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2020

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About Fielden

What We Do

Fielden process a variety of materials, including steel, stainless steel, aluminium, brass, copper and some plastics in our Christchurch factory. With a client base covering a diverse range of industries, we have experience in manufacturing a broad range of products. Our team possess an array of metal working skills and experience in mechanical engineering.

We can work with you to develop your product, offering a design and prototyping service using the latest 3D modelling and analysis software. This is integrated with CAM software that commands our machines and provides a seamless service from concept design to finished components.

At Fielden we run a full Enterprise Resource Planning system (ERP). This integrated management system logs all projects and provides accurate details on cost, lead times, delivery and quality control at all stages of manufacture. The ERP tools are also being used to support our ongoing commitment to quality and environmental management systems.

The factory is increasingly equipped with computer controlled machines, including an integrated robotic work cell that can operate unmanned, reducing labour costs by over 80%. These are complemented with a range of flexible turret punches, press brakes, laser cutter, guillotines & mechanical presses that our technicians operate to generate engineering and architectural sheetmetal solutions. We offer MIG and TIG welding for a variety of light fabrication offerings. All items can be easily finished through our degreasing and powder coating facilities.

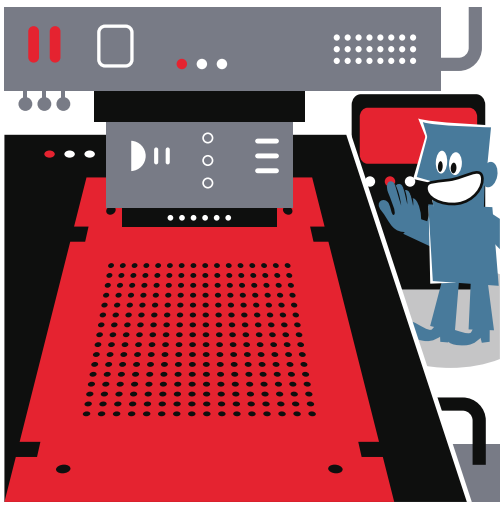
Our History

Fielden Metalworks began as Fielden & Sons Ltd in 1963, founded by brothers Ross and Norm Fielden who earned an excellent reputation for the manufacture of sheetmetal components. The company was taken over by Nigel Maxey in 2006 who made the commitment to run modern machines and state-of-the-art management systems. The operation has continued to grow with the acquisition of Maxim Filing Systems in 2010 and Jackson Sheetmetal in 2016.

Jackson's was established in 1978 by Ken and Pam Jackson and built a name for quality workmanship in custom products and perforated sheet and coil, a perfect compliment to the services of Fielden Metalworks.

Our staff are a talented and multi-tasking team with experience in all aspects of sheet metal manufacture. All are committed to high quality production and meeting your time frame expectations.

Please call us to discuss your project needs.



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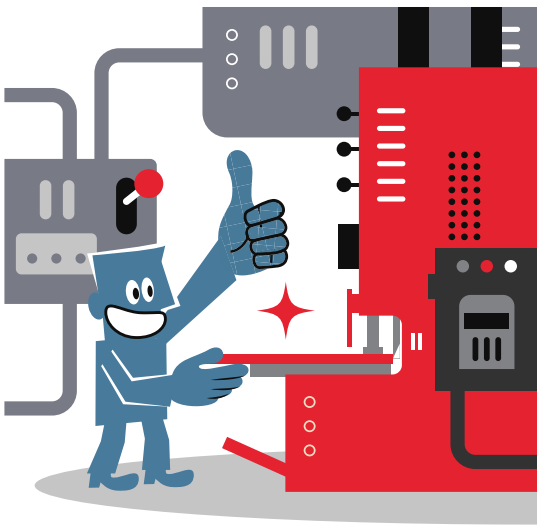
Contents

Our Machines

Fielden currently runs two Amada CNC Turret Punch Presses, one with an auto feeder allowing non-stop machine running without human intervention to increase cost effectiveness. The second Amada includes a laser for sheets to be laser cut and punched on the same machine in the same programme.

Also in our facility, is a Murata C2000 Turret Punch Press as a reliable workhorse for lighter jobs, as well as a 50 tonne Murata C5000 Magnum Turret Punch Press which provides reliability and high punching power for up to 8mm steel plate.

We also operate a coil perforating line allowing long runs of coil to be decoiled, punched and recoiled. This operation is very efficient for long-run coil aluminium, copper, brass and a range of steels.



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Other Services

- **TIG/MIG/Spot Welding and Fabrication**
  - We can offer a wide range of fabrication services to combine perforated sheet metal in a larger project with other steelwork.

- **Laser cutting**
  - Using the combination turret punch and laser cutter we have the versatility to produce your product efficiently.

- **Folding**
  - With our range of CNC and robotic press brakes we can meet your sheet metal folding requirements with a capacity of up to 6m lengths.

- **Powder Coating**
  - We can provide in-house powder coating for your sheet metal or other fabricated products, reducing lead time.

- **High Volume Bracket Manufacturing**
  - Our power presses allow a cost effective method for producing large quantities of brackets which require multiple operations of punching and folding in a single automated machine.

Perforation Uses

Acoustic Control

Perforated metal is your perfect partner for soundproofing and for reducing acoustic emissions as well as a supporting structure for other less rigid sound-insulating materials. A number of sound baffle designs use perforated metal of specific hole size and open area that relate to the sound frequencies to be eliminated.

Light Screening & Shading

Looking for durable screening applications with extra aesthetic touch, then choose perforated metal. A wide range of powder-coat colours can be applied to generate vibrant designs that can enhance the appearance of buildings while providing shade.

Heat Dissipation

Components made from perforated metal play a valuable role in thermal controls, for heat dissipation in cooling systems, hot-air ventilators or complex heating units. The combination of useful function with appealing aesthetics through unique patterning offers a nice complement to the function of products.

Protection & Guarding

Guarding of machinery or hot surfaces can be easily produced with perforated metal to prevent injury while permitting clear vision of the equipment or heat to pass through.

Filtration, Sieving & Screening

The perforation and open area can be specified exactly, making perforated sheet ideal for filtering, separating, or sorting materials. The open area can be varied in a number of ways to affect the flow rate, sorted size, etc. resulting in high accuracy.

Anti-Skid Walk Surfaces

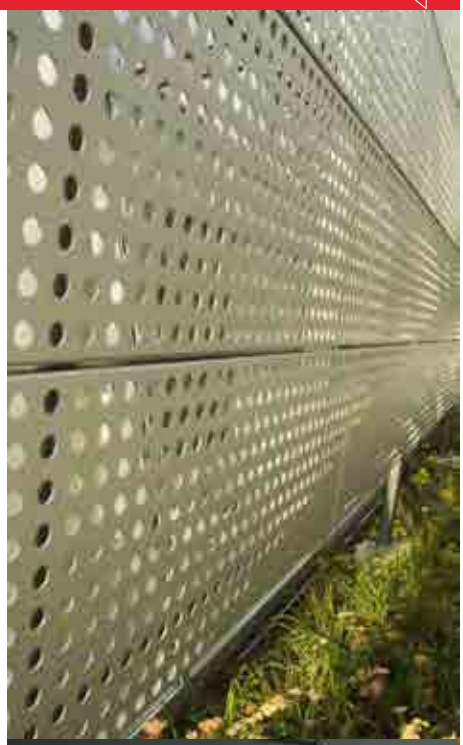
Industrial floorings made from perforated & stamped metal provide great grip properties to ensure safe access to work areas. Especially in conditions with high exposure to moisture or dust, etc.

Weight Reduction

Reducing weight is very important in manufacture of transport equipment. Perforated metal is the ideal way to meet this requirement. In addition, folding or dimpling perforated metal provides a stiffening effect so that the components are not weakened by the removal of material.

Electrical Shrouding

Perforated metal is often used to enclose electrical components to attenuate the emitted EMI /RFT radiation and to allow ventilation at the same time. This is the best method for preventing radio interference in electronic products.

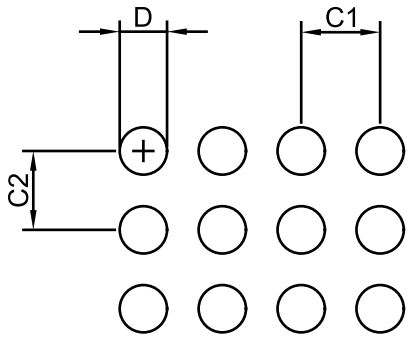


Perforation Types

Open area is a measure used to reflect the percentage of perforated area to total sheet area. These formulae below are used to calculate the open are for many common patterns. For unusual patterns and/or shapes, the open area can be found by calculating the total hole for a set area and dividing it by the total set area.

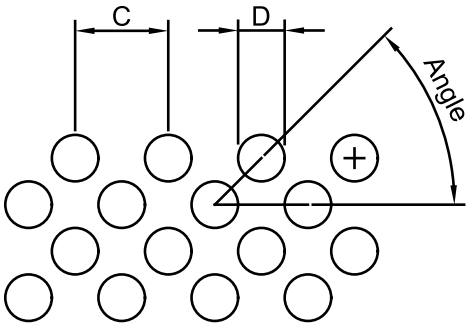
Round Perforations

Rectangular



$$Open\ Area\ \% = \frac{\frac{\pi}{4}D^2}{C_1 \times C_2} \times 100$$

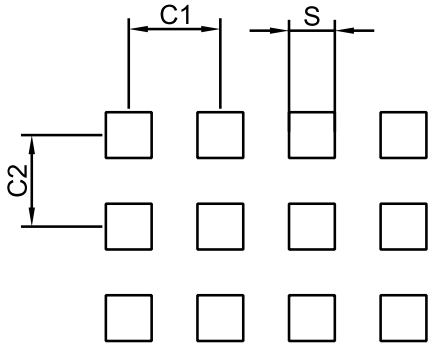
Staggered



$$Open\ Area\ \% = \frac{\pi D^2}{2C^2 \tan(\theta)} \times 100$$

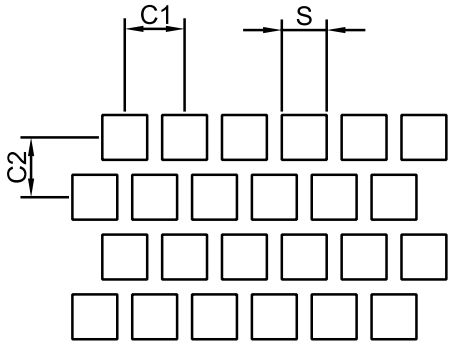
Square Perforations

Rectangular



$$Open\ Area\ \% = \frac{S^2}{C_1 \times C_2} \times 100$$

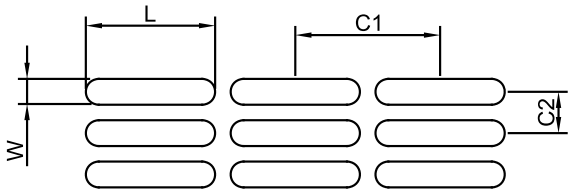
Staggered



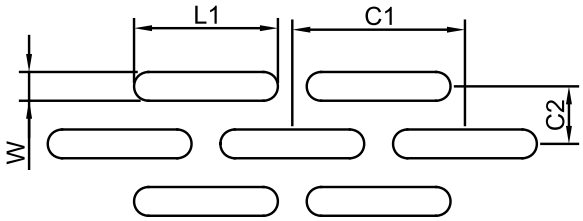
$$Open\ Area\ \% = \frac{S^2}{C_1 \times C_2} \times 100$$

Slots – Rectangular and Obround

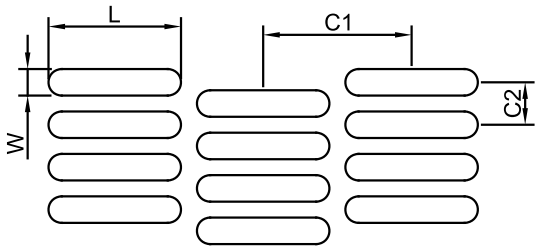
Rectangular



Side Staggered



End Staggered



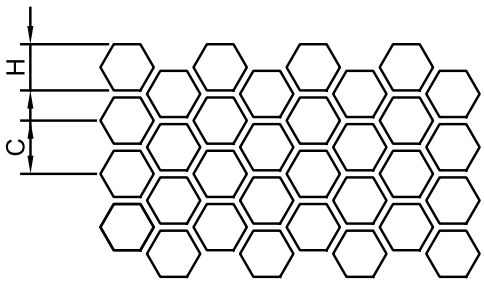
For rectangular holes:

$$Open\ Area\ \% = \frac{W \times L}{C_1 \times C_2} \times 100$$

For obround holes:

$$Open\ Area\ \% = \frac{WL - 0.215W^2}{C_1 \times C_2} \times 100$$

Hexagonal - Honeycomb



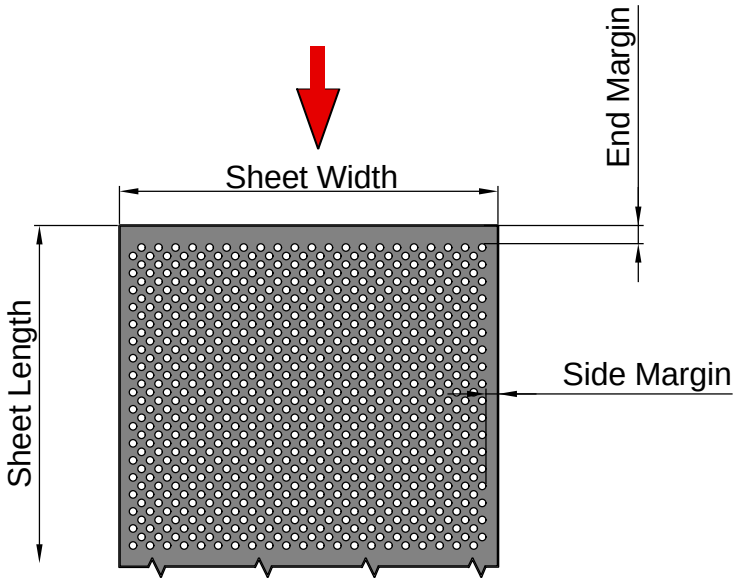
$$Open\ Area\ \% = \frac{H^2}{C^2} \times 100$$

Selecting a Perforation

When selecting a perforation, there are a few considerations that are important for choosing the hole shape, pattern and material.

