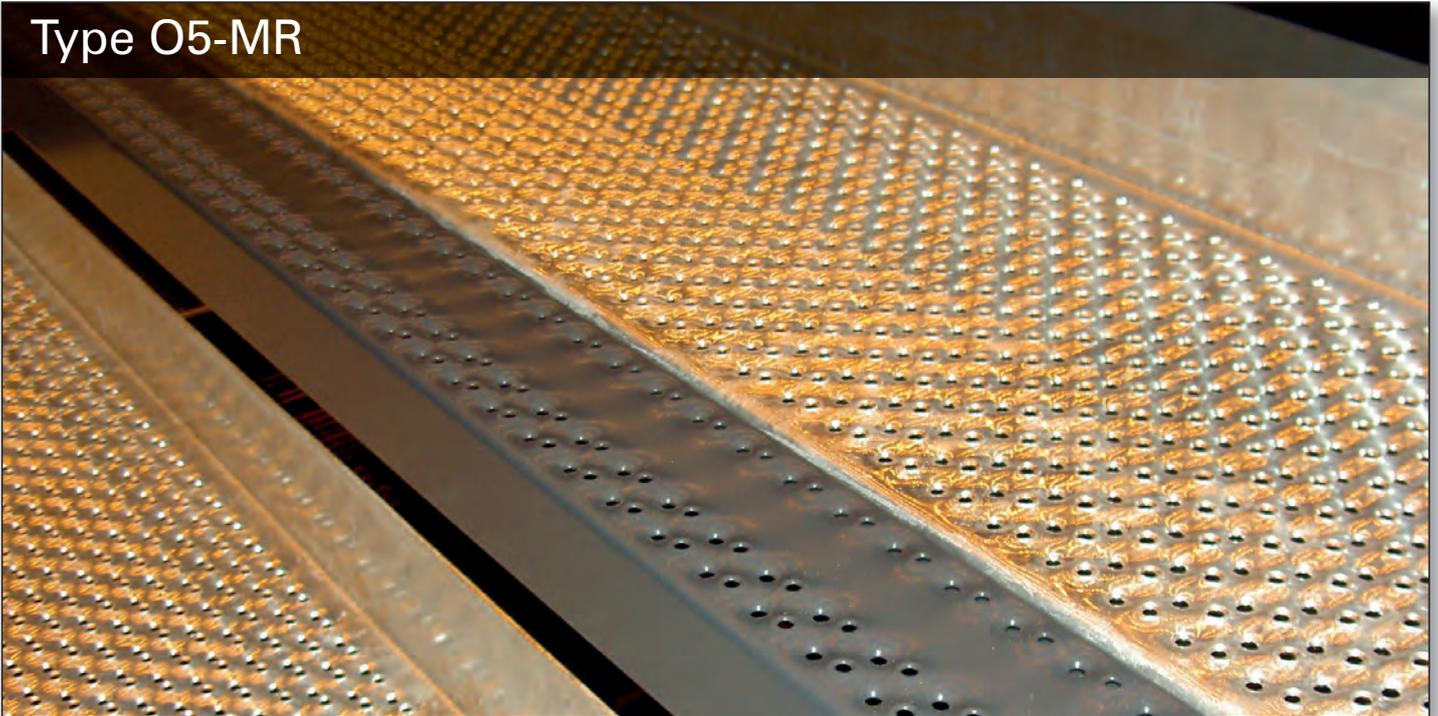
Bespoke Stair tread available with or without a removable nosing & riser plate. Manufactured from the O5 plank pattern which benefits from 5mm dia raised/depressed holes providing a stiletto proof, non-slip surface (PTV79); ideal for public & institutional type buildings.

Applications

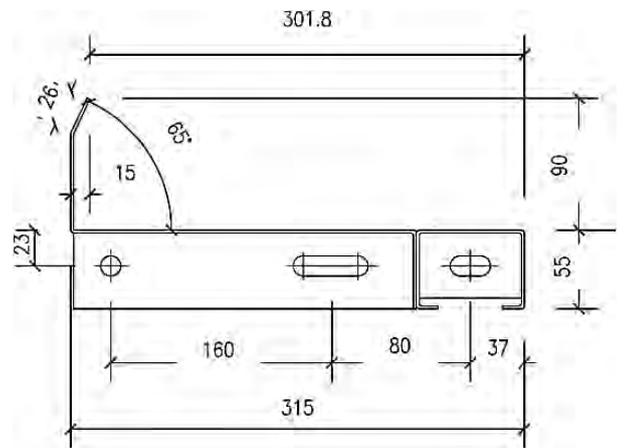
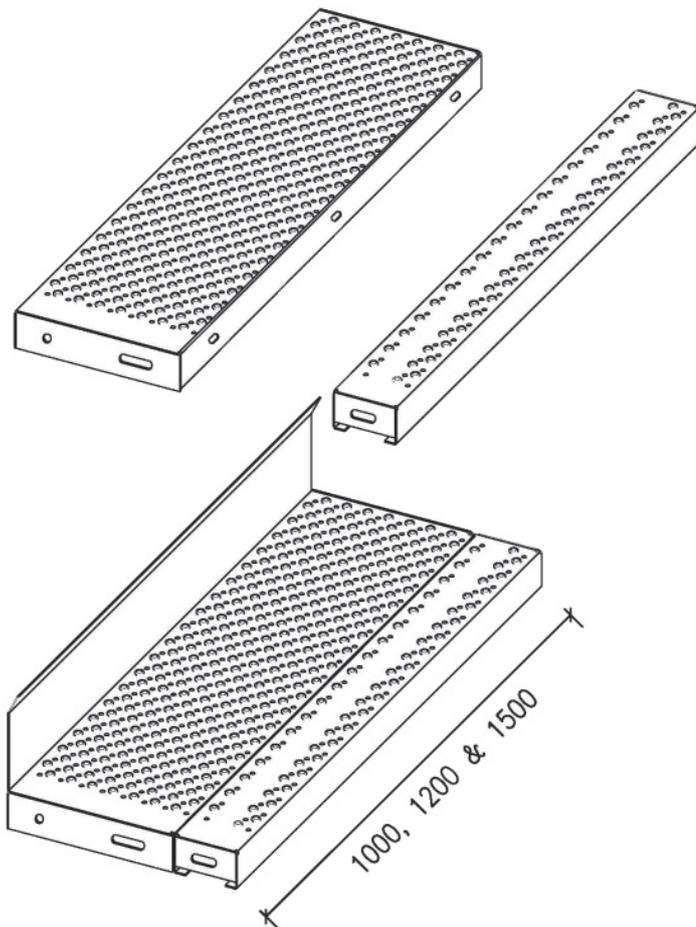
Fire Escapes, Secondary & Main Staircases requiring BS8300 or Part M building regulation compliance. Schools, Universities, Commercial, Industrial & Institutional areas. Landings and walkways are manufactured from the standard O5 planks welded together into modules ready for fitting.



Type O5-MR



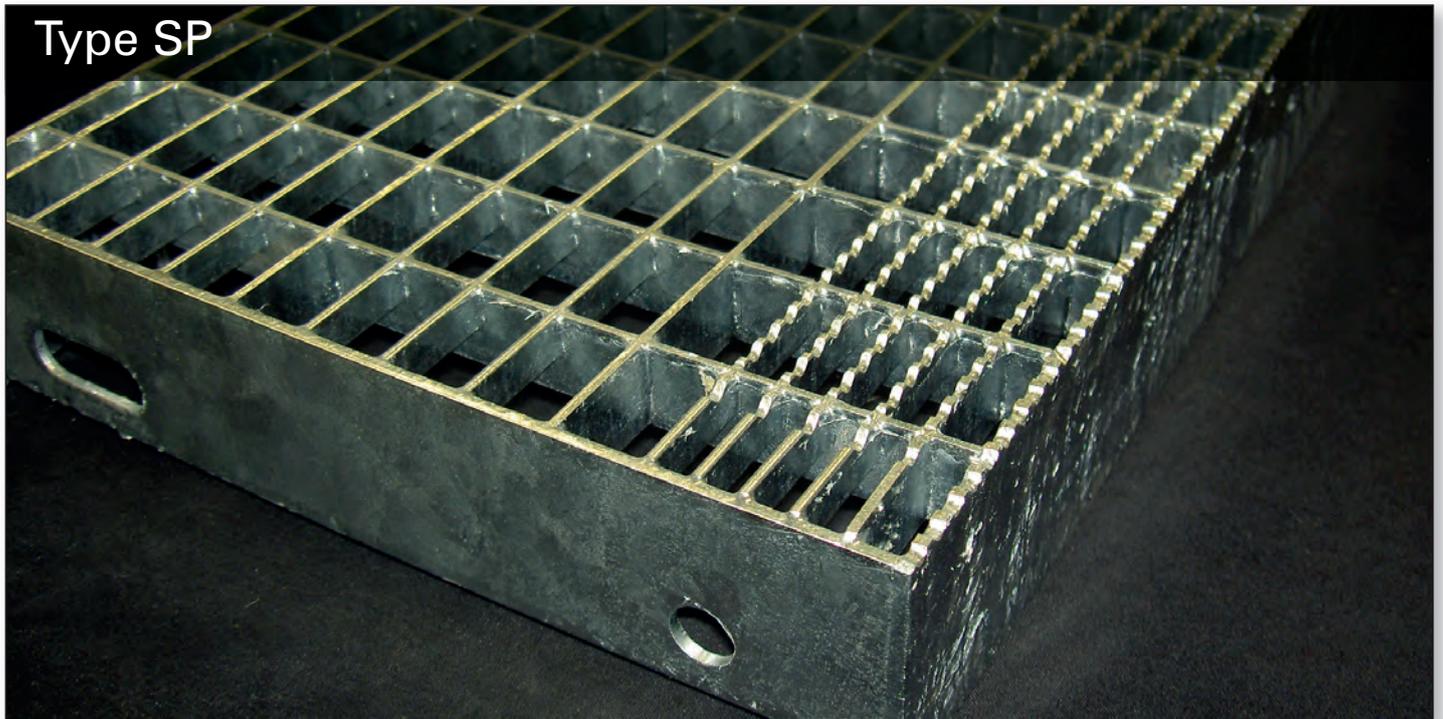
Stock Stair tread with or without rear riser in 3 standard sizes. Formed from 2mm thick Galvanised Steel with the O5 pattern providing stiletto proof non-slip surface (PTV79).