Things to keep in mind:

- What the final application of the perforated metal will be eg: acoustic control, screening, guarding, etc.
- As a general guideline the hole diameter for punching steel and aluminium should never be less than the material thickness. For stainless it should be no less than 1.5 times the sheet thickness.
- 5 to 50mm border margin - if the border margins are important for your design please make sure you contact us early on in your design process to make sure your requirements can be met with the perforation you desire.
- Wide margins along the sides of the perforated sheet introduce stresses into the sheet and cause distortion, so they should be kept to a minimum possible width. Excessive or uneven margins can cause buckling or an irreparable degree of distortion that cannot be eliminated by roller leveling.
- When holes are small and the percent of open area is high, distortion can become excessive. For items with wide margins the only successful way to manage this may be with cross-break folds.
- Generally perforations with larger hole sizes cost less due to reduced machine time.
- The minimum bar thickness (material left between holes) should generally be no less than the material thickness. However there are instances where bar thicknesses smaller than this can be accommodated.
- Typical sheet size is 2400mm x 1200mm, or 2438mm x 1219mm.
- The punching direction is normally along the longest sheet dimension.
- Patterns are displayed in this catalogue with the width of the page representing the width of the perforated sheet. However, these patterns can be often run at 90˚ to what is illustrated on request.
- If your requirements are not listed in this catalogue, please contact us to discuss the options as not all patterns are displayed in this catalogue.



Give us a call to help you with your selection – we have years of proven experience in producing perforated sheet metal and can assist you throughout all stages of the process.

Materials

❖ Cold Rolled Steel

- ❖ Cost efficient material which provides a polished finish with no scale. It requires a coating to be applied for corrosion resistance. Hot rolled is also available on request.

❖ Electrogalvanised Steel

- ❖ Electrogalvanised steel is a zinc coated steel which is applied using electroplating rather than the more typical hot dip method. This results in a thinner, but more uniform zinc coating and therefore more suited for aesthetic applications and is not recommended for outdoor applications.

❖ Galvanised Steel

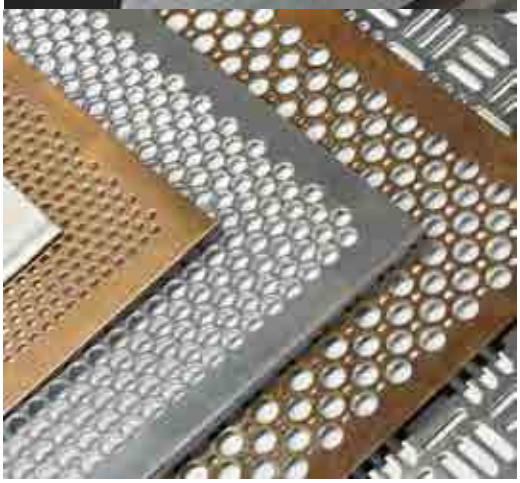
- ❖ Hot dip galvanised steel has a thick sacrificial zinc coating and is a standard for exterior application. The look of this steel is a more spangled finish than electrogalv.

❖ 5005 and 5052 Aluminium

- ❖ 5005 is a medium strength aluminium alloy with good corrosion resistance and weldability. Both are used for architectural applications, whilst 5052 has an increased tensile strength and a slightly higher corrosion resistance due to a greater magnesium and chromium content.

❖ 304 and 316 Stainless Steel

- ❖ 304 is the most common stainless steel alloy, which is used for a variety of applications and is readily formable and weldable. 316 is similar to 304, but more corrosion resistant due to the addition of Molybdenum. It is therefore a better choice for coastal environments.



We can also process the zinc/aluminium alloy **Zincalume®** and **Colorsteel®** products on request. These are materials most commonly available in coil.

Copper, brass, other metals and some plastics can also be processed.

Advisory:

Due to the hardness and work hardening nature of stainless steel it is a difficult material to punch. Therefore the number of patterns available is limited. If you require stainless for your application then contact us for any customisation options.

Perforation Codes

In NZ the defacto standard is to use P codes to denote the perforation pattern. This a code system that assigns an arbitrary P number to a certain pattern. Different manufacturers may use the same code, but they may not be exactly the same pattern. We have our own coding system, as explained below. For patterns with existing P codes, these patterns will use both Fielden Perforation Codes (FPC) and the legacy P codes.

Fielden Perforation Codes

Perforated sheet metal codes are defined by a pattern code with an appended material code.

The pattern code is formatted as follows:

(Shape)(Dimension)(Orientation)(Open Area%)

1 Hole Shape				2 3 4 Hole Dimension	5 Hole Orientation		6 7 Open Area
Round	R	Hexagon	H	to 1 D.P.	Triangle (60°)	A	to nearest 1%
Square	S	Triangle	T		Triangle (45°)	B	
Obround	O	Dimple	D		Triangle (custom°)	C	
Rectangle	C	Louvre	L		Square/Rectangular	S	
Rectangle Radius Corner	Q	OSH	Z		Side Staggered	G	
Diamond	V	Special	X		End Staggered	E	

R019A45

For a round hole perforation with 1.9mm diameter, 60 stagger orientation and an open area of 45%

NB: For coil perforations, all codes have the character 'C' suffix eg. R019A45C

The material code for stock sheets is formatted as follows:

(Material Type)(Sheet Thickness)(Sheet Size)

8 Material Type				9 10 Material Thickness	11 Sheet Size	
Cold Rolled MS	C	Colorsteel	R	to 1 D.P.	2400x1200mm	A
Hot Rolled MS	H	Alu 5005	A		2438x1219mm	B
Galvanised MS	G	304 Stainless	S		3000x1500mm	C
Electrogalv MS	E	316 Stainless	T		3600x1500mm	D
Zincalume	Z				Custom	E

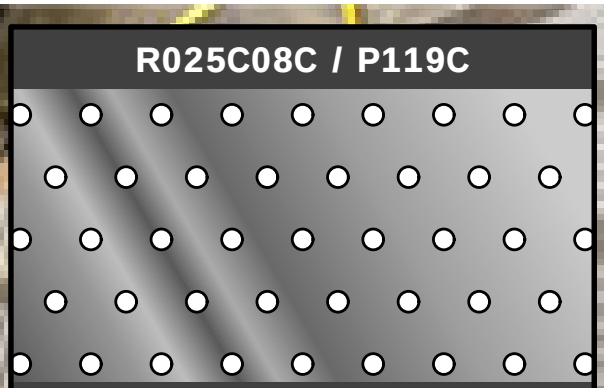
R019A45-G12A

For a Galvanised 2.4x1.2m sheet of 1.2mm thickness

Perforated Coil

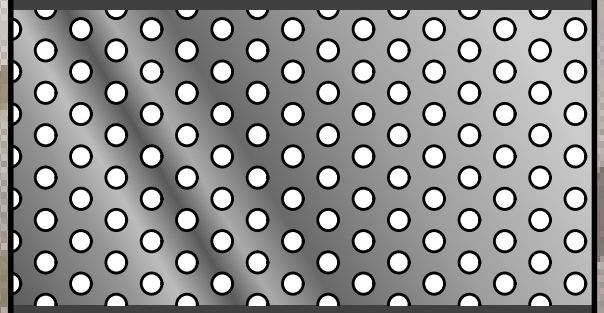
These coil perforations can be run at widths up to 1220mm wide.
Maximum thickness for aluminium of 3.0mm
Maximum thickness for cold rolled and colorsteel of 1.5mm

R025C08C / P119C



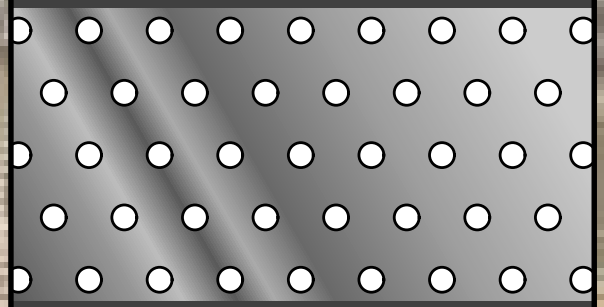
Ø2.50mm @ 8.62mm ctrs,
7.6% Open Area

R025A23C / P120C



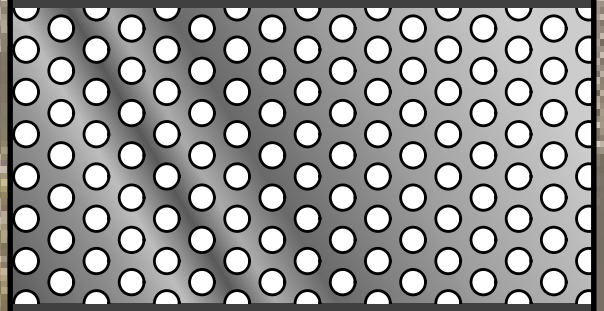
Ø2.50mm @ 5.00mm ctrs,
22.7% Open Area

R030A11C / P135C



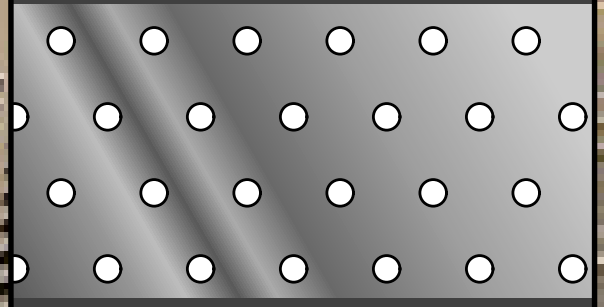
Ø3.00mm @ 8.62mm ctrs,
11.0% Open Area

R030C33C / P129C



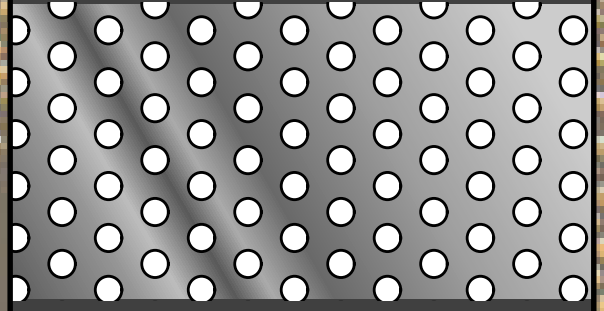
Ø3.00mm @ 5.00mm ctrs,
32.6% Open Area

R032A08C / P145C



Ø3.20mm @ 10.73mm ctrs,
8.1% Open Area

R032A23C / P143C

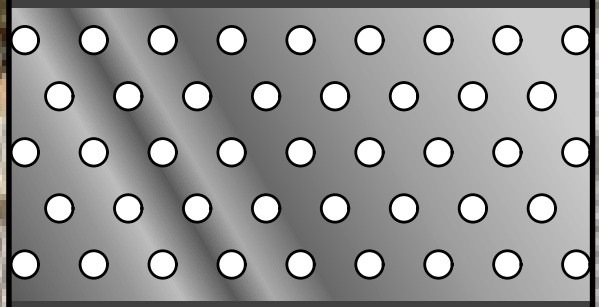


Ø3.20mm @ 6.38mm ctrs,
22.8% Open Area

Perforated Coil

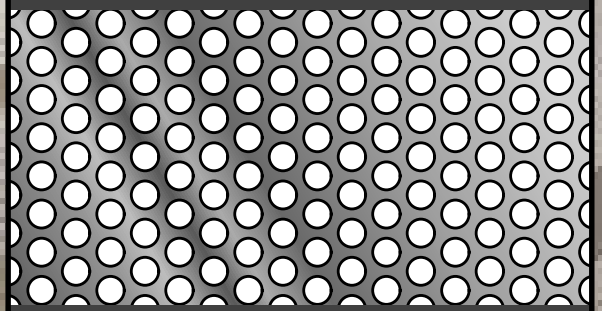
These coil perforations can be run at widths up to 1220mm wide.
Maximum thickness for aluminium of 3.0mm
Maximum thickness for cold rolled and coloursteel of 1.5mm