O5-Mr Available with or without a riser

▶ For Stock Information see page 49

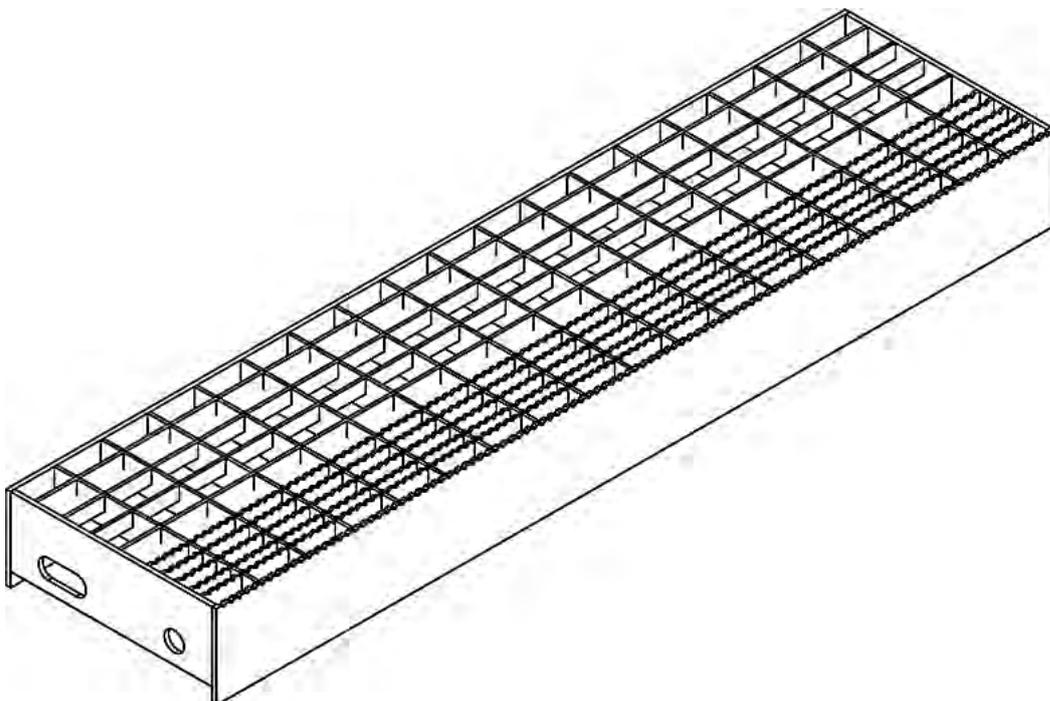
Stair Treads



Based on the standard Type SP Grating, made to order or supplied from stock, comprising of flat bars running perpendicular to each other at 90 degrees. Can be manufactured in any size and mesh configuration to suit the application. Standard stock treads available.

Applications

Industrial, Agricultural & Private staircases requiring a robust open mesh configuration.



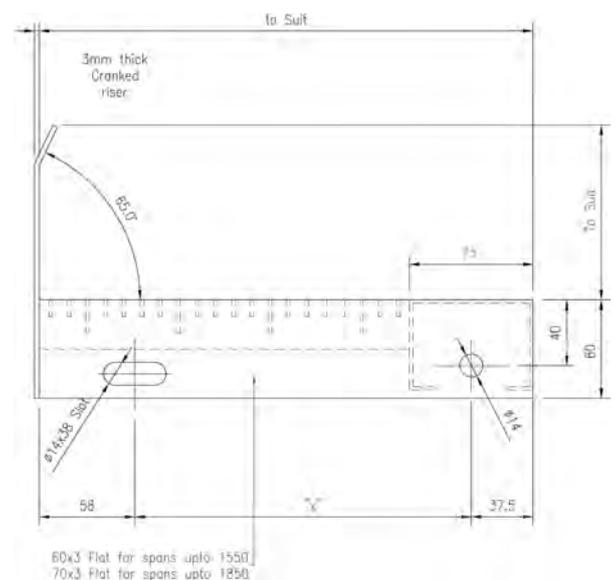
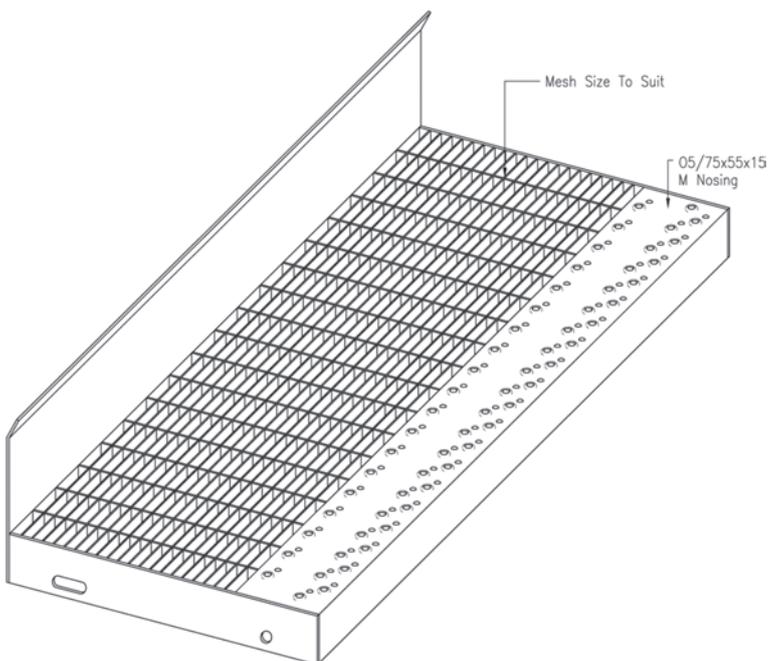
▶ For Stock Information see page 49



Based on the standard type SP but with the addition of the O5-M Nosing, providing visual contrast as well as higher performance loading and non slip results. This enable a colour contrast to be applied to the nosing where applicable.

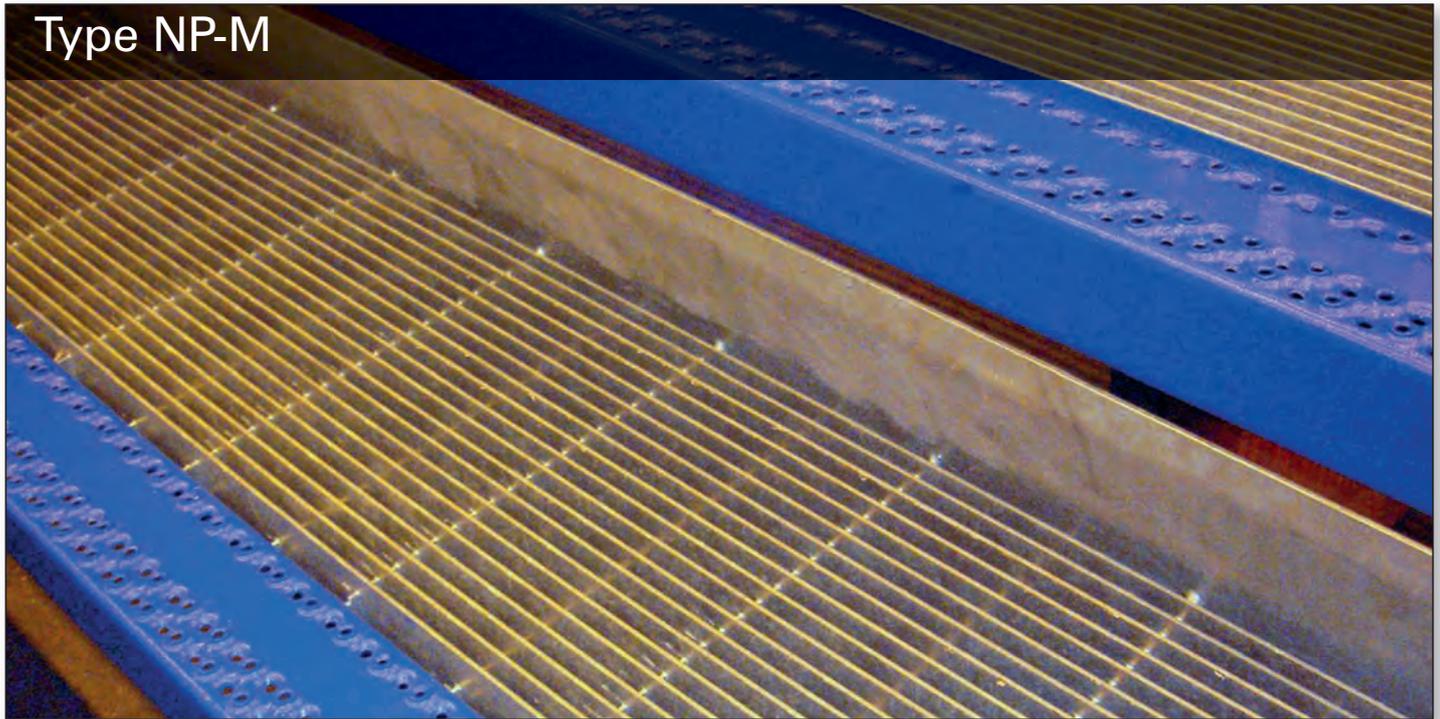
Applications

Maintenance/Industrial stairs.



Type SP-M Bespoke Tread

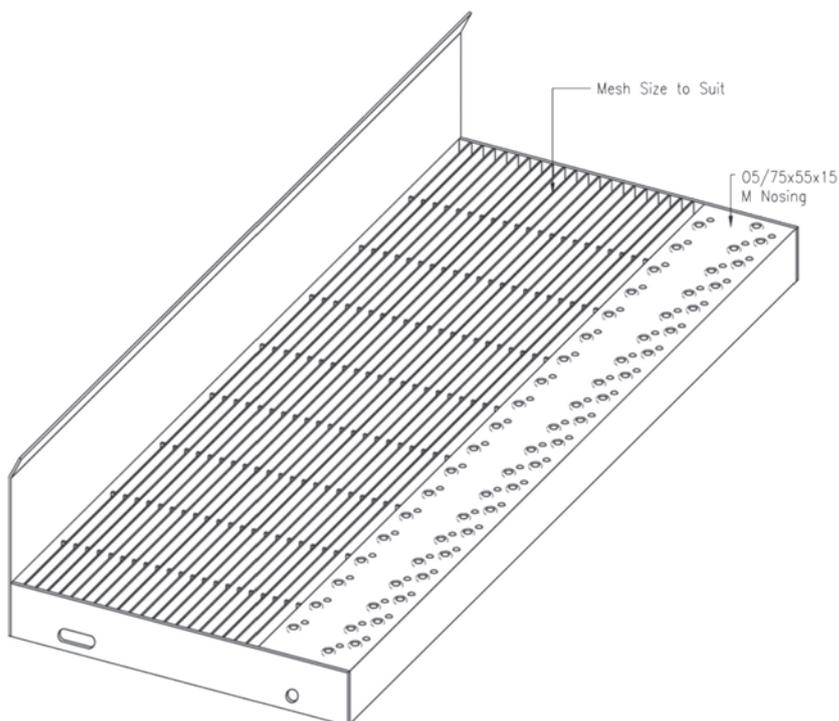
Stair Treads



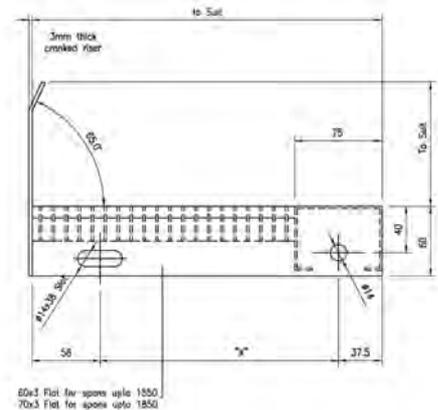
Similar to the SP-M only replacing the grating element with the Type NP thus giving a linear look tread with the added benefit of a non slip nosing that can be colour contrasted where applicable.