R033A16C / P144C



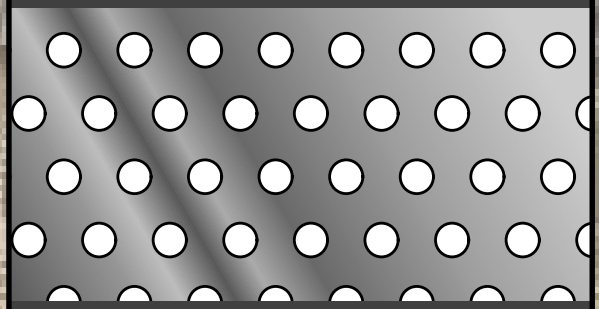
Ø3.30mm @ 7.92mm ctrs,
15.7% Open Area

R033C44C / P140C



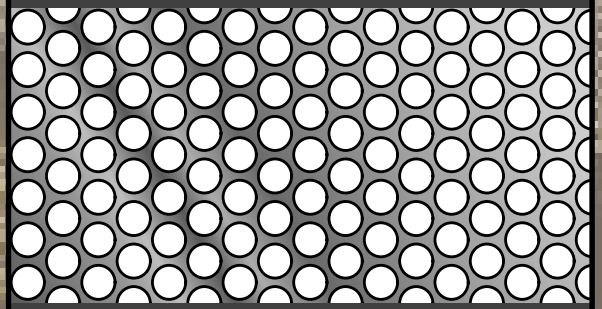
Ø3.30mm @ 4.72mm ctrs,
44.3% Open Area

R040A20C / P160C



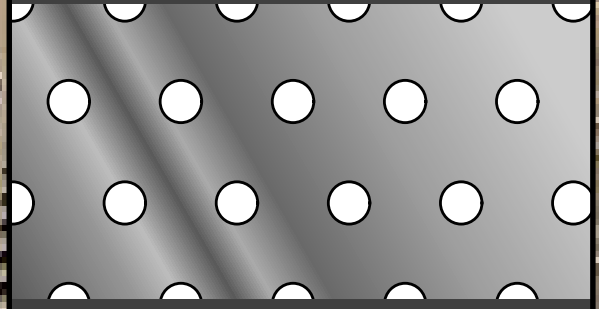
Ø4.00mm @ 8.62mm ctrs,
19.5% Open Area

R040C58C / P165C



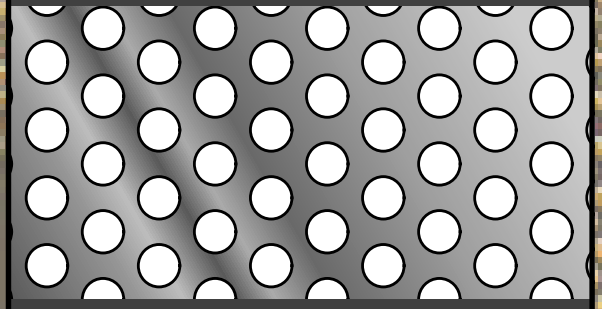
Ø4.00mm @ 5.00mm ctrs,
58.0% Open Area

R050A12C / P190C



Ø5.00mm @ 13.77mm ctrs,
12.0% Open Area

R050C37C / P195C

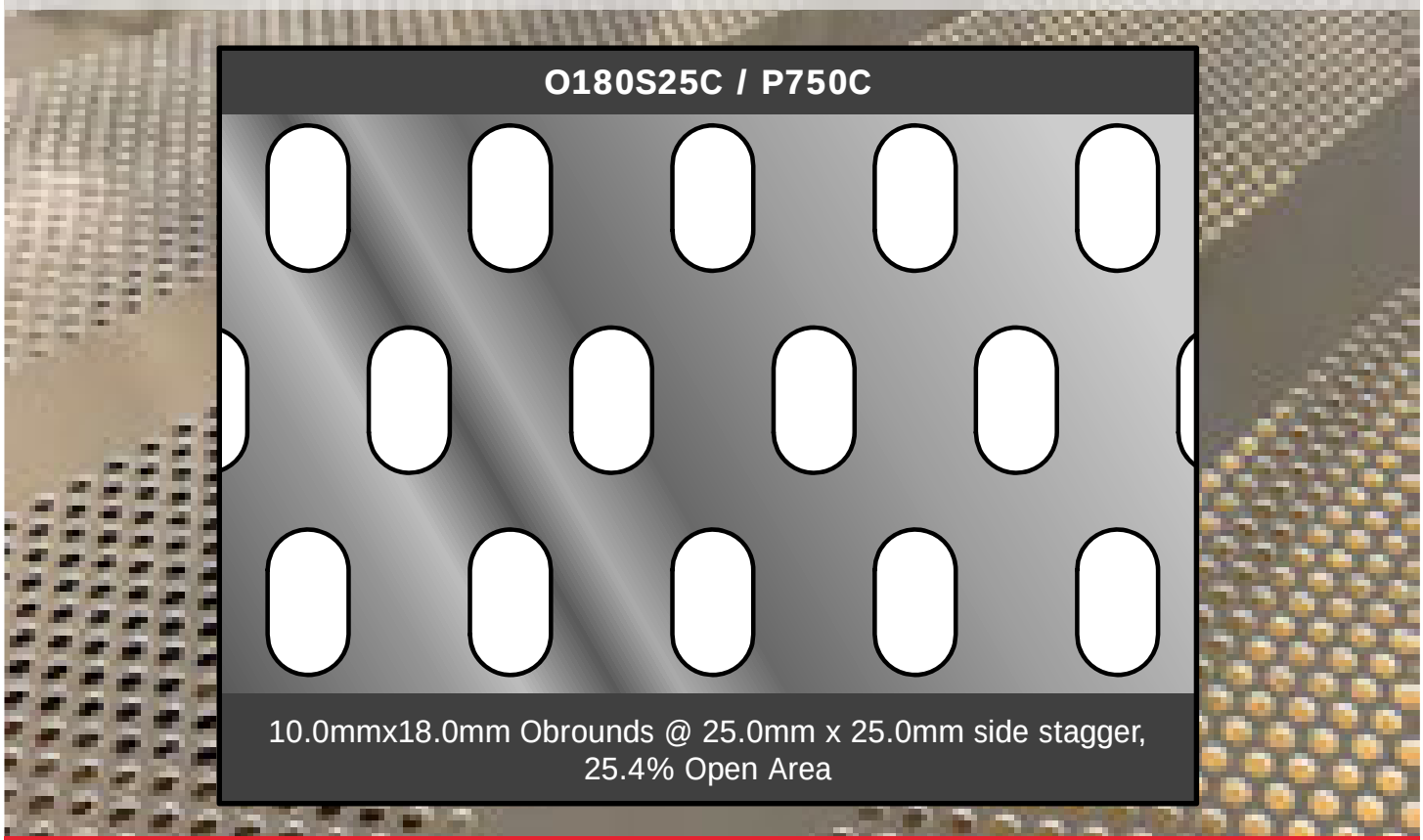


Ø5.00mm @ 7.85mm ctrs,
36.8% Open Area

Perforated Coil

These coil perforations can be run at widths up to 1220mm wide.
Maximum thickness for aluminium of 3.0mm
Maximum thickness for cold rolled and colorsteel of 1.5mm

The coil perforation below can be run at widths up to 650mm wide.



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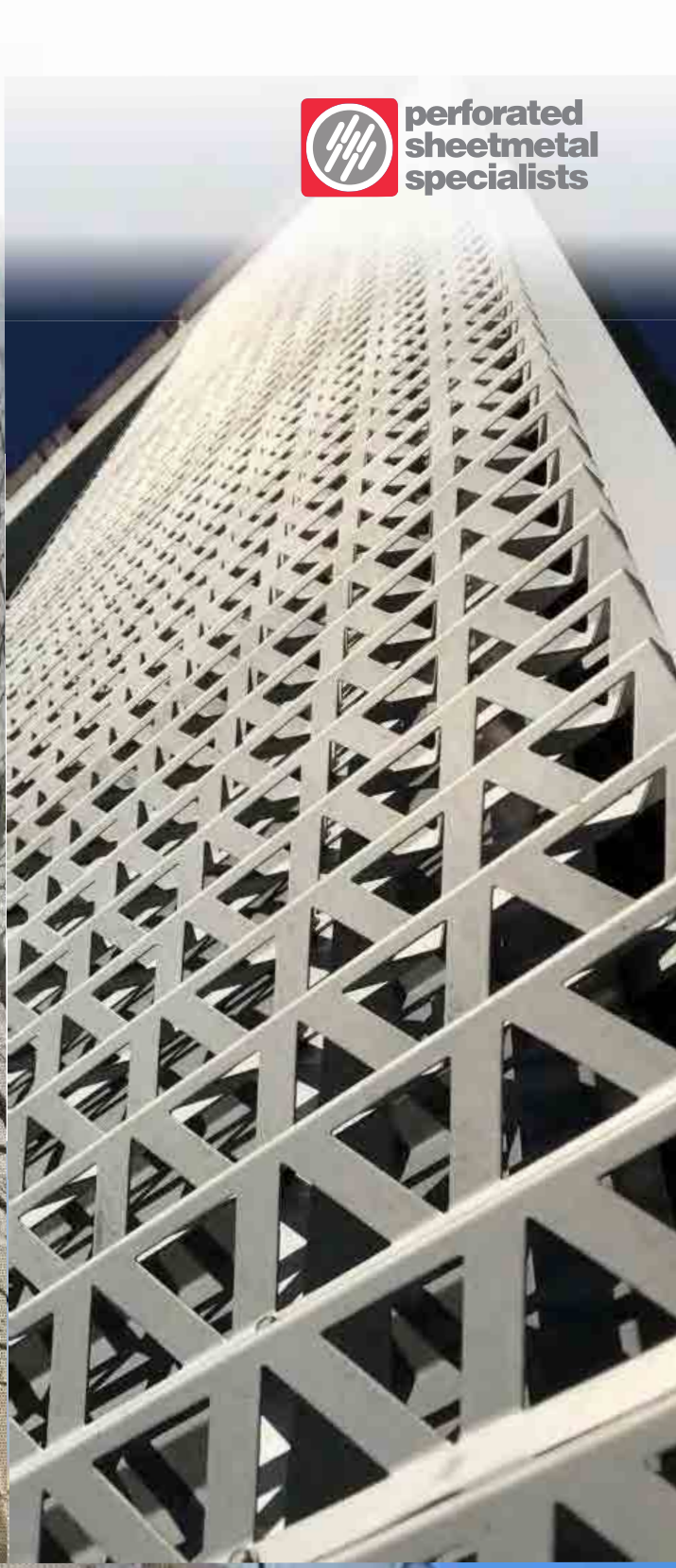
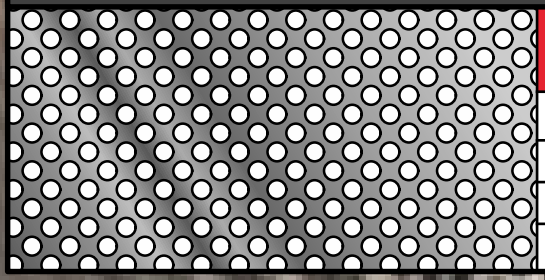


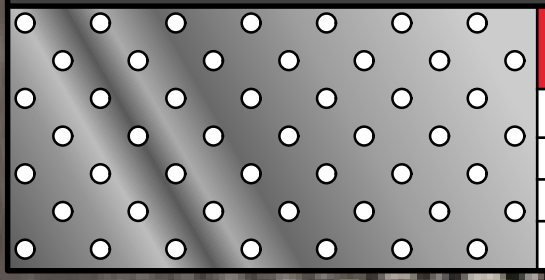
Rounds

R025B39 / P100 ø2.5mm @ 5.00mm centres, 45° Stagger, 39.3% Open Area



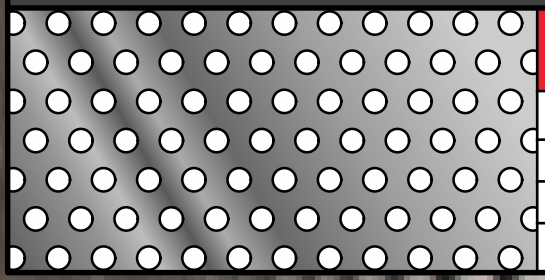
Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.55	0.75
Galvanized Steel	0.55	0.75
Aluminium	0.5	0.70
Stainless Steel 304 or 316	0.5	0.70

R025B10 / P119 ø2.5mm @ 10.00mm centres, 45° Stagger, 9.8% Open Area



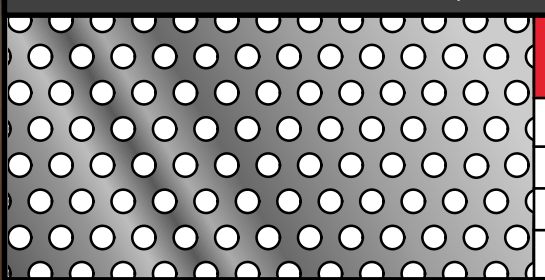
Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.55	0.75
Galvanized Steel	0.55	0.75
Aluminium	0.50	0.70
Stainless Steel 304 or 316	0.50	0.70

R031C21 / P120 ø3.1mm @ 6.00mm centres, 63° Stagger, 21.3% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	3.0
Galvanized Steel	0.75	3.0
Aluminium	0.75	3.0
Stainless Steel 304 or 316	1.0	1.5

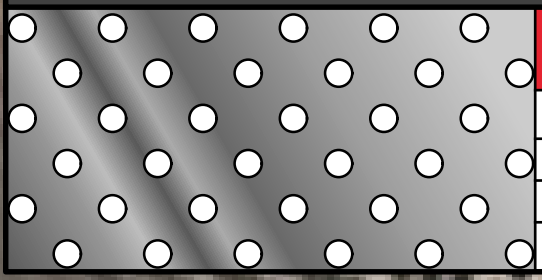
R031A29 / P125 ø3.1mm @ 5.53mm centres, 60° Stagger, 28.5% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	2.0	3.0
Galvanized Steel	2.0	3.0
Aluminium	2.0	3.0
Stainless Steel 304 or 316	1.6	1.6

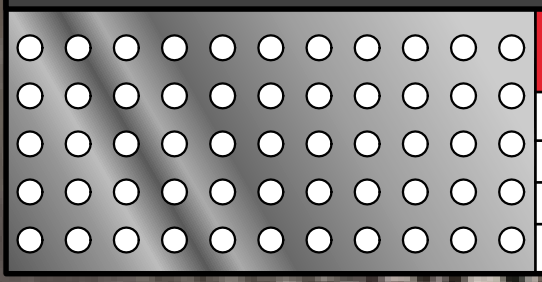
Rounds

R031B07 / P147 — ø3.1mm @ 12.00mm centres, 45° Stagger, 6.5% Open Area



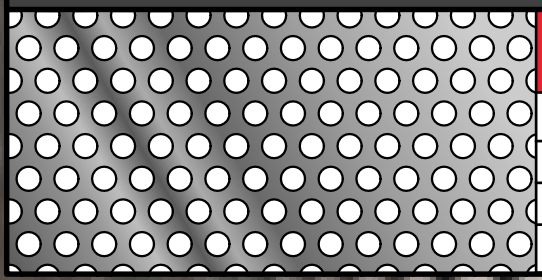
Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	3.0
Galvanized Steel	0.75	3.0
Aluminium	0.75	3.0
Stainless Steel 304 or 316	1.0	1.5

R031S21 / P148 — ø3.1mm @ 6.00mm centres, 90° Stagger, 21.0% Open Area



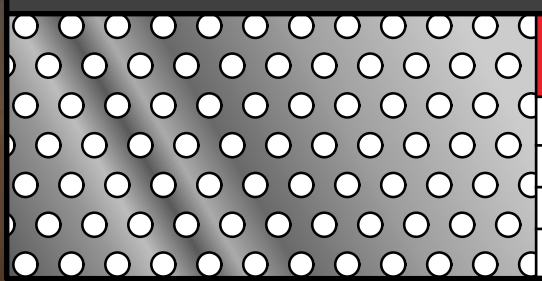
Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	3.0
Galvanized Steel	0.75	3.0
Aluminium	0.75	3.0
Stainless Steel 304 or 316	1.0	1.5

R032A37 / P129 — ø3.2mm @ 5.01mm centres, 60° Stagger, 37% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	0.75
Galvanized Steel	0.75	0.75
Aluminium	0.9	0.9
Stainless Steel 304 or 316	NA	NA

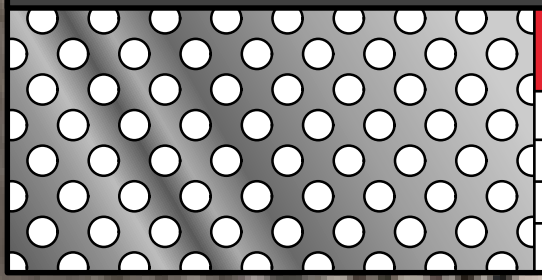
R032A25 / P143 — ø3.2mm @ 6.10mm centres, 60° Stagger, 25% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.2
Galvanized Steel	0.75	1.2
Aluminium	0.9	2.0
Stainless Steel 304 or 316	0.75	0.75

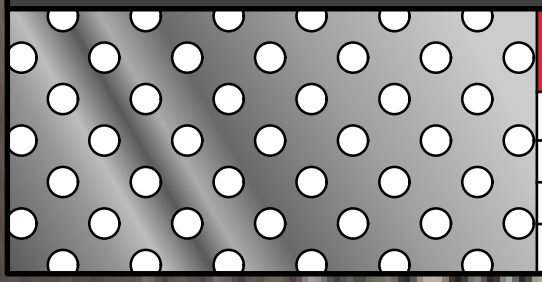
Rounds

R040C31 ø4.0mm @ 8.30mm centres, 50° Stagger, 30.6% Open Area



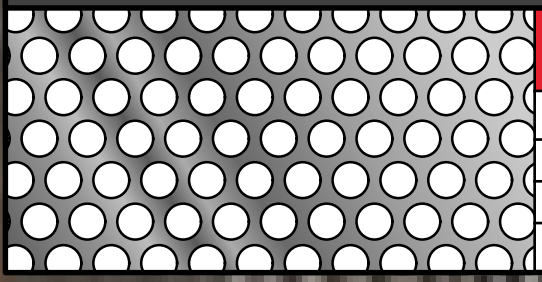
Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	2.0
Galvanized Steel	0.75	2.0
Aluminium	1.0	3.0
Stainless Steel 304 or 316	0.75	1.2

R040B21 / P157 ø4.0mm @ 11.00mm centres, 45° Stagger, 20.8% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.2
Galvanized Steel	0.75	1.2
Aluminium	0.75	1.5
Stainless Steel 304 or 316	NA	NA

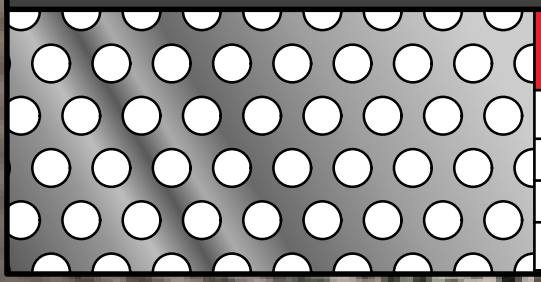
R048A50 / P186 ø4.76mm @ 6.41mm centres, 60° Stagger, 50.0% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.2
Galvanized Steel	0.75	1.2
Aluminium	0.75	2.0
Stainless Steel 304 or 316	1.2	1.2

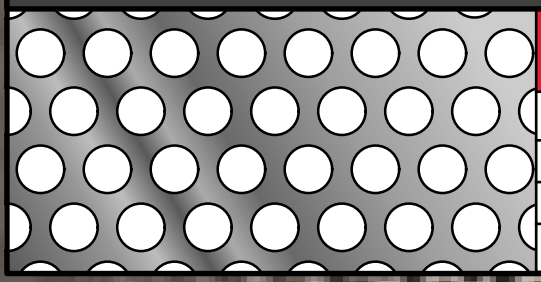
Rounds

R050A35 / P195 ø5.00mm @ 8.00mm centres, 60° Stagger, 35.4% Open Area



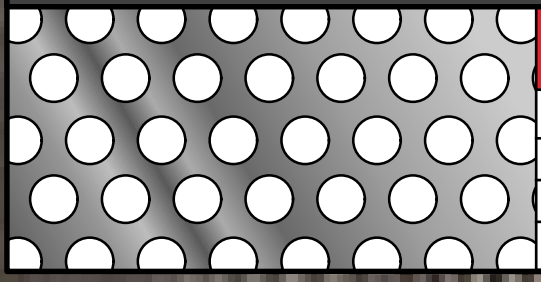
Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.6
Galvanized Steel	0.75	1.6
Aluminium	0.75	2.0
Stainless Steel 304 or 316	1.0	1.3

R063A46 / P218 ø6.30mm @ 8.89mm centres, 60° Stagger, 45.5% Open Area



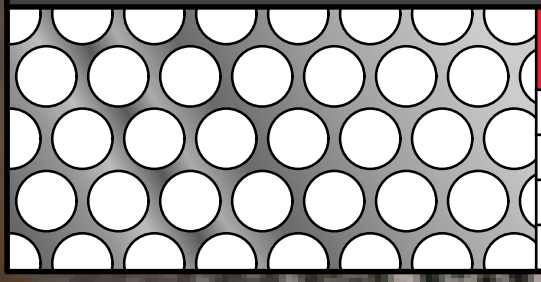
Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.0	3.0
Galvanized Steel	1.0	3.0
Aluminium	1.0	3.0
Stainless Steel 304 or 316	1.2	1.6

R063A40 / P220 ø6.30mm @ 9.52mm centres, 60° Stagger, – 39.7% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.9	3.0
Galvanized Steel	0.9	3.0
Aluminium	1.2	3.0
Stainless Steel 304 or 316	1.2	1.6

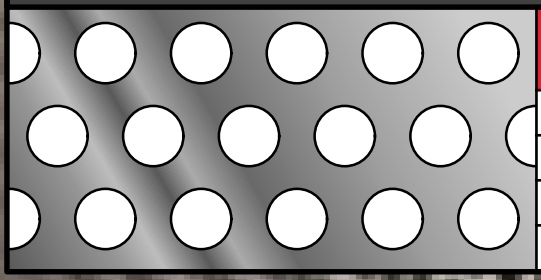
R080A64 / P240 ø8.0mm @ 9.55mm centres, 60° Stagger, 63.6% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.6	2.0
Galvanized Steel	1.6	2.0
Aluminium	2.0	3.0
Stainless Steel 304 or 316	NA	NA

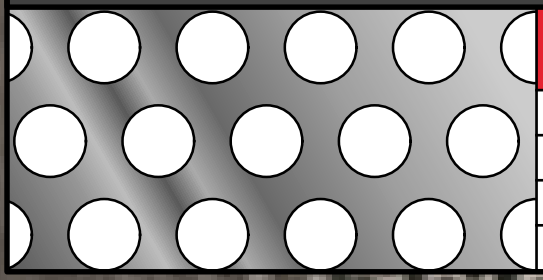
Rounds

R080A36 / P243 ø8.0mm @ 12.70mm centres, 60° Stagger, 36.0% Open Area



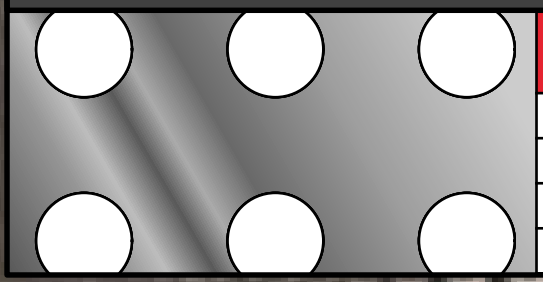
Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.9	1.6
Galvanized Steel	0.9	1.6
Aluminium	0.9	2.0
Stainless Steel 304 or 316	1.2	1.6

R095A40 / P266 ø9.52mm @ 14.3mm centres, 60° Stagger, 40.2% Open Area



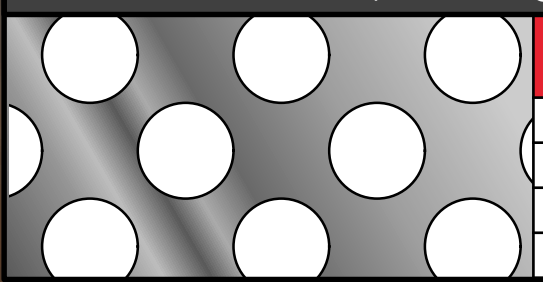
Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.2	2.5
Galvanized Steel	1.2	2.5
Aluminium	1.6	3.0
Stainless Steel 304 or 316	1.6	2.0

R127S20 ø12.7mm @ 25.40mm centres, Rectangular, 19.6% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.2	2.0
Galvanized Steel	1.2	2.0
Aluminium	1.2	3.0
Stainless Steel 304 or 316	1.6	1.6

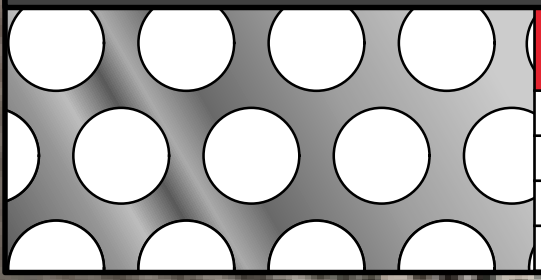
R127B39 ø12.7mm @ 25.40mm centres, 45° Stagger, 39.3% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.2	2.0
Galvanized Steel	1.2	2.0
Aluminium	1.2	3.0
Stainless Steel 304 or 316	1.6	1.6

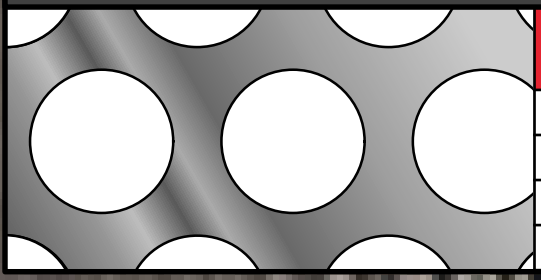
Rounds

R127A49 / P291 ø12.70mm @ 17.27mm centres, 60° Stagger, 49.0% Open Area



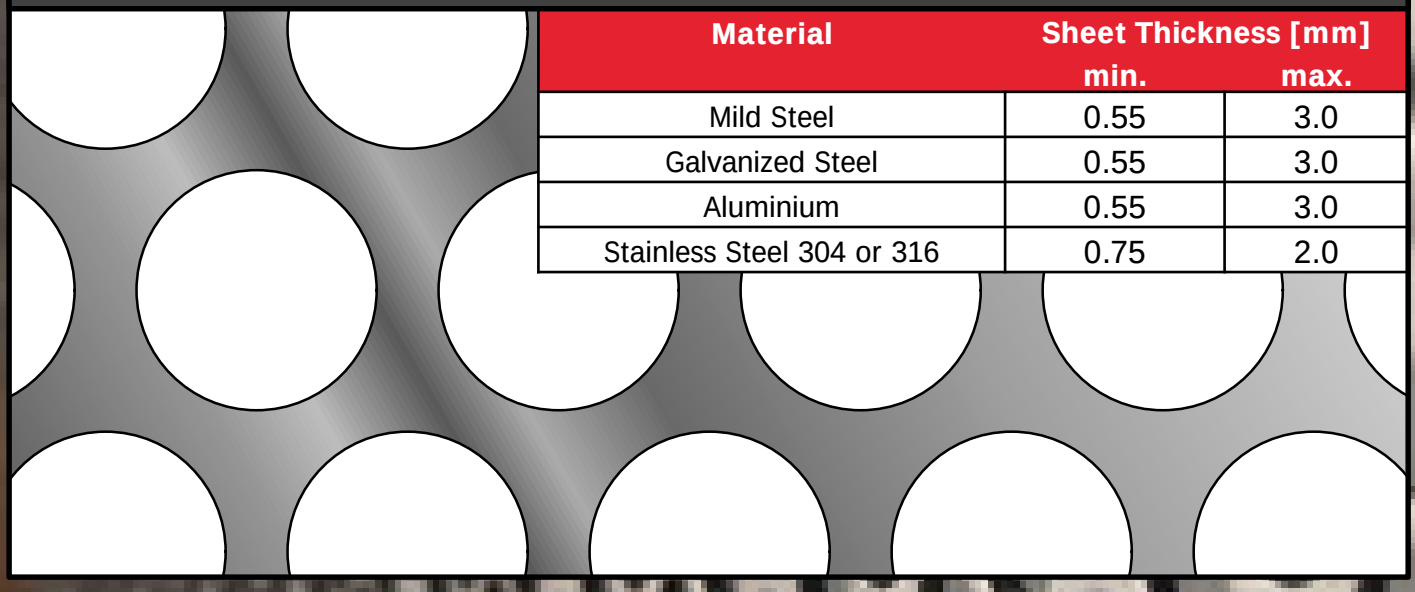
Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.9	2.0
Galvanized Steel	0.9	2.0
Aluminium	2.0	3.0
Stainless Steel 304 or 316	1.6	1.6

R200A56 / P329 ø19.00mm @ 25.40mm centres, 60° Stagger, 56.2% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.9	3.0
Galvanized Steel	0.9	3.0
Aluminium	1.2	4.0
Stainless Steel 304 or 316	1.2	2.5

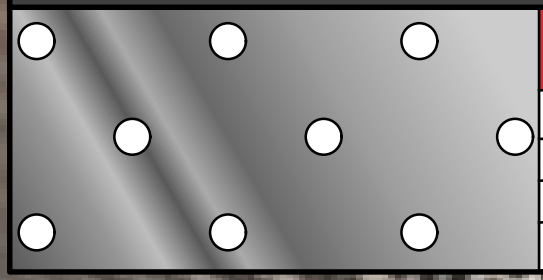
R318A51 / P349 ø31.8mm @ 40mm centres, 60° Stagger, 51.00% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.55	3.0
Galvanized Steel	0.55	3.0
Aluminium	0.55	3.0
Stainless Steel 304 or 316	0.75	2.0

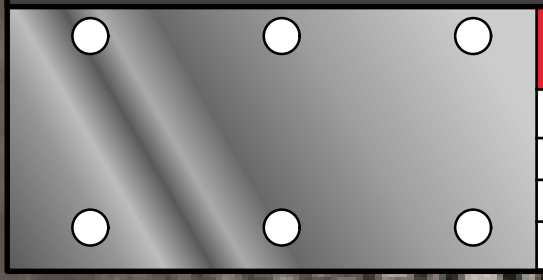
Rounds – Peg Board

R048B06/P185 ø4.76mm @ 25.4mm centres, 45° Stagger, 5.5% Open Area



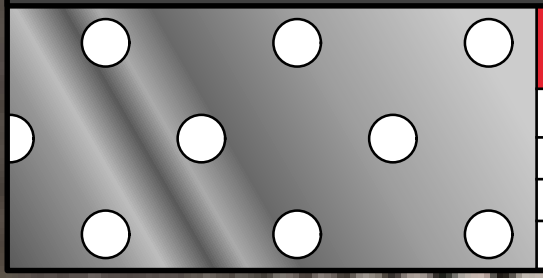
Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.6
Galvanized Steel	0.75	1.6
Aluminium	0.75	2.0
Stainless Steel 304 or 316	NA	NA

R048S03 / P188 ø4.76mm @ 25.40mm centres, Rectangular, 2.8% Open Area



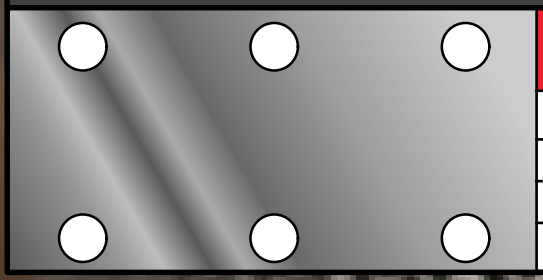
Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.6
Galvanized Steel	0.75	1.6
Aluminium	0.75	2.0
Stainless Steel 304 or 316	NA	NA

R063B07 / P235 ø6.3mm @ 25.40mm centres, 45° Stagger, 6.8% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.6
Galvanized Steel	0.75	1.6
Aluminium	0.9	2.0
Stainless Steel 304 or 316	NA	NA

R063S05 / P238 ø6.3mm @ 25.40mm centres, Rectangular, 4.8% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.6
Galvanized Steel	0.75	1.6
Aluminium	0.9	2.0
Stainless Steel 304 or 316	NA	NA

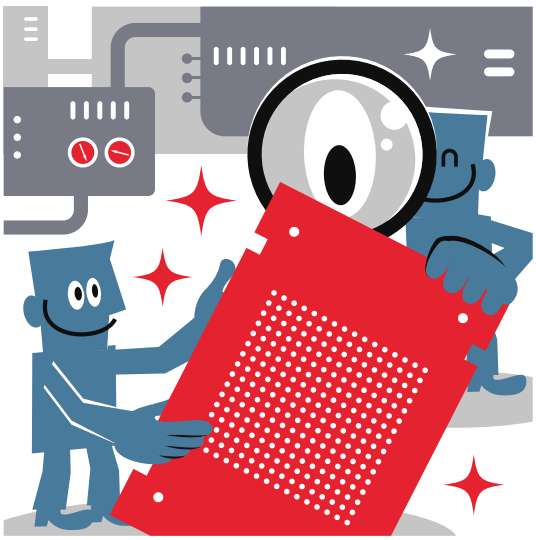
Squares

Possible Square Perforation Orientations

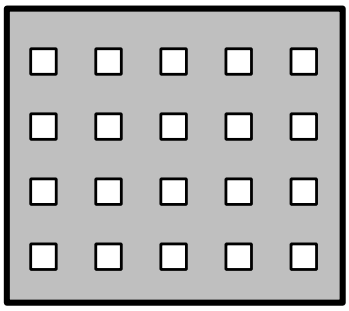
Our most popular square perforation is of a rectangular orientation as shown in this catalogue.