Applications

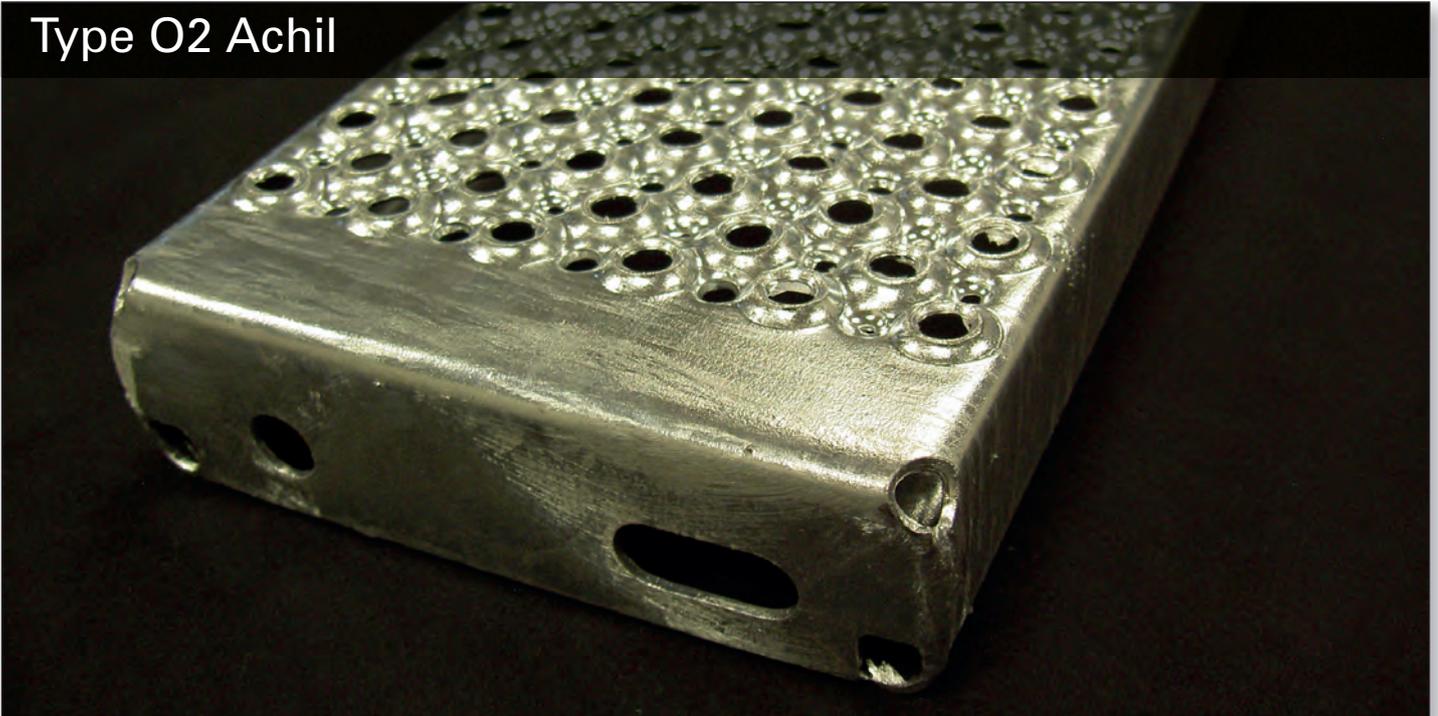
Maintenance/Industrial stairs.



Type NP-M Bespoke Tread



Type O2 Achil

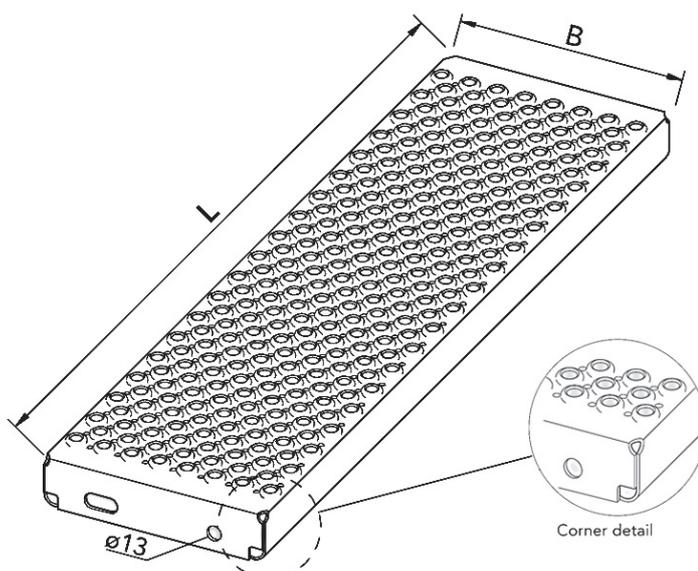


Based on the standard O2 pattern with 9mm dia raised holes & 5mm diameter depressed holes. The O2 "Achil" benefits from a rolled front/rear edge that increases strength and protects the Achilles tendon by preventing footwear from catching in use.

Type "O2 Achil" is available in Galvanised Steel standard stock sizes.

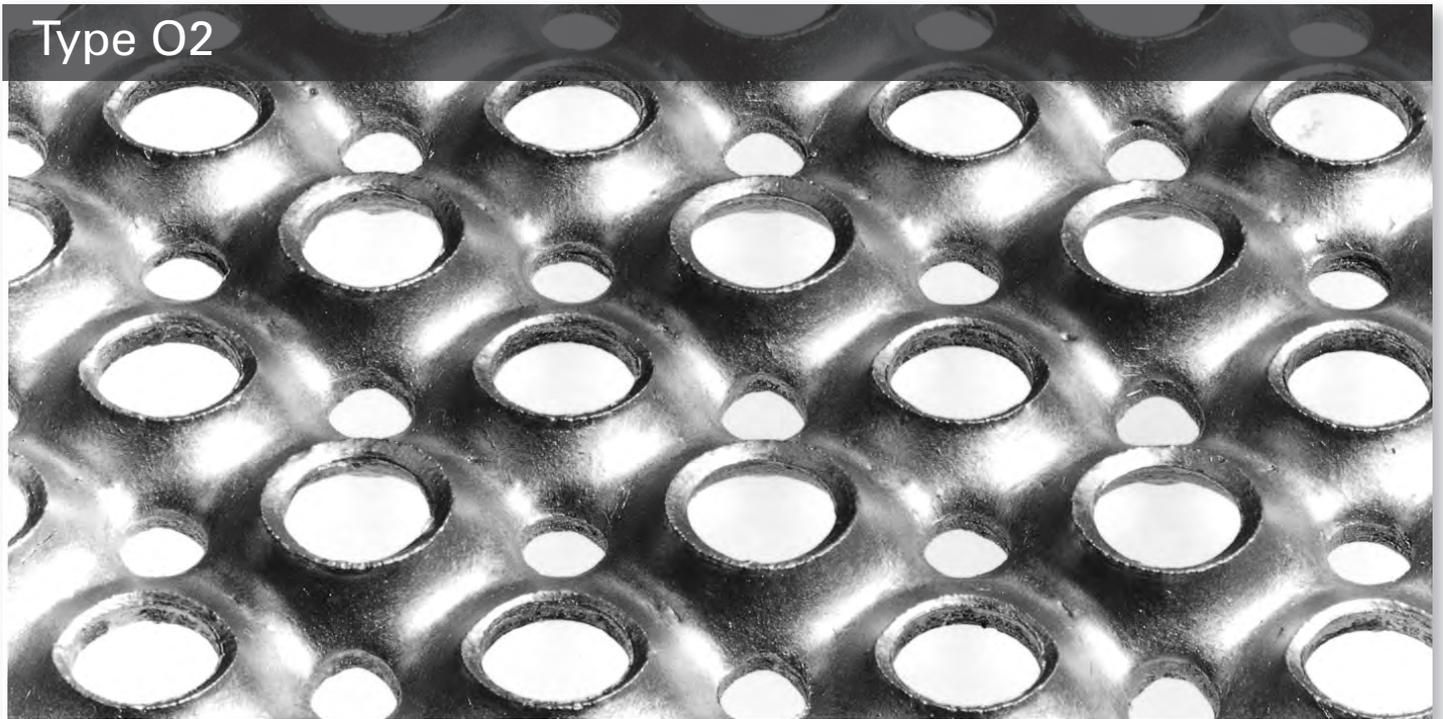
Applications

Industrial, commercial & private staircases. The O2 Achil can also be used to make small landings on straight flights, by utilising standard sizes to suit the area.



Isometric view of stair tread type O2-Achil®

▶ For Stock Information see page 50

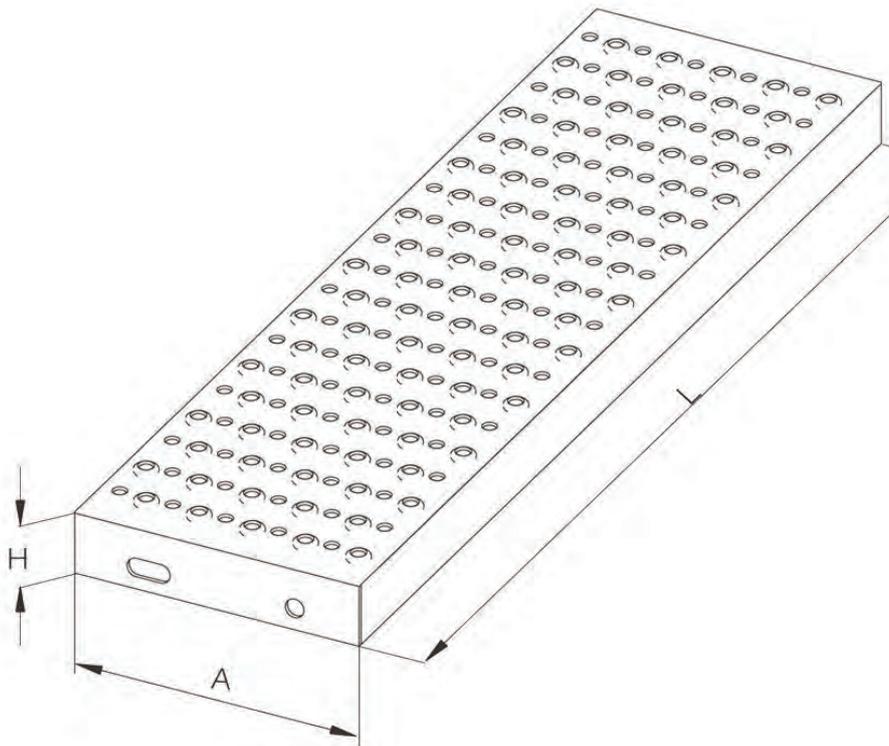


Based on the O2 pattern and similar to the "Achil" only without the rolled edges as its based on a standard plank profile.

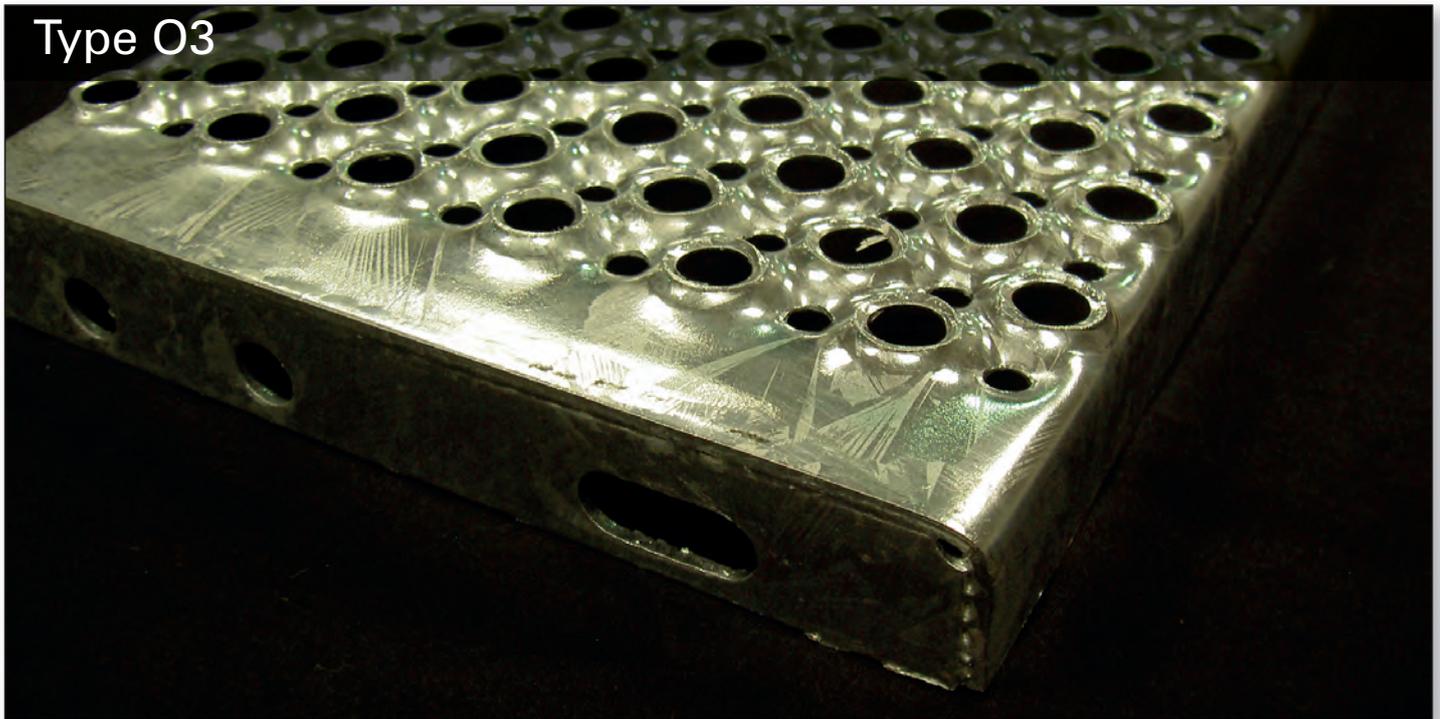
The O2 is available ex stock in Stainless Steel or bespoke in either Carbon Steel or Stainless Steel.

Applications

Industrial, commercial or private staircases.



▶ For Stock Information see page 50



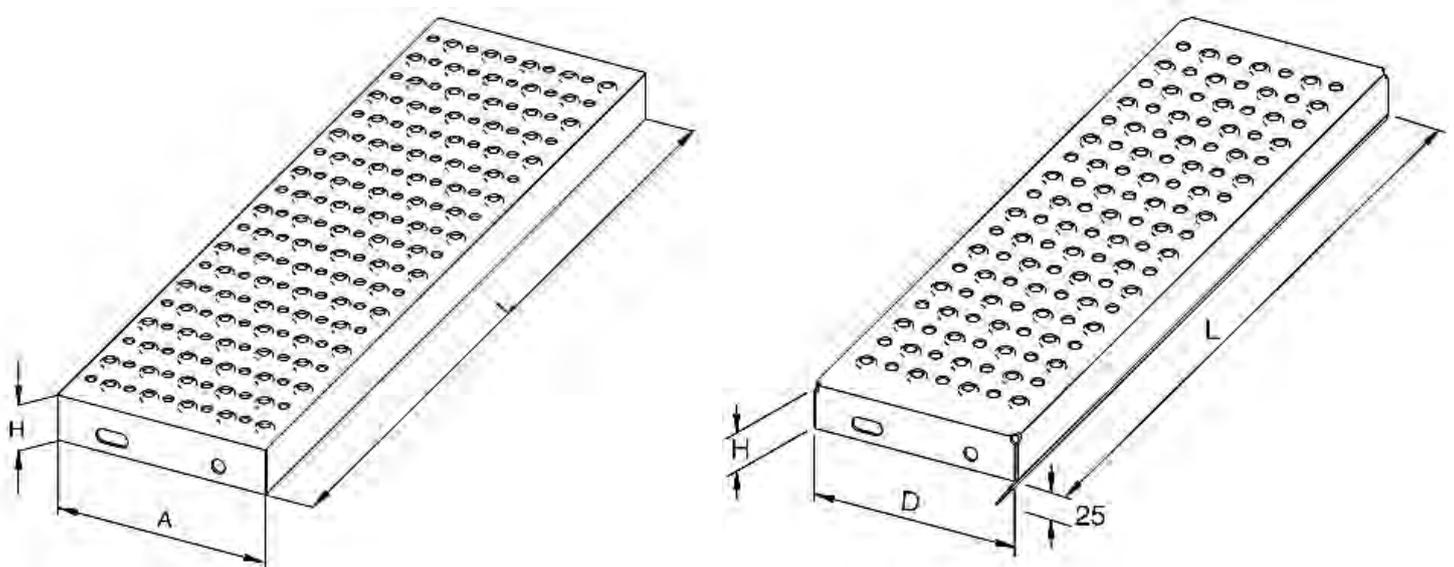
Type O3

Based on the O3 pattern with 14mm dia raised holes and 9mm depressed holes. The O3 stair tread provides excellent non slip properties and is best suited to more industrial applications owing to the increased hole sizes.

Manufactured and stock in standard sizes as below or can be specially made to order to suit requirements. Please state loading criteria or application when enquiring/ordering to ensure the item is suitable.

Applications

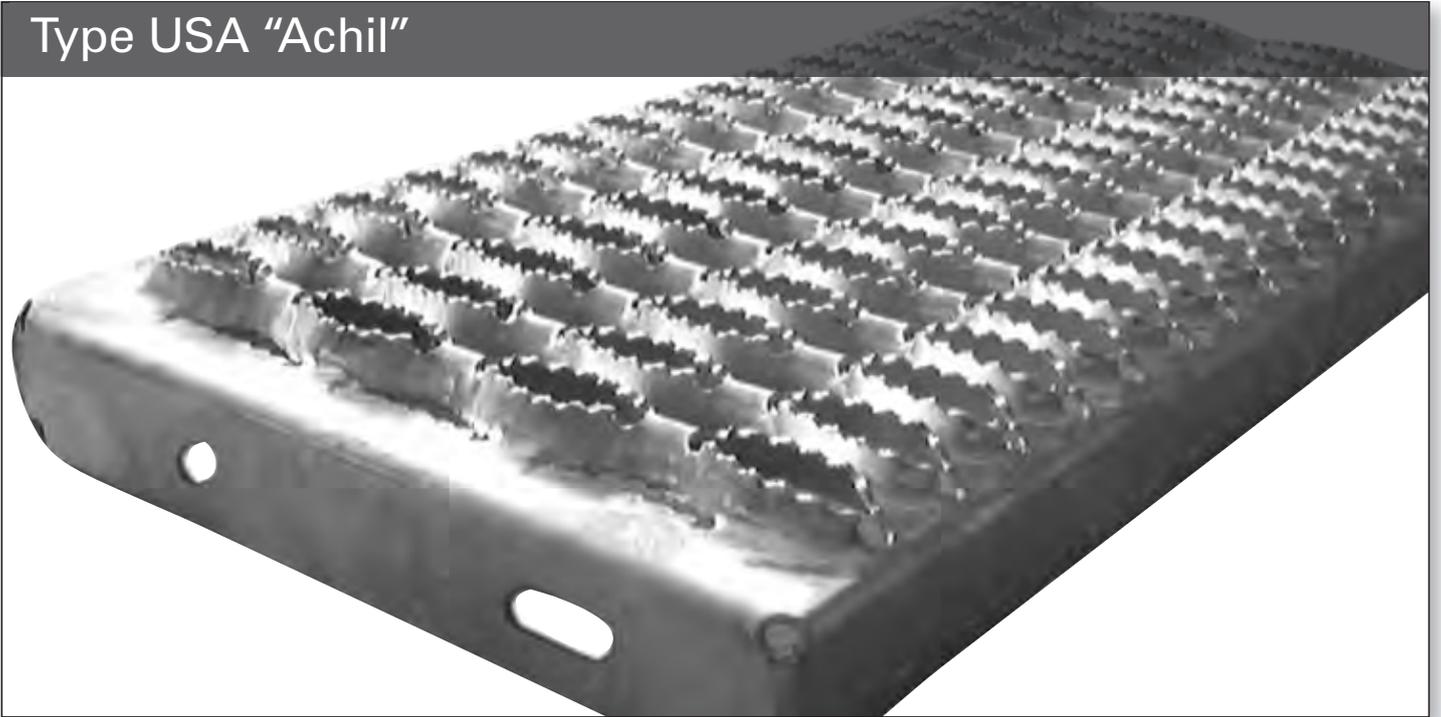
Primarily used as flooring and available in a variety of mesh sizes (apertures); Suitable for public, industrial, domestic and vehicular applications.