If you would like to use another orientation, please contact us to discuss the options. Higher density patterns are more difficult to produce and have less options available.

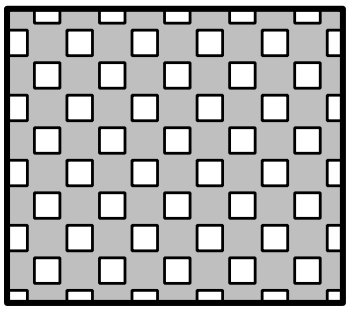
Squares do not easily punch in stainless steel, although large squares on thin material are available with limited pattern choice.



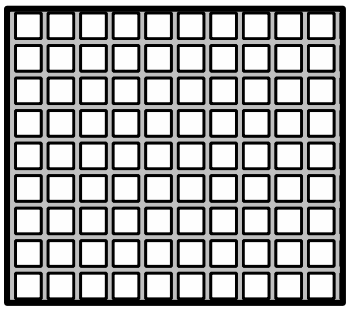
Low Density Rectangular Orientation



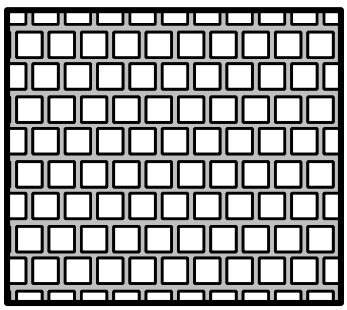
Checkered (Low Density Staggered Orientation)



High Density Rectangular Orientation

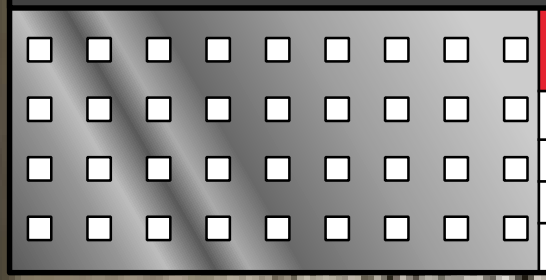


High Density Staggered Orientation



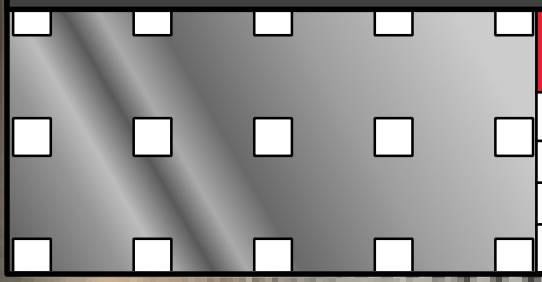
Squares

S032S16 — 3.2mm SQ, 7.9mm centres - 16.2% Open Area



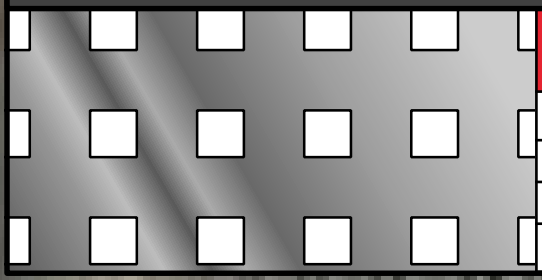
Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.0	1.6
Galvanized Steel	1.0	1.6
Aluminium	1.0	2.0
Stainless Steel 304 or 316	NA	NA

S050S10 / P422 — 5.0mm SQ, 16.0mm centres – 9.8% Open Area



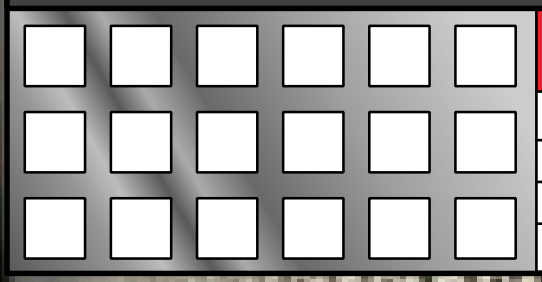
Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.5	2.5
Galvanized Steel	1.5	2.5
Aluminium	1.5	3.0
Stainless Steel 304 or 316	NA	NA

S062S19 — 6.2mm SQ, 14.2mm centres – 19.1% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	0.75
Galvanized Steel	0.75	0.75
Aluminium	0.75	0.75
Stainless Steel 304 or 316	NA	NA

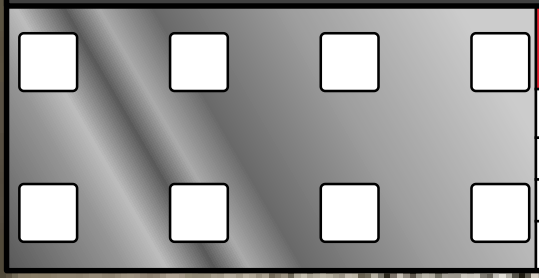
S080S49 / P448 — 8.0mm SQ, 11.43mm centres – 49.0% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	2.0
Galvanized Steel	0.75	2.0
Aluminium	0.75	3.0
Stainless Steel 304 or 316	NA	NA

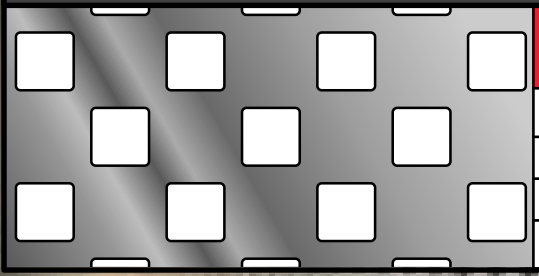
Squares

Q080S16 8.0mm Radius Square, 20.0mm centres, Rectangular, 16% Open Area



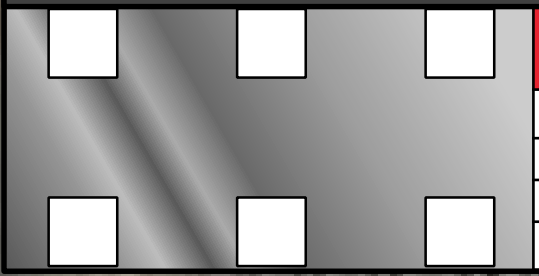
Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.6
Galvanized Steel	0.75	1.6
Aluminium	0.75	2.0
Stainless Steel 304 or 316	NA	NA

Q080G32 8.0mm Radius Square, 20.0mm centres, 45° Stagger, 32% Open Area



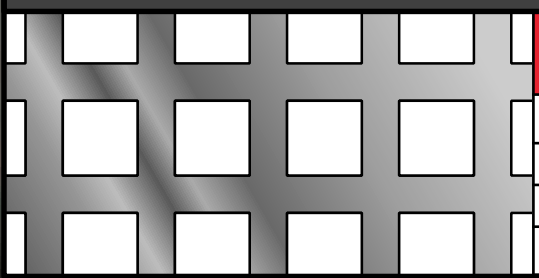
Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.6
Galvanized Steel	0.75	1.6
Aluminium	0.75	2.0
Stainless Steel 304 or 316	NA	NA

S091S13 9.1mm SQ, 25mm centres, 13% Open Area



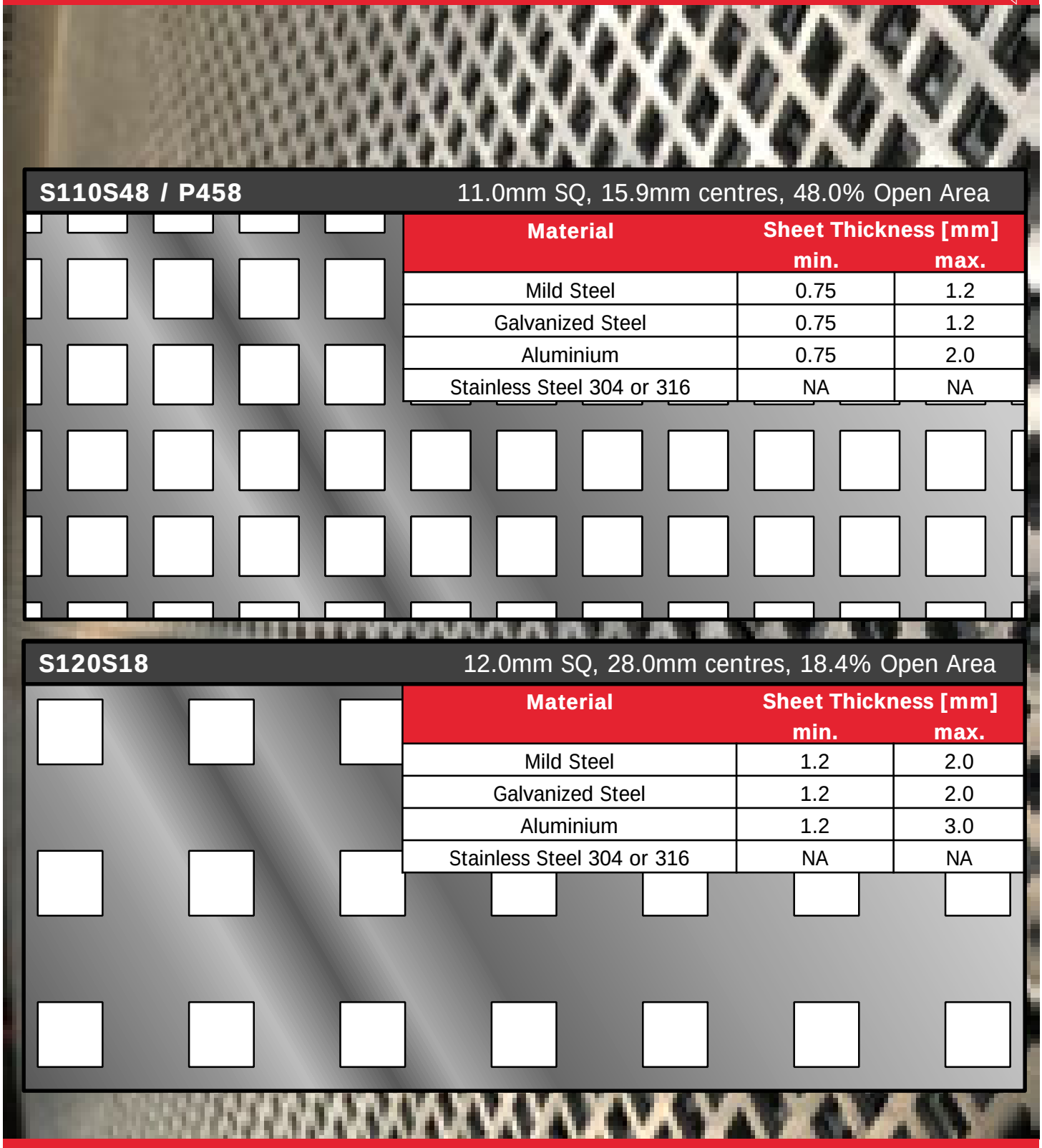
Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.2	2.5
Galvanized Steel	1.2	2.5
Aluminium	1.2	3.0
Stainless Steel 304 or 316	NA	NA

S100S44 / P450 10.0mm SQ, 15mm centres, 44.4% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.0	2.0
Galvanized Steel	1.0	2.0
Aluminium	1.0	3.0
Stainless Steel 304 or 316	NA	NA