 For Stock Information see page 51

Stair Treads

Type USA "Achil"

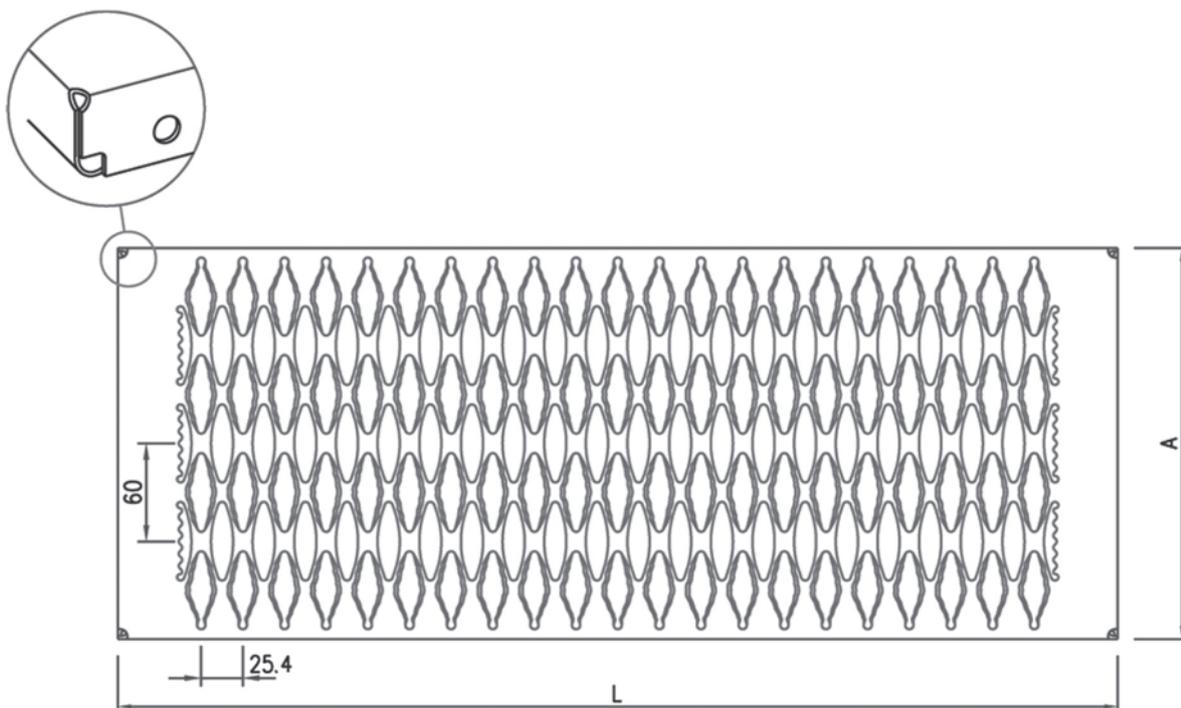


Based on the Type USA Pattern but with a rolled front/rear edge to protect the Achilles tendon and to ensure maximum strength from the material.

Available in standard sizes as listed below or can be specially manufactured to suit requirements.

Applications

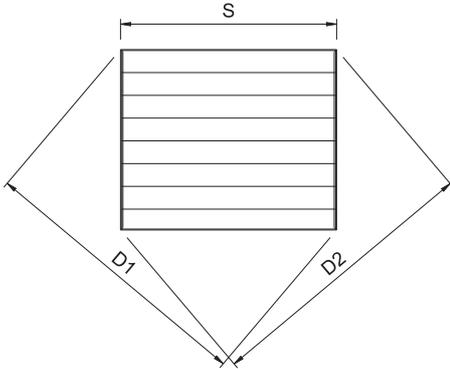
Heavy industrial areas, Oil Platforms, HGV.



▶ For Stock Information see page 51

Tolerances for perforated planks

Diagonal measure (cross measure)



Standard tolerances for planks

This sheet of tolerances applies to plank modules with the following specifications:

Height max. 70mm

Plank element width max. 333 mm and min. 50mm

Grating size max. 2.0 m², where one side measure does not exceed 2000 mm.

The difference between D1 and D2 must not exceed:

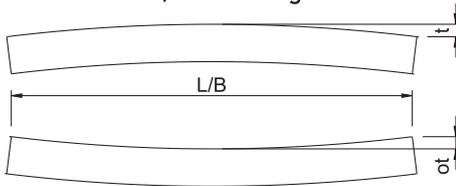
$$\pm D1 - D2 \leq 0,012 \times S$$

D1 : Diagonal measure 1

Where: D2 : Diagonal measure 2

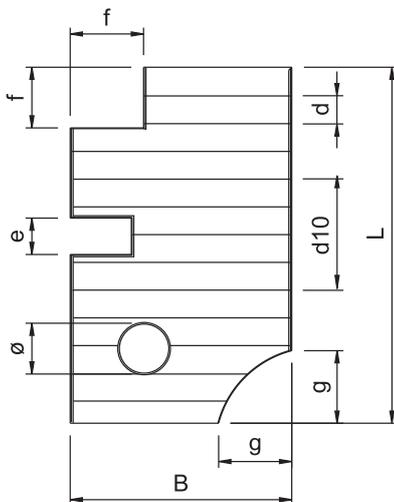
S : Largest side measure

Radian measure, width & length



Largest side measure	Max. D1-D2
200	2,4 mm
400	4,8 mm
600	7,2 mm
800	9,6 mm
1000	12,0 mm
1500	18,0 mm
2000	24,0 mm

Side, cut-out & mesh measures



For L/B > 450 mm: 1/150 x L/B, yet max. 8,0 mm

For L/B 450 mm: max. 3,0 mm

For L/B > 600 mm: 1/200 x L/B, yet max. 8,0 mm

For L/B 600 mm: max. 3,0 mm

L & B : +0 / -4 mm

d : ± 1,5 mm

d10 : ± 4,0 mm (over 10 meshes)

f, e, g, Ø : +8 / -0 mm

Smaller/other tolerances may be applied on request.

Tolerances for pressure-welded gratings

General Dimensional Tolerances for pressure-welded gratings

General details:

The tolerance limits apply to the pressure-welded only. These are for guidance only and should you require a specific tolerance, please state this at time of enquiry/order.

Tolerances, exterior dimensions:

Length/Width	Tolerance
Gratings of length/width = 1000 mm	+0 /-3 mm
Gratings of length/width > 1000 = 2200 mm	+0 /-4 mm
Frames and frame parts	+3 /-1 mm

Height	Tolerance
Gratings	+1,5 /-0,5 mm
Frames	+1 /-1 mm
Stair treads	+3 /-1 mm

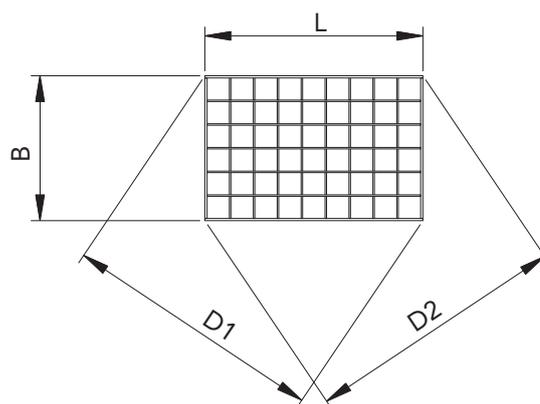
Max. deviation on diagonal dimensions	
Largest side dimension	Max. D1-D2
200 mm	2,0 mm
400 mm	3,0 mm
600 mm	4,0 mm
800 mm	5,0 mm
1000 mm	6,0 mm
1500 mm	8,0 mm
2000 mm	12,0 mm

Diagonal dimensions (diagonal measurement) for gratings and frames:

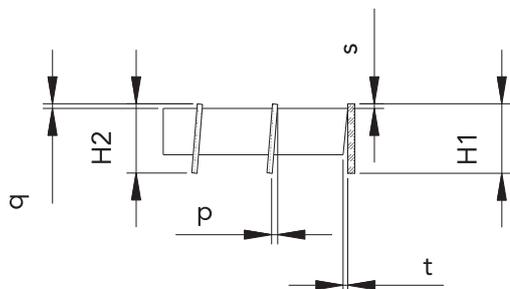
D1 = Diagonal dimension 1

D2 = Diagonal dimension 2

L/B = Largest side dimension



Diagonal dimensions (diagonal measurement)



Tolerances, bars and edge bar:

Inclination, bars/edge bar: p max. = 0,1 x H2, but max. 3 mm

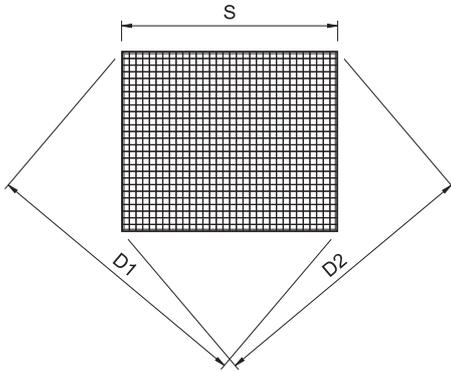
Difference in height for bars: q max. = 1 mm

Difference in height for bars and edge bar: s max. = ± 1 mm

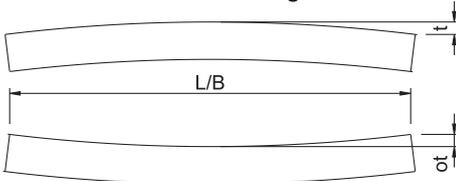
Distance from bars to edge bar: t max. = 1,5 mm

Tolerances for pressure-locked gratings

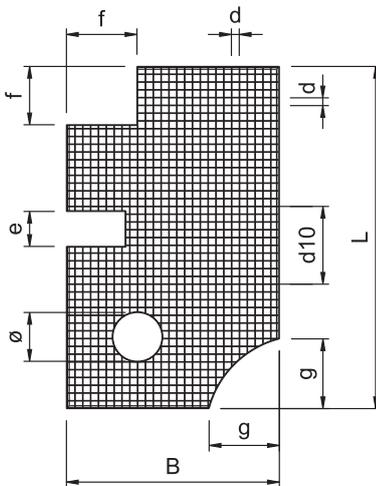
Diagonal measure (cross measure)



Radian measure, width & length



Side, cut-out & mesh measures



Technical

Tolerance for pressure-locked gratings

Standard tolerances for mesh gratings

This sheet of tolerances applies to pressure-locked mesh gratings with the following specifications:

Bearing bars 60 x 5 mm

Mesh size max. 66 mm and min. 11 mm

Grating size max. 2.0 m², where one side measure does not exceed 2000 mm.

The difference between D1 and D2 must not exceed:

$$\pm D1 - D2 \leq 0,012 \times S$$

D1 : Diagonal measure 1

D2 : Diagonal measure 2

S : Largest side measure

Where:

Largest side measure	Max. D1-D2
200	2,4 mm
400	4,8 mm
600	7,2 mm
800	9,6 mm
1000	12,0 mm
1500	18,0 mm
2000	24,0 mm

For L/B > 450 mm: 1/150 x L/B, yet max. 8,0 mm

For L/B ≤ 450 mm: max. 3,0 mm

For L/B > 600 mm: 1/200 x L/B, yet max. 8,0 mm

For L/B ≤ 600 mm: max. 3,0 mm

L & B : +0 / -4 mm

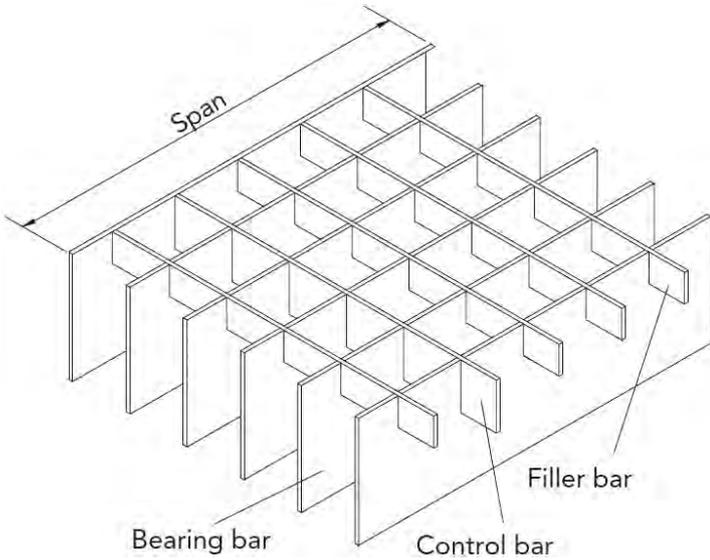
d : ± 1,5 mm

d10 : ± 4,0 mm (over 10 meshes)

f, e, g, Ø : +8 / -0 mm

Smaller/other tolerances may be applied on request.