Squares



S110S48 / P458

11.0mm SQ, 15.9mm centres, 48.0% Open Area

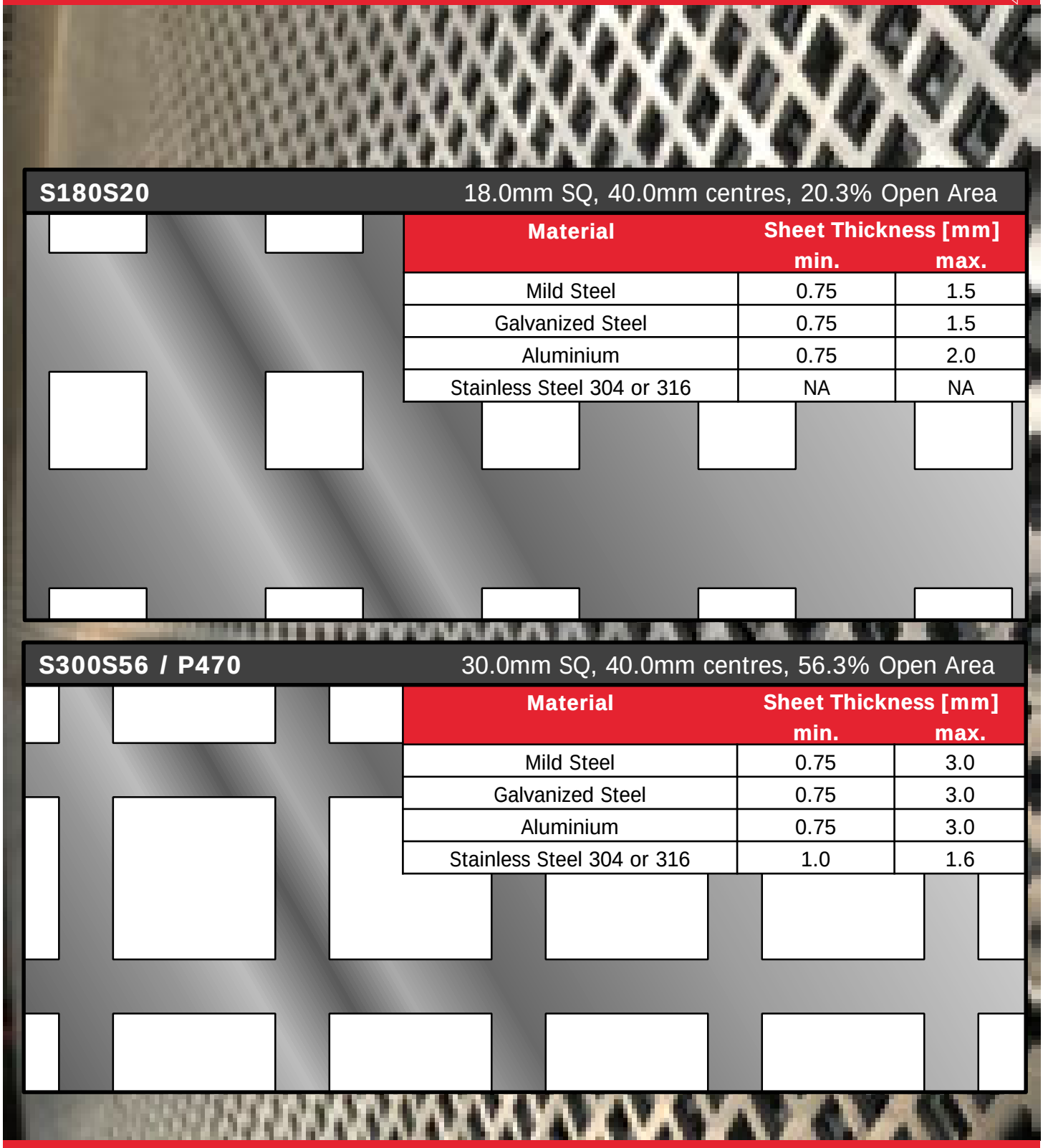
Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.2
Galvanized Steel	0.75	1.2
Aluminium	0.75	2.0
Stainless Steel 304 or 316	NA	NA

S120S18

12.0mm SQ, 28.0mm centres, 18.4% Open Area

Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.2	2.0
Galvanized Steel	1.2	2.0
Aluminium	1.2	3.0
Stainless Steel 304 or 316	NA	NA

Squares



S180S20 — 18.0mm SQ, 40.0mm centres, 20.3% Open Area

Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.5
Galvanized Steel	0.75	1.5
Aluminium	0.75	2.0
Stainless Steel 304 or 316	NA	NA

S300S56 / P470 — 30.0mm SQ, 40.0mm centres, 56.3% Open Area

Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	3.0
Galvanized Steel	0.75	3.0
Aluminium	0.75	3.0
Stainless Steel 304 or 316	1.0	1.6

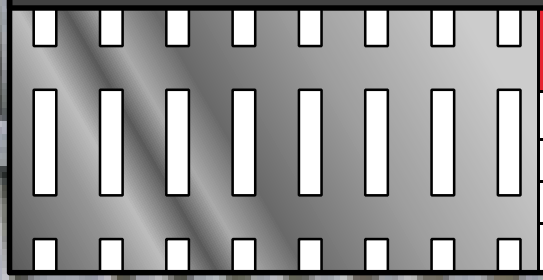
fielden
metalworks

perforated
sheetmetal
specialists

Rectangular Slots

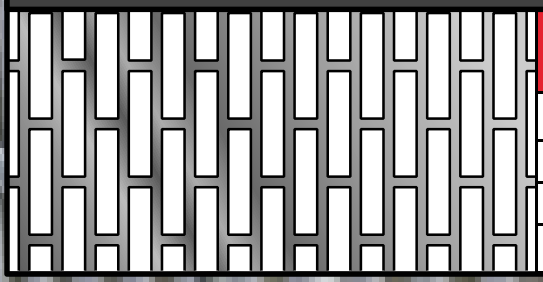
The rectangular perforations (with square corners) displayed on this page also have a radius rectangle alternative (with rounded corners) that can be run with 1.2mm stainless steel, as well as mild/galvanized steel and aluminium.

C140S24 — 14x3mm Rectangles, 8.80 x 19.8mm centres, 24.1% Open Area



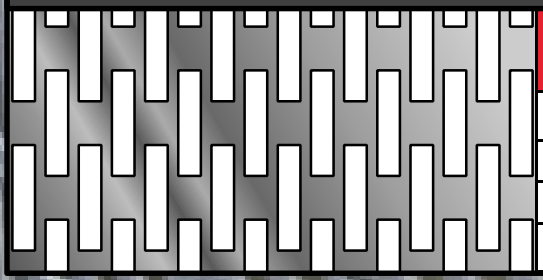
Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.0	1.6
Galvanized Steel	1.0	1.6
Aluminium	1.0	2.0
Stainless Steel 304 or 316	NA	NA

C140G62 — 14x3mm Rectangles, 15.4x4.4mm centres, 62% Open Area



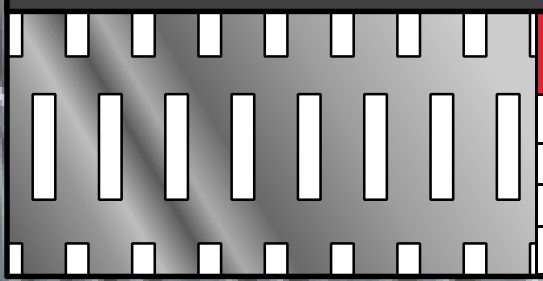
Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.0	1.6
Galvanized Steel	1.0	1.6
Aluminium	1.0	2.0
Stainless Steel 304 or 316	NA	NA

C140G48 — 14x3mm Rectangles, 19.8x4.4mm centres, 48.2% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.0	1.6
Galvanized Steel	1.0	1.6
Aluminium	1.0	2.0
Stainless Steel 304 or 316	NA	NA

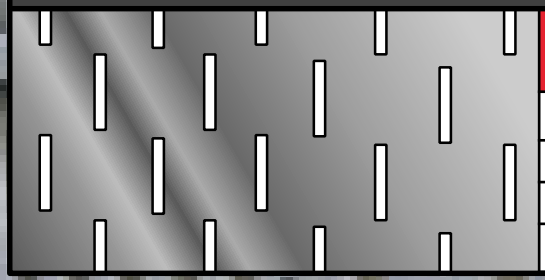
C140E23 — 14x3mm Rectangles, 19.8x8.8mm centres, 23% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.0	1.6
Galvanized Steel	1.0	1.6
Aluminium	1.0	2.0
Stainless Steel 304 or 316	NA	NA

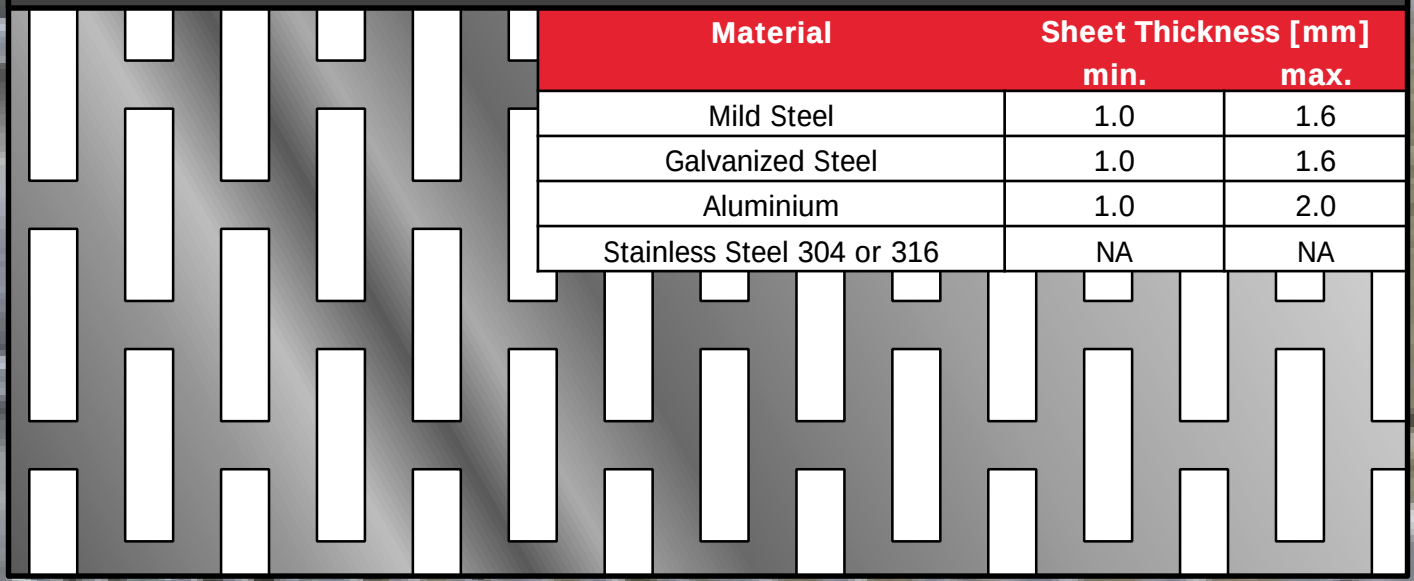
Rectangular Slots

C100G09 — 10x1.5mm Rectangles, 22.0x8.0mm centres, 8.5% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.2	1.5
Galvanized Steel	1.2	1.5
Aluminium	1.2	2.0
Stainless Steel 304 or 316	NA	NA

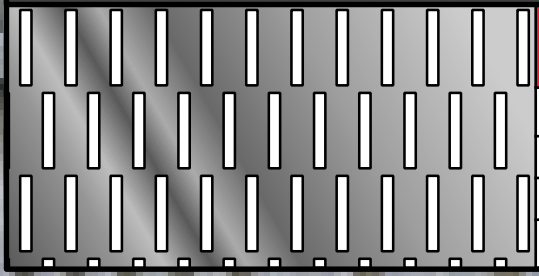
C254G40 — 25.4x6.35mm Rectangles, 31.75x12.7mm centres, 40.0% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.0	1.6
Galvanized Steel	1.0	1.6
Aluminium	1.0	2.0
Stainless Steel 304 or 316	NA	NA

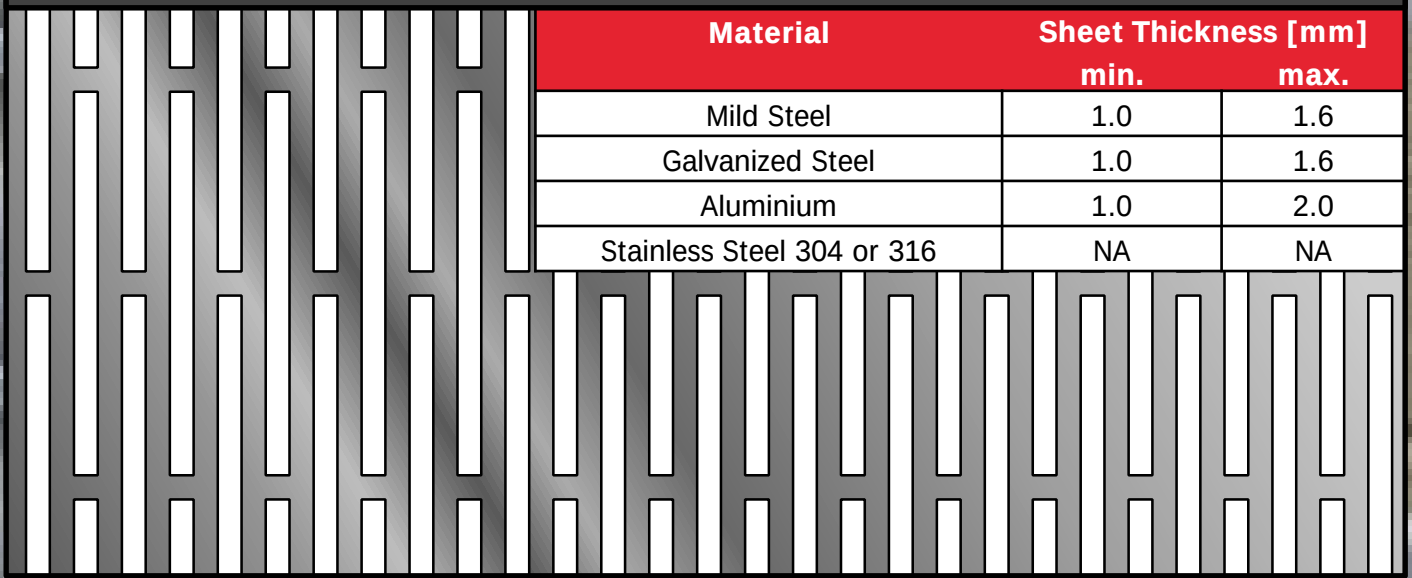
Rectangular Slots

C100G23 — 10x1.5mm Rectangles, 22.0x3.0mm centres, 22.7% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.2	1.5
Galvanized Steel	1.2	1.5
Aluminium	1.2	2.0
Stainless Steel 304 or 316	NA	NA

C508G47 — 50.8x3.2mm Rectangles, 54.0x6.4mm centres, 47.4% Open Area



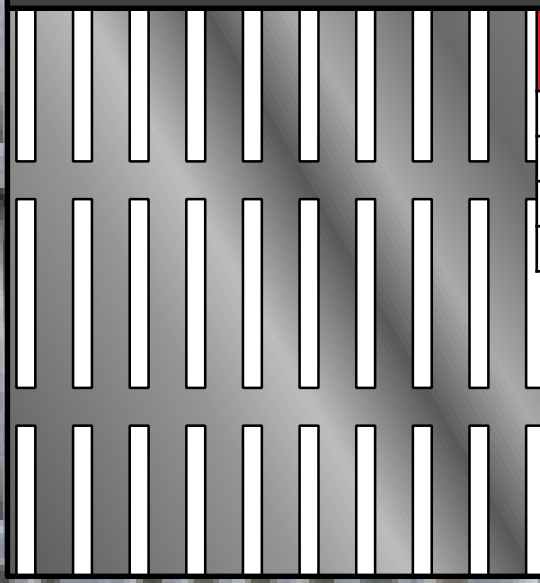
Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.0	1.6
Galvanized Steel	1.0	1.6
Aluminium	1.0	2.0
Stainless Steel 304 or 316	NA	NA

Rectangular Slots

C250S28 / P488

25.0x2.5mm holes, 30.0x7.5mm centres, 27.8% Open Area

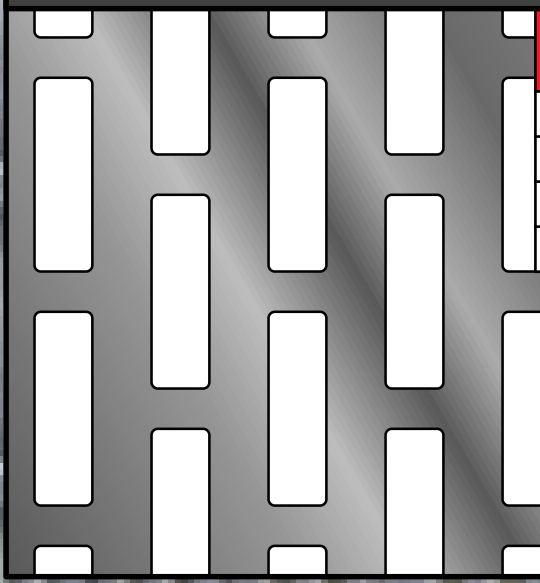
For Mechanical Use Only



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.6	1.6
Galvanized Steel	1.6	1.6
Aluminium	1.2	2.0
Stainless Steel 304 or 316	1.6	1.6

C264G46 / P922

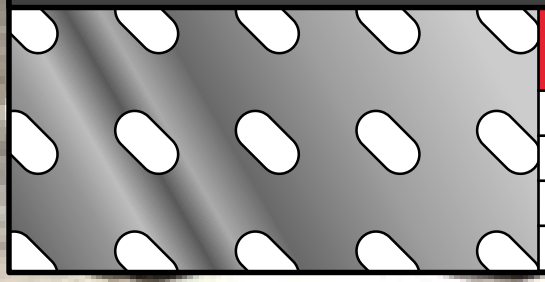
25.95x8.0mm Rectangle Radius, 31.0x15.5mm centres, 46.1% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.2	2.0
Galvanized Steel	1.2	2.0
Aluminium	1.6	3.0
Stainless Steel 304 or 316	1.2	1.6

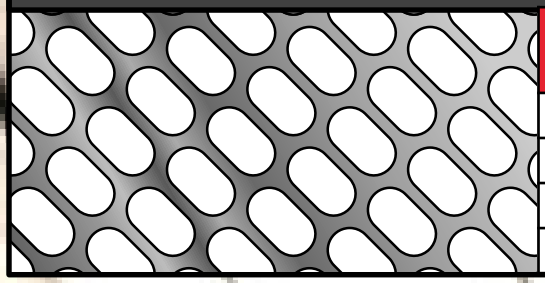
Obround Slots

O100X19 — 10x5.5mm obrounds, 11.3x7.5mm centres, 19.0% Open Area



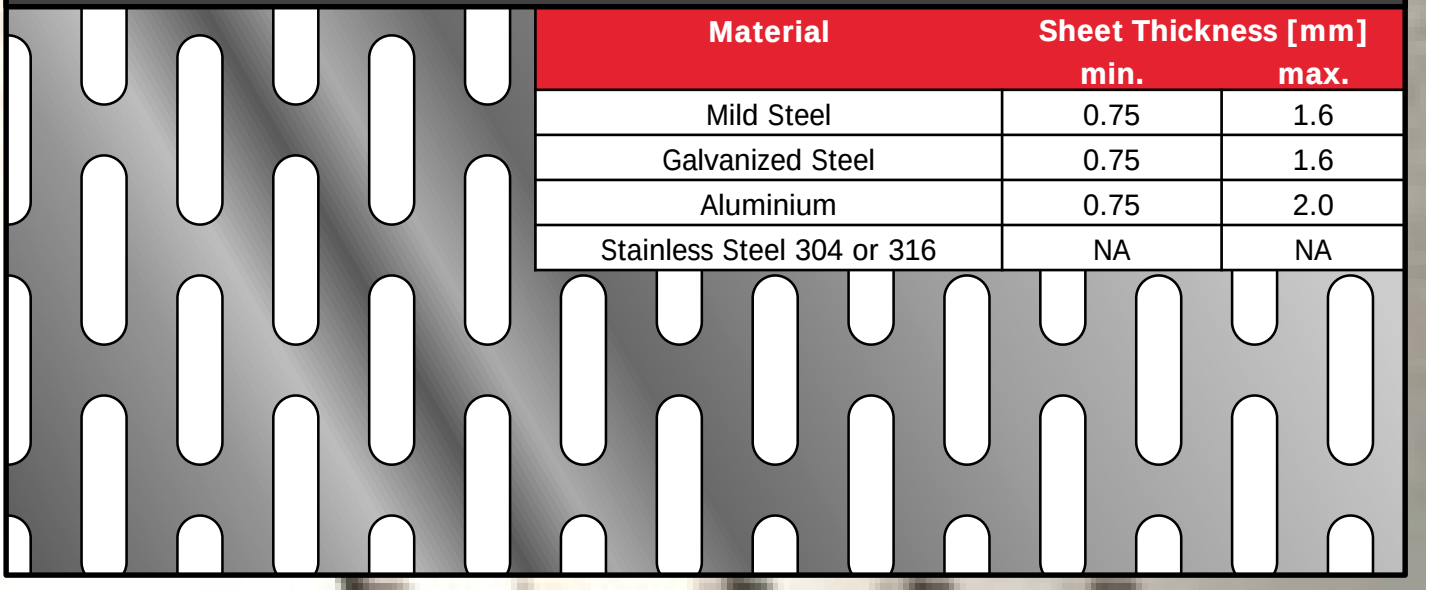
Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.55	2.0
Galvanized Steel	0.55	2.0
Aluminium	0.75	3.0
Stainless Steel 304 or 316	1.2	1.2

O100X57 — 10x5.5mm obrounds, 11.3x7.5mm centres, 57.2% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.55	2.0
Galvanized Steel	0.55	2.0
Aluminium	0.75	3.0
Stainless Steel 304 or 316	1.2	1.2

O254G38 — 25.4x6.3mm obrounds, 31.8x12.7mm centres, 37.5% Open Area

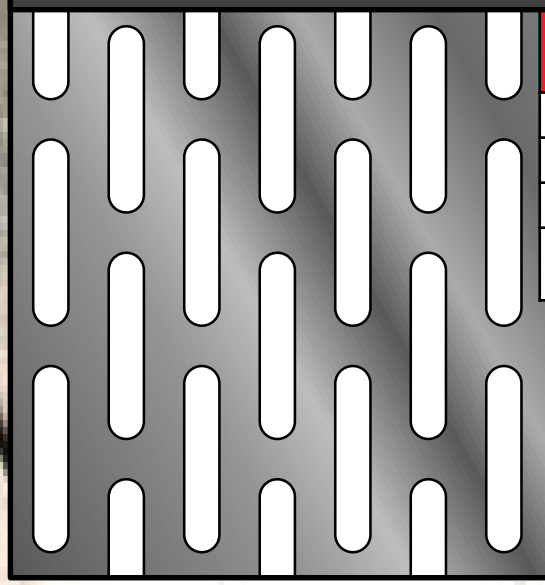


Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.6
Galvanized Steel	0.75	1.6
Aluminium	0.75	2.0
Stainless Steel 304 or 316	NA	NA

Obround Slots

O250G40 / P588

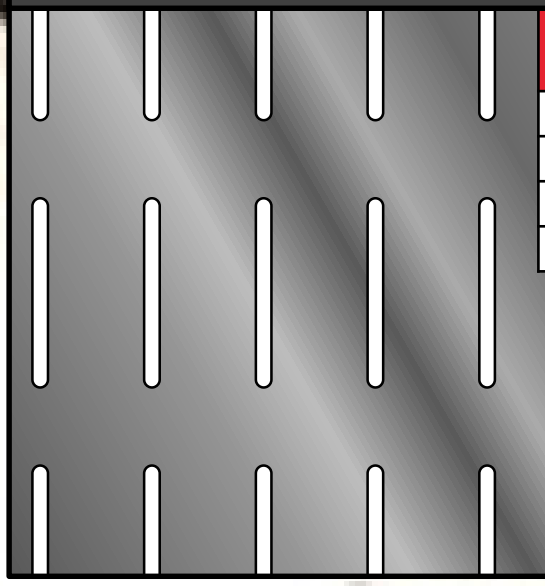
25x5mm holes, 30x10 centres, 39.9% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.0	1.6
Galvanized Steel	1.0	1.6
Aluminium	1.0	2.0
Stainless Steel 304 or 316	Mechanical Use Only	Mechanical Use Only

O254S11 / P720

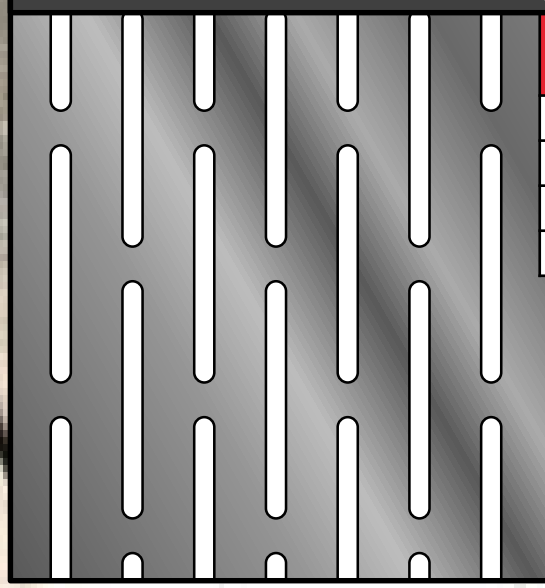
25.4x2.4mm, 35.4x14.8 mm centres, 11.4% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.0	2.0
Galvanized Steel	1.0	2.0
Aluminium	1.0	3.0
Stainless Steel 304 or 316	1.2	1.2

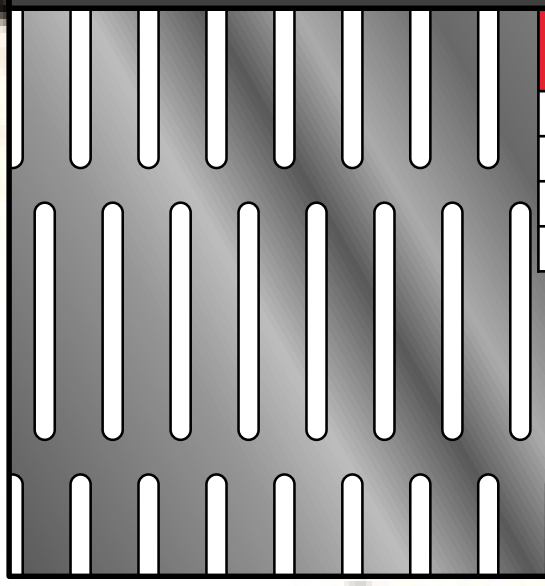
Obround Slots

O318G27 31.75x3mm holes, 36x9.5mm centres, Side Staggered 27.3% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.0	2.0
Galvanized Steel	1.0	2.0
Aluminium	1.0	3.0
Stainless Steel 304 or 316	1.2	1.2

O318E27 31.75x3mm holes, 36x9.5mm centres, End Staggered 27.3% Open Area

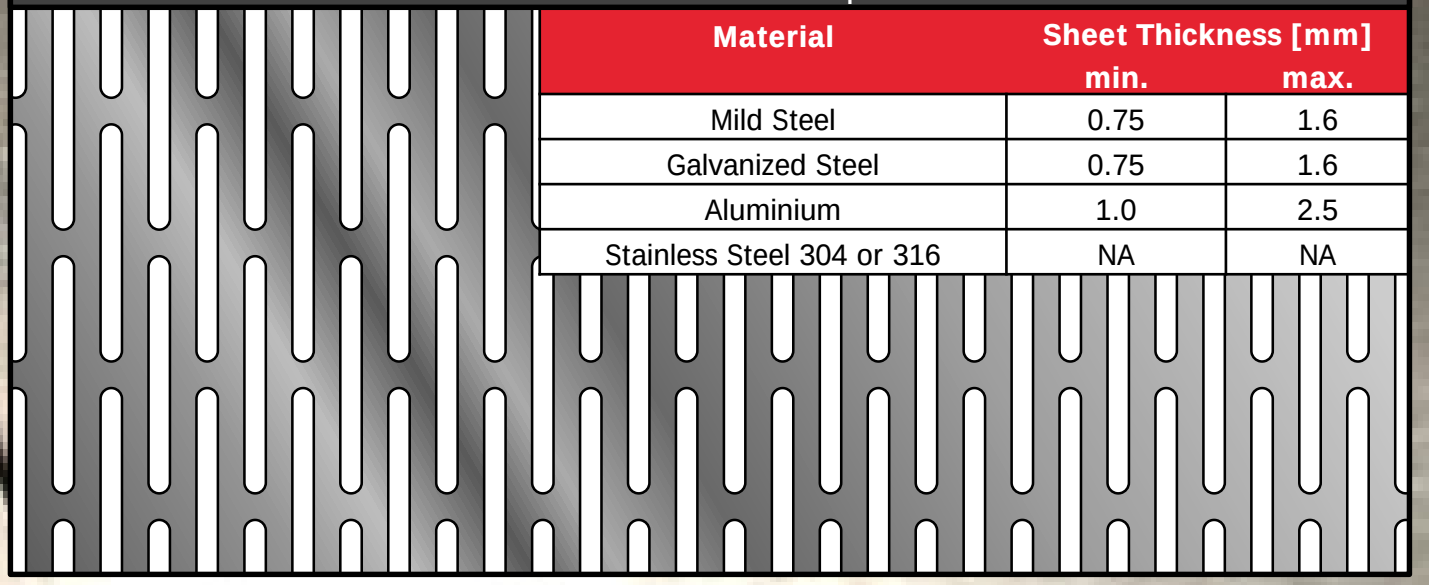


Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.0	2.0
Galvanized Steel	1.0	2.0
Aluminium	1.0	3.0
Stainless Steel 304 or 316	1.2	1.2