Gratings Type SP (ex stock 2/3 days, subject to availability at time of order)

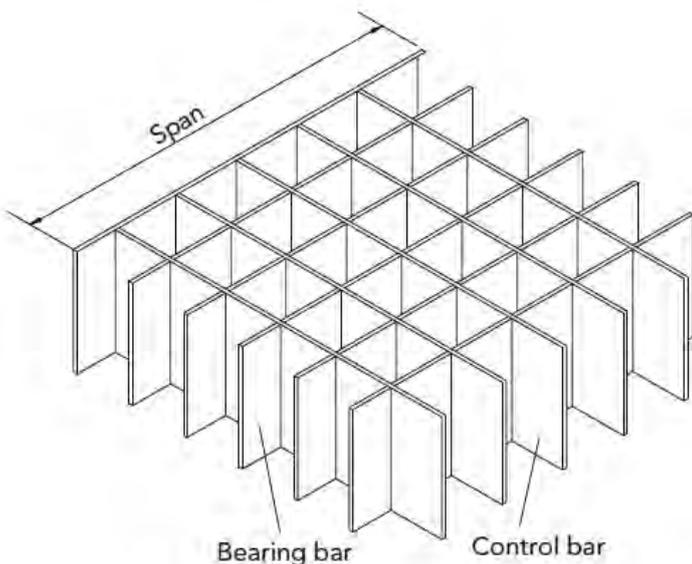


Galvanised Grating Panels "Type SP"					
Galvanised Carbon Steel to BS EN 1461:2009					
(Individual loading details available on request for each item)					
Bars mm	Span mm	Length mm	Mesh		
			30x30mm	15x30mm	9x30mm
Item Stock Codes					
20x2	500	1000			10100
	600	1000			10120
25x2	400	1000	10950		
	500	1000	11000	10350	
	500	1500	11050	10400	
	600	1000	11100	10450	
	600	1500	11150	10500	
	700	1000	11200	10550	
	700	1500	11250	10600	
	800	1000	11300	10650	10150
	800	1500	11350	10700	
	900	1000	11400	10750	
30x2	900	1500	11450	10800	
	1000	1000	11500	10850	10200
	1000	1500	11550	10900	10210
	1200	1000	11720		

Self Colour Grating Panels "Type SP"					
Carbon Steel - Mill Finish					
No edge bars, ready for fabrication					
Bars mm	Span mm	Length mm	Mesh		
			30x30mm	20x30mm	9x30mm
Item Stock Codes					
25x2	1000	1000	11740		10250
	1000	1500		11730	10300
	1000	2000	11750		
30x2	1000	1000	11790		
	1000	2000	11800		
	1200	2000	11850		

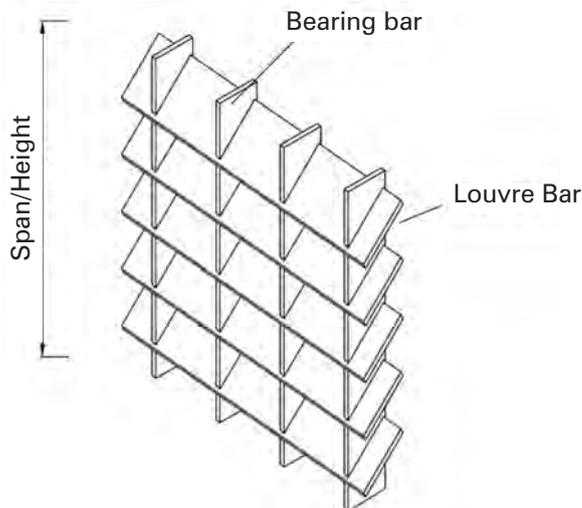
Stainless Steel Grating Panels "Type SP"					
Stainless Steel Grade BS EN 1.4301 (304) Mill Finish					
No edge bars, ready for fabrication					
Bars mm	Span mm	Length mm	Mesh		
			30x30mm		
Item Stock Codes					
25x2	1000	1000	30100		
	1000	2000	30150		
30x2	1000	1000	30200		
	1000	2000	30250		

Gratings Type N (ex stock 2/3 days, subject to availability at time of order)



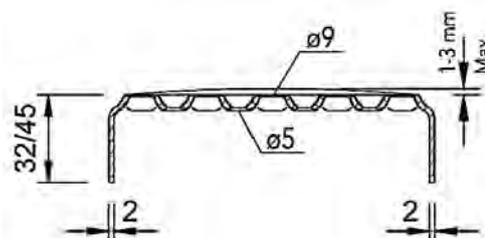
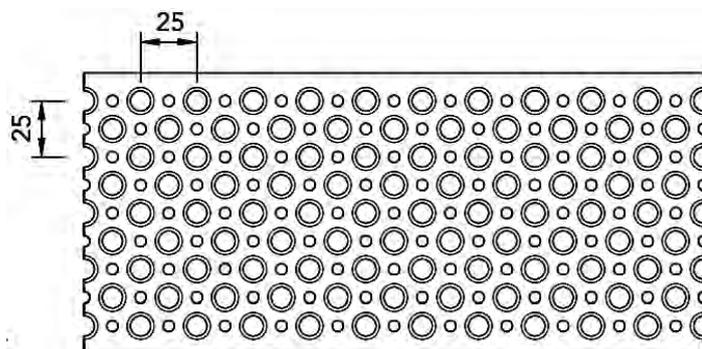
Self Colour Grating Panels "Type N"					
Carbon Steel - Mill Finish					
No edge bars, ready for fabrication					
Bars mm	Span mm	Length mm	Mesh		
			30x30mm	97x37mm	
Item Stock Codes					
25x2	1100	1200	12450		
25x3	1100	1500		12400	

Gratings Louvre (ex stock 2/3 days, subject to availability at time of order)



Self Colour "Louvre" Grilles						
Carbon Steel - Mill Finish						
No edge bars, ready for fabrication						
Vertical Bars	45° Louvre Bars	Span/Height	Width	Type	Mesh	
					20x60mm	50x80mm
mm	mm	mm	mm		Item Stock Codes	
20x2	30x2mm	2000	1200	Closed	11890	
30x2	50x2mm	2000	1200	Open		11895

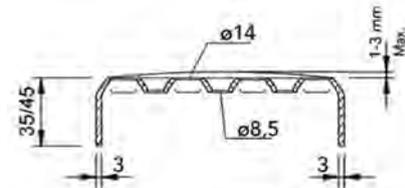
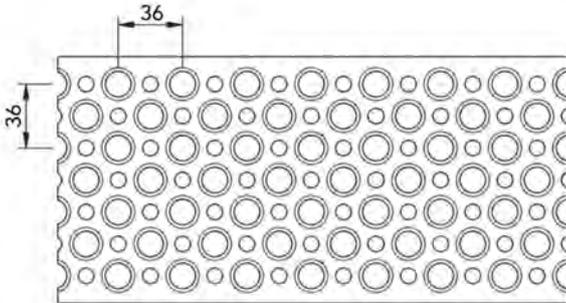
Planks Type O2 (ex stock 2/3 days, subject to availability at time of order)



Perforated Planks Type "O2"			
2mm thick Carbon Steel			
9mm dia raised hole, 5mm dia depressed hole (Average Wet PTV50)			
(Contact sales for information on loading)			
Mill Finish or Hot Dip Galvanised to BS EN 1461:2009			
Item Codes	Width/Depth	Length	Weight
	mm	mm	Kgs/each
22350	30/30	2100	2.52
22400	50/32	6000	8.76
22450	62/32	6000	9.78
22500	75/32	6000	10.98
22550	87/32	6000	12.18
22600	100/32	6000	13.38
22650	112/32	6000	14.58
22700	125/32	6000	15.78
22750	137/32	6000	16.98
22800	150/32	6000	18.18
22850	200/32	6000	20.28
22805	100/45	3000	9.00
22810	150/45	3000	9.40
22900	200/45	3000	11.31
22950	225/45	3000	12.27
23000	250/45	3000	13.23
23050	275/45	3000	14.19
23100	300/45	3000	15.15

Perforated Planks Type "O2"			
2mm thick Stainless Steel to BS EN 1.4301 (304) Mill Finish			
9mm dia raised hole, 5mm dia depressed hole (Average Wet PTV50)			
(Contact sales for information on loading)			
Item Codes	Width/Depth	Length	Weight
	mm	mm	Kgs/each
23310	30/30	2100	2.52
23320	50/32	3000	4.41
23330	62/32	3000	4.89
23350	75/32	3000	5.40
23400	87/32	3000	5.79
23450	100/32	3000	6.39
23500	112/32	3000	6.81
23550	125/32	3000	7.29
23600	137/32	3000	7.80
23650	150/32	3000	8.31
23700	200/32	3000	10.11
23660	150/45	3000	9.40
23750	200/45	3000	11.31
23800	225/45	3000	12.27
23850	250/45	3000	13.23
23900	275/45	3000	14.19
23910	300/45	3000	15.15

Perforated Planks Type O3 (ex stock 2/3 days, subject to availability at time of order)



Cross-section of plank

Perforated Planks Type "O3"

3mm thick Carbon Steel

14mm dia raised hole, 9mm dia depressed hole (Average Wet PTV51)
(Contact sales for information on loading)

Mill Finish or Hot Dip Galvanised to BS EN 1461:2009

Item Codes	Width/Depth	Length	Weight
	mm		
23950	63/35	6000	14.58
24000	81/35	6000	16.56
24050	99/35	6000	18.03
24100	117/35	6000	19.90
24150	135/35	6000	21.78
24200	153/35	6000	23.64
24250	171/35	6000	25.54
24300	189/35	6000	27.42
24350	207/35	6000	29.30
24400	225/35	6000	31.18
24450	243/35	6000	33.05
24500	261/35	6000	34.93
24550	333/35	6000	42.42

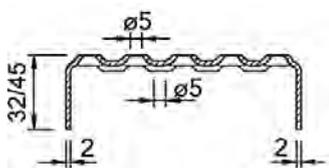
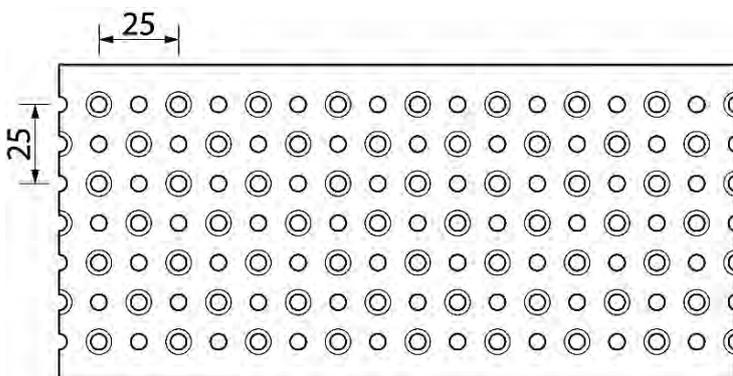
Perforated Planks Type "O3"

3mm thick Aluminium - Mill Finish

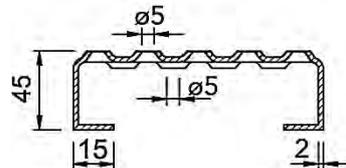
14mm dia raised hole, 9mm dia depressed hole (Average Wet PTV51)
(Contact sales for information on loading)

Item Codes	Width/Depth	Length	Weight
	mm		
24600	100/45	6000	8.82
24650	150/45	6000	10.92
24700	200/45	6000	12.78

Perforated Planks Type O5 (ex stock 2/3 days, subject to availability at time of order)



Cross-section of plank



Cross-section of plank

Perforated Planks Type "O5"

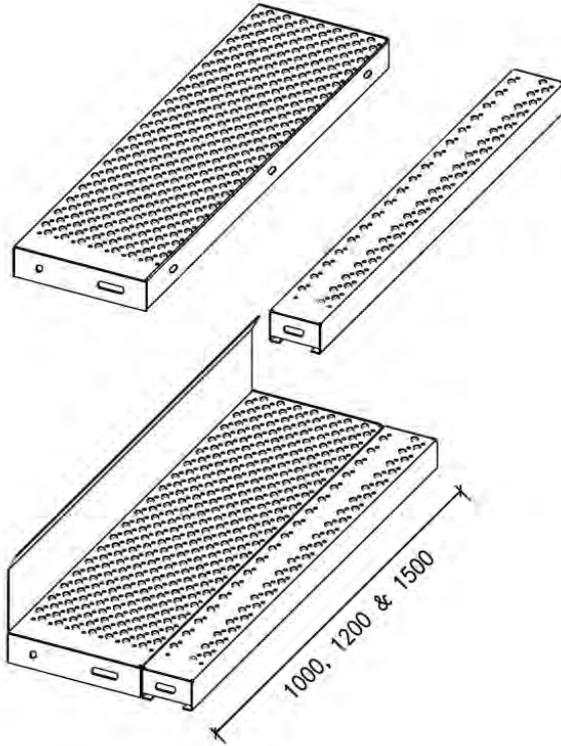
2mm thick Carbon Steel

5mm dia raised hole, 5mm dia depressed hole (Average Wet PTV79)
(Contact sales for information on loading)

Mill Finish or Hot Dip Galvanised to BS EN 1461:2009

Length	Width/Depth	Return Fold	Weight
mm	mm	mm	Kgs/each
6000	50/32	-	7.98
6000	62/32	-	9.90
6000	75/32	-	12.00
6000	87/32	-	12.78
6000	100/32	-	14.04
6000	112/32	-	15.30
6000	125/32	-	16.56
6000	137/32	-	17.82
6000	150/32	-	19.08
3600	200/45	-	11.50
3600	225/45	-	12.50
3600	250/45	-	13.50
3000	275/45	-	14.80
3000	300/45	-	15.80
3600	87/45	15	12.53
3600	100/45	15	14.40
3600	112/45	15	16.13
3600	125/45	15	18.00
3600	150/45	15	19.50

Stair Treads Types O5-MR (ex stock 2/3 days, subject to availability at time of order)

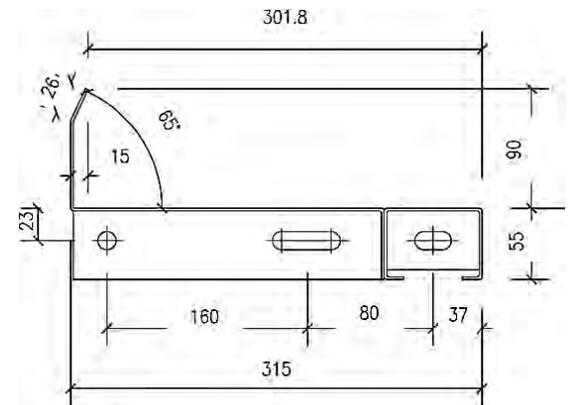


Galvanised O5-Mr Perforated Stair Treads

2mm thick Galvanised Steel to BS EN 1461:2009
5mm dia raised hole, 5mm dia depressed hole (PTV79)
Loading designed in accordance with BS EN 1991-1-1: 2002

Length	Height	Depth	
		315	315
mm	mm	With Riser	Without Riser
1000	55	●	●
1200	55	●	●
1500	55	●	●

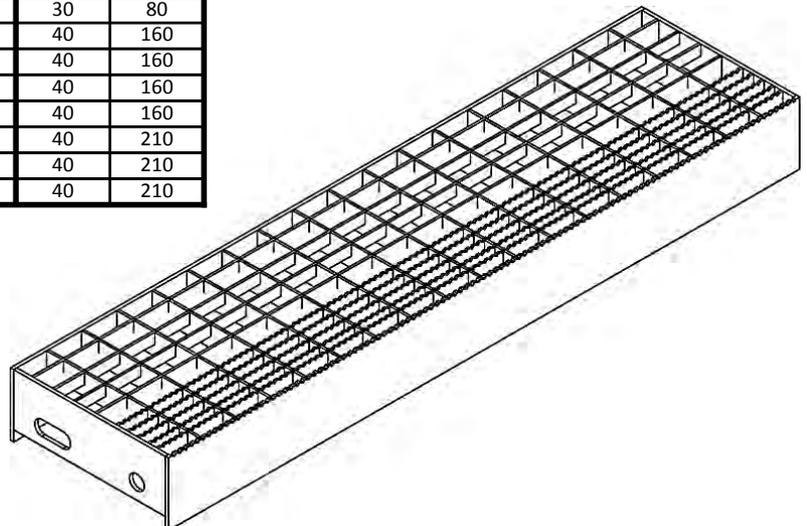
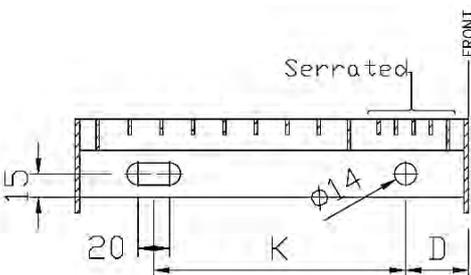
● = available 7/10 working days subject to availability



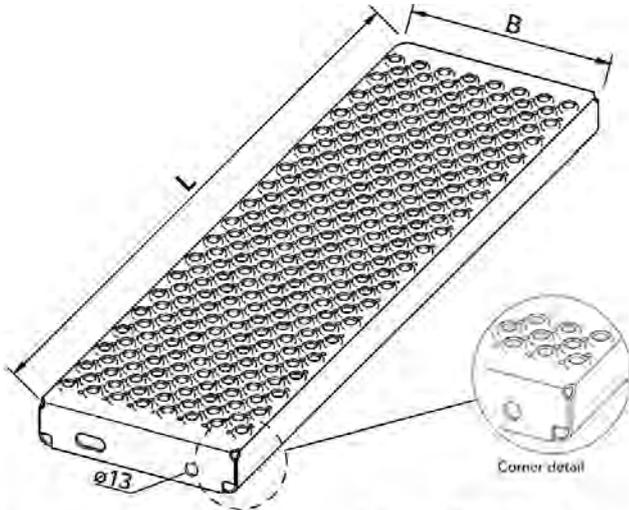
O5-Mr Available with or without a riser

Stair Treads Type SP (ex stock 2/3 days, subject to availability at time of order)

Galvanised Treads "Type SP"							Fixing Hole Positions	
Galvanised Carbon Steel to BS EN 1461:2009								
20x30mm mesh body with 9x30 mesh visual non-slip nosing								
Loading designed in accordance with BS4592: Part 0: 2006								
Bars	Length	Edge Bars		Depth	Depth	Depth	D	K
		Ends	Sides	150	250	300		
mm	mm	mm	mm	Item Stock Codes			mm	mm
20x2	500	50x3	60x3	11900			30	80
	600	50x3	60x3	11950			30	80
	700	50x3	60x3		12000		40	160
	800	50x3	60x3		12050		40	160
	900	50x3	60x3		12100		40	160
	1000	50x3	60x3		12150		40	160
	1000	60x3	60x3			12200	40	210
	1200	60x3	75x3			12250	40	210
	1500	70x3	75x3			12275	40	210

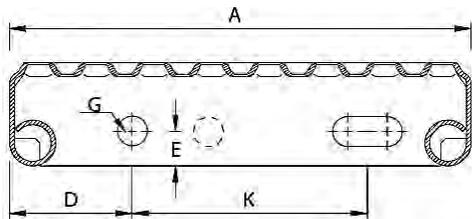


Stair Treads Type O2 "Achil" (ex stock 2/3 days, subject to availability at time of order)



Galvanised Treads Type "O2 Achil"							
2mm thick Galvanised Carbon Steel to BS EN 1461:2009							
9mm dia raised hole, 5mm dia depressed hole (Average Wet PTV50)							
Loading designed in accordance with BS4592: Part 0: 2006							
Length mm	Height mm	Depth	Depth	Depth	Depth	Depth	Depth
		150	200	225	250	275	300
Item Stock Codes							
400	45	20100	20410	20770	-	-	-
500	45	20150	20420	20780	21120	-	-
600	45	20200	20450	20800	21150	21550	21950
700	45	20250	20500	20850	21200	21600	22000
800	45	20300	20550	20900	21250	21650	22050
900	45	20350	20600	20950	21300	21700	22100
1000	45	20400	20650	21000	21350	21750	22150
1100	57	-	20700	21050	21400	21800	22200
1200	57	-	20750	21100	21450	21850	22250
1500	57	-	20760	21110	21500	21900	22300

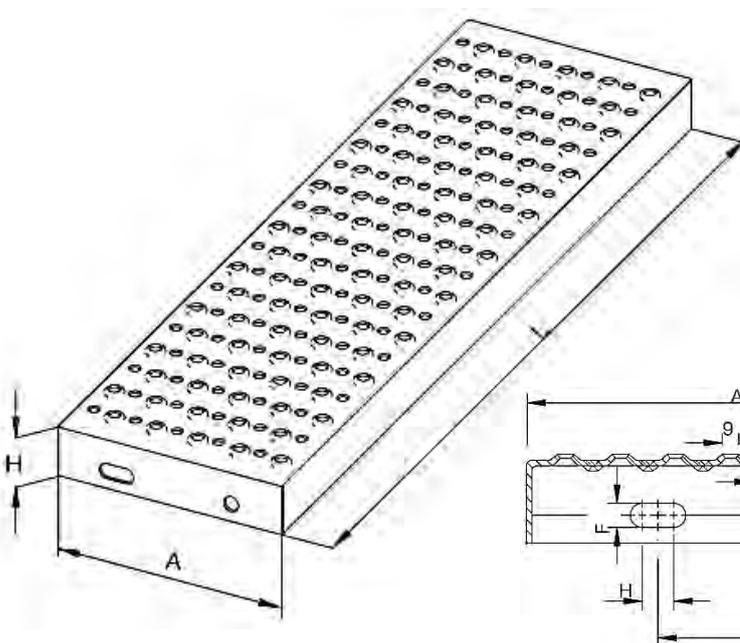
Isometric view of stair tread type O2-Achil®



Cross-section

Fixing Hole Positions				
A	D	E	G	K
150	35	15	13	78
200	45	15	13	102
225	45	15	13	127
250	50	15	13	142
275	62	15	13	143
300	50	15	13	192

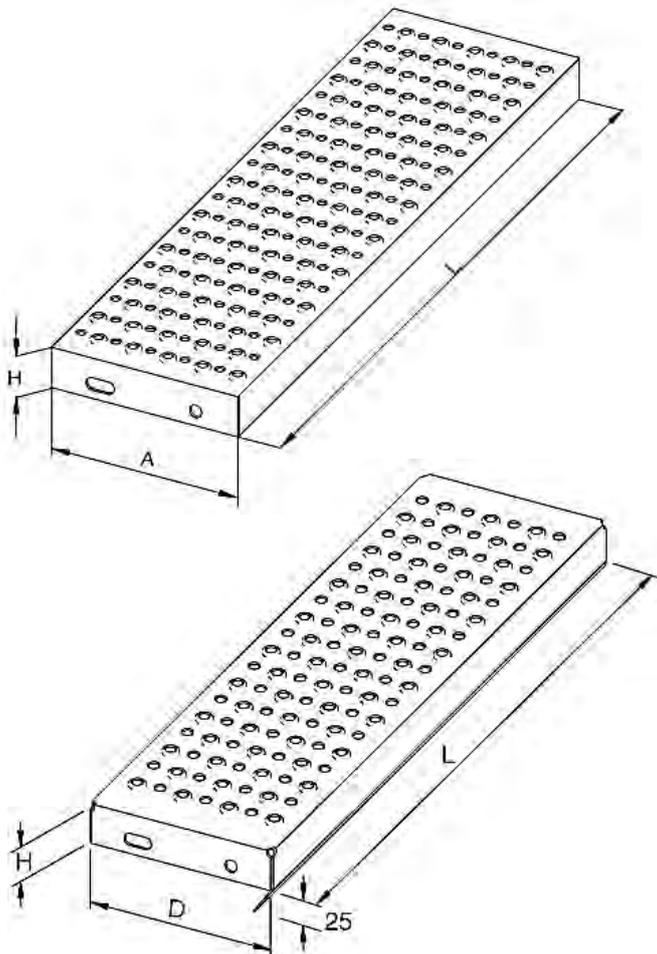
Stair Treads Type O2 (ex stock 7/10 days, subject to availability at time of order)



Stainless Steel Treads "Type O2"						
2mm thick Stainless Steel to BS EN 1.4301 (304)						
9mm dia raised hole, 5mm dia depressed hole (PTV50)						
Loading designed in accordance with BS4592: Part 0: 2006						
Length mm	Height mm	Depth	Depth	Depth	Depth	Depth
		200	225	250	275	300
500	45	•	-	-	-	-
700	45	•	•	•	-	-
800	45	•	•	•	•	•
900	45	•	•	•	•	•
1000	45	•	•	•	•	•
1200	45	-	-	•	-	-

Fixing Hole Positions					
A	D	E	F	H	K
200	35	15	13	17	102
225	45	15	13	17	127
250	45	15	13	17	142
275	50	15	13	17	143
300	62	15	13	17	192

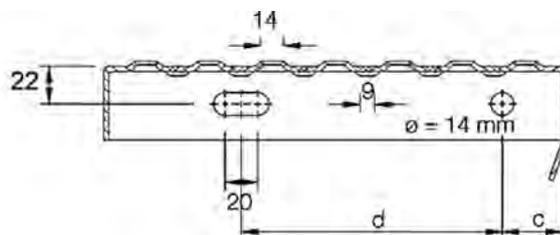
Stair Treads Type O3 (ex stock 7/10 days, subject to availability at time of order)



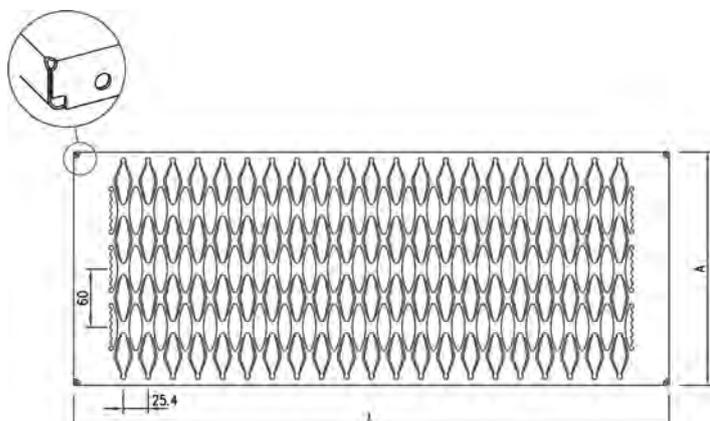
Galvanised Treads "Type O3"					
2mm thick Galvanised Carbon Steel to BS EN 1461:2009					
14mm dia raised hole, 9mm dia depressed hole (PTV51)					
Loading Designed in Accordance with BS4592: Part 0: 2006					
Length	Height	Depth	Depth	Depth	Depth
mm	mm	165	215	265	315
400	45	•	•	•	•
500	45	•	•	•	•
600	45	•	•	•	•
700*	45	•	•	•	•
800*	45	•	•	•	•
900*	45	•	•	•	•
1000*	45	•	•	•	•
1100*	60	•	•	•	•
1200*	60	•	•	•	•
1500*	60	•	•	•	•

** Toe deflector to front edge*

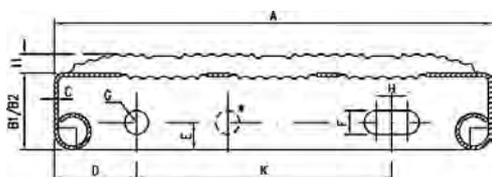
Hole Positions		
Depth	C	D
165	30	85
215	40	135
265	40	165
315	40	210



Stair Treads Type USA (ex stock 7/10 days, subject to availability at time of order)



Galvanised Treads "Type USA Achil"				
2mm thick Galvanised Carbon Steel to BS EN 1461:2009				
Loading designed in accordance with BS EN 4592: Part 0: 2006				
Length	B1/B2	Depth	Depth	Depth
mm	mm	180	240	300
609	42	•	•	•
762	42	•	•	•
914	42	•	•	•
1066	42	•	•	•
1219	54	•	•	•
1371	54	•	•	•
1524	54	•	•	•



Fixing Hole Positions				
A	D	E	G	K
180	40	15	13	100
240	45	15	13	140
300	45	15	13	190

131-132 Shoreditch High Street



Architect: Space Group of Architects
Product: Gratings Type N 9x31/30x2N
Material: Stainless Steel to BS EN 1.4301
Supplied rolled to radius ready for fabrication & finishing



Rainham to the River Trackway, Essex



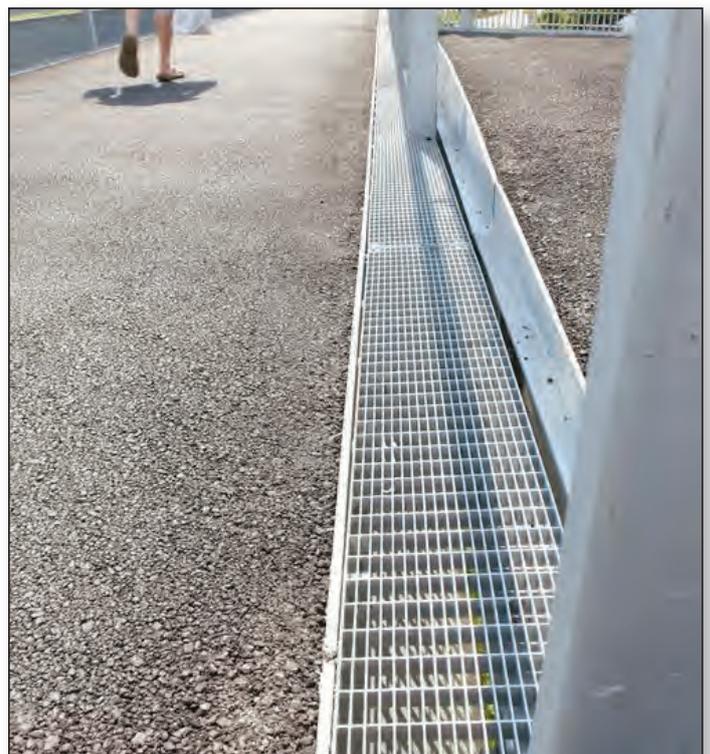
Architect: Peter Beard Landroom

Application: Balustrade

Product: Grating - Type NP

Specification: 68x36/40x2NP, 30x3mm/40x3mm on 2 ends, 70x3mm top/bottom

Finish: Galvanised



Merchant Taylor School, Middlesex



Architect: Vincent Gorbing Architect

Application: Stair Treads & Landings

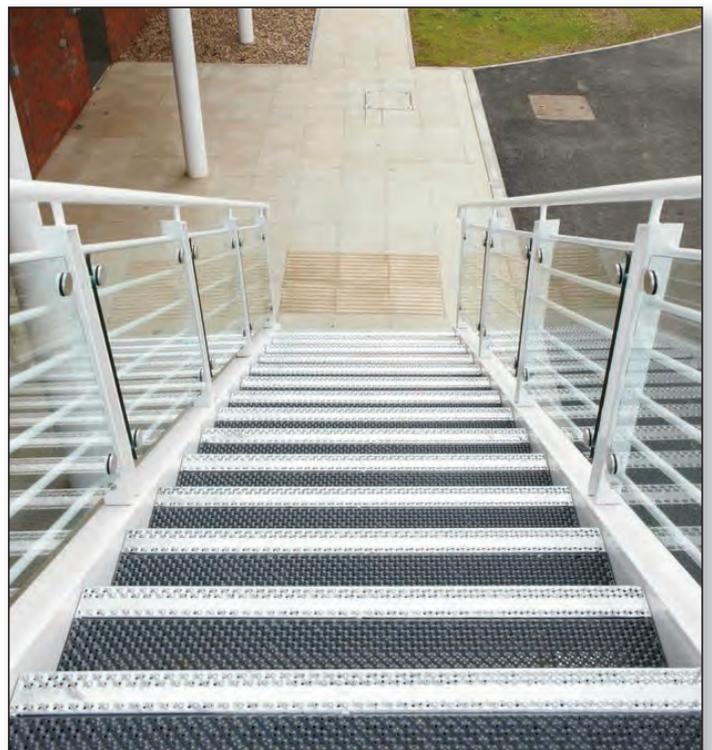
Product: Planks - Type O5-M

Specification:

Treads: 1200mm x 300mm incl. cranked riser

Landings: 100 x 45/15+2mm fabricated into panels

Finish: Galvanised + Polyester Powder Coating RAL7016 to tread





Elefant Gratings Ltd

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