Obround Slots

O318G45

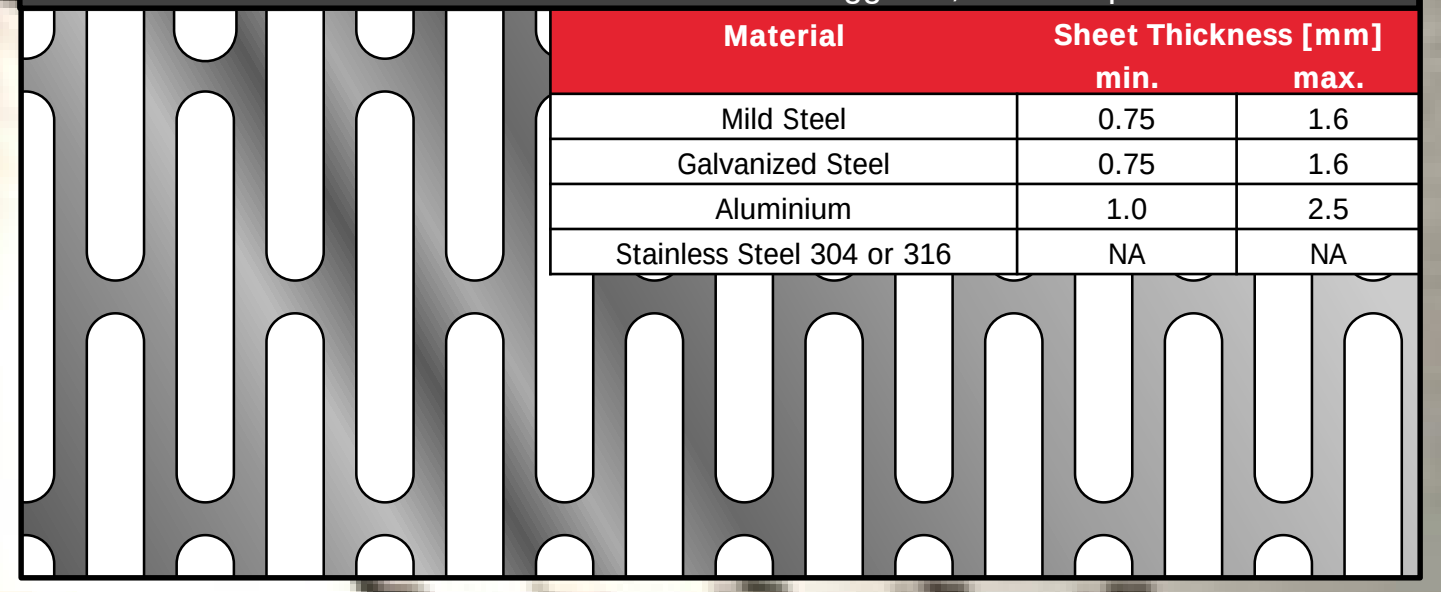
31.75x3.18mm Holes, 34.9x6.4mm centres, 44.5% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.6
Galvanized Steel	0.75	1.6
Aluminium	1.0	2.5
Stainless Steel 304 or 316	NA	NA

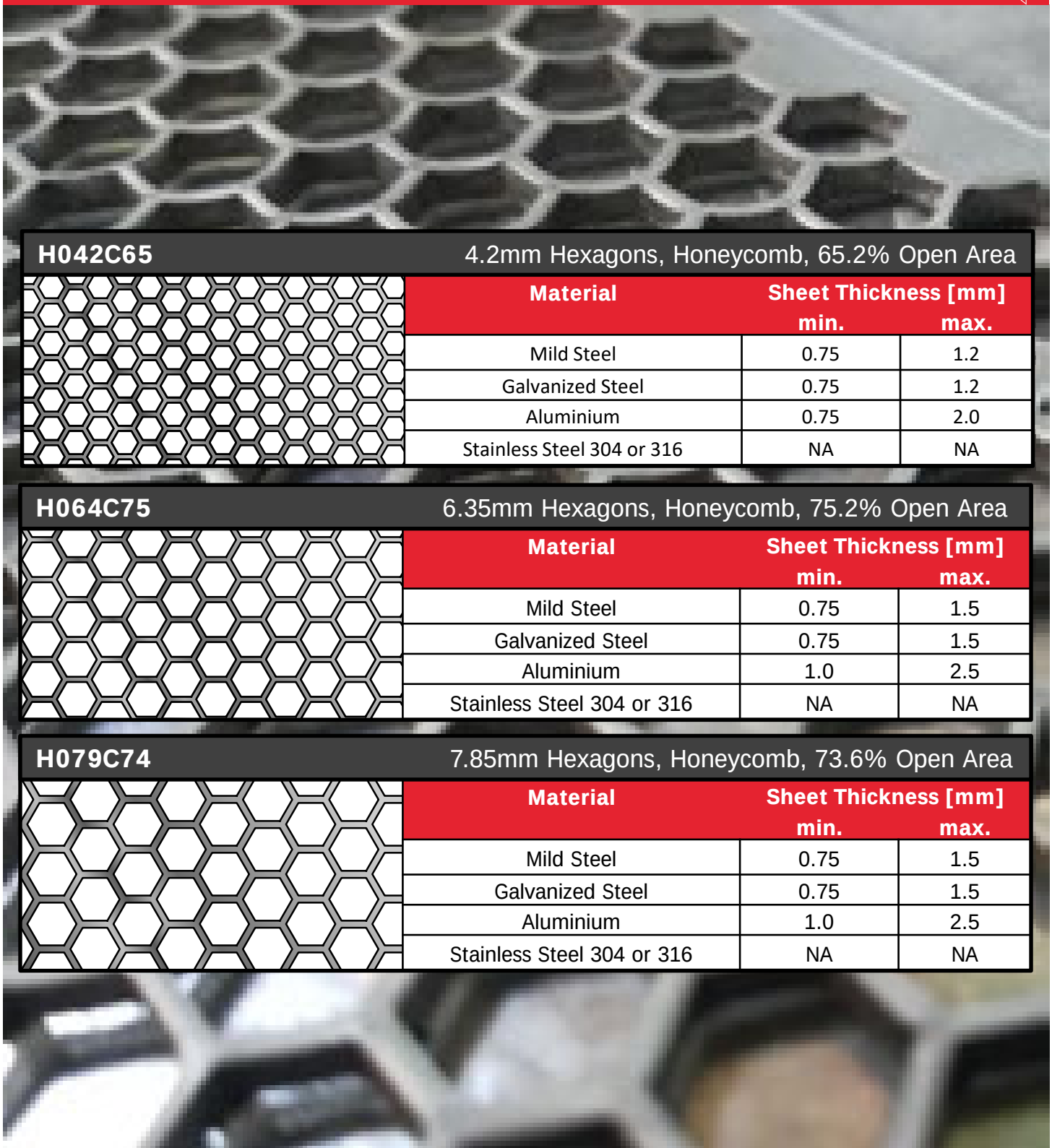
O548G56

54.76x7.92mm Holes, 57.80x12.90 centres, Side Staggered, 56.4% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.6
Galvanized Steel	0.75	1.6
Aluminium	1.0	2.5
Stainless Steel 304 or 316	NA	NA

Hexagonal



H042C65 — 4.2mm Hexagons, Honeycomb, 65.2% Open Area

Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.2
Galvanized Steel	0.75	1.2
Aluminium	0.75	2.0
Stainless Steel 304 or 316	NA	NA

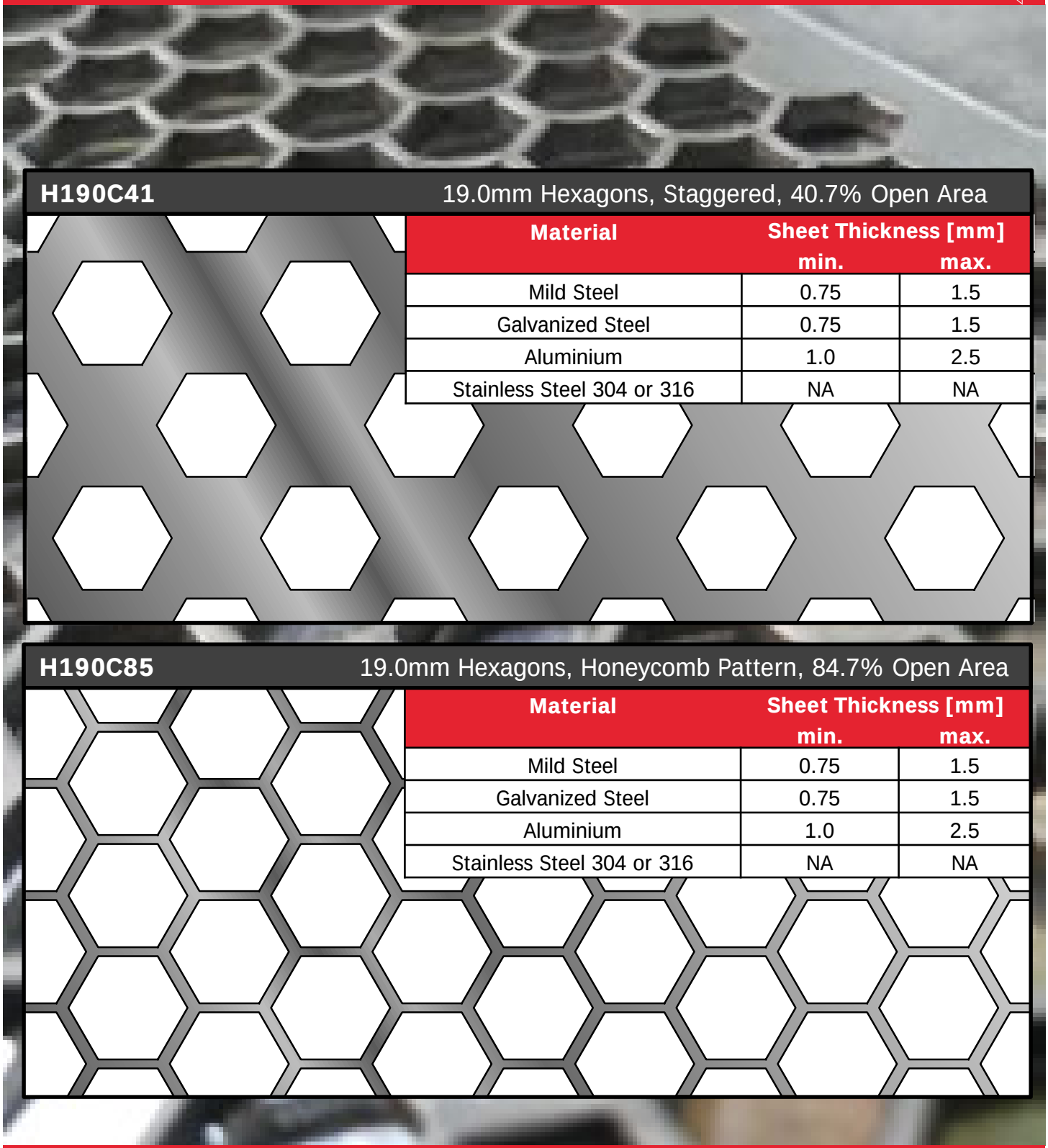
H064C75 — 6.35mm Hexagons, Honeycomb, 75.2% Open Area

Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.5
Galvanized Steel	0.75	1.5
Aluminium	1.0	2.5
Stainless Steel 304 or 316	NA	NA

H079C74 — 7.85mm Hexagons, Honeycomb, 73.6% Open Area

Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.5
Galvanized Steel	0.75	1.5
Aluminium	1.0	2.5
Stainless Steel 304 or 316	NA	NA

Hexagonal



H190C41 — 19.0mm Hexagons, Staggered, 40.7% Open Area

Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.5
Galvanized Steel	0.75	1.5
Aluminium	1.0	2.5
Stainless Steel 304 or 316	NA	NA

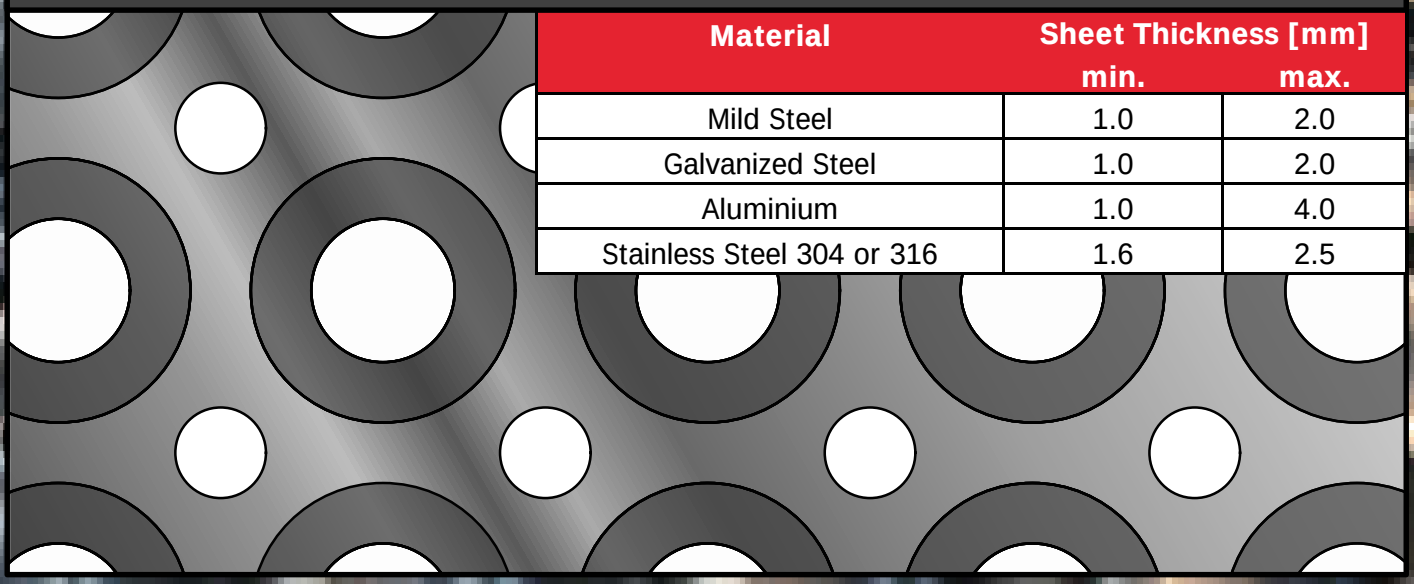
H190C85 — 19.0mm Hexagons, Honeycomb Pattern, 84.7% Open Area

Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.5
Galvanized Steel	0.75	1.5
Aluminium	1.0	2.5
Stainless Steel 304 or 316	NA	NA

Dimples

OSH10 Safety Tread Plate
With hole in each dimple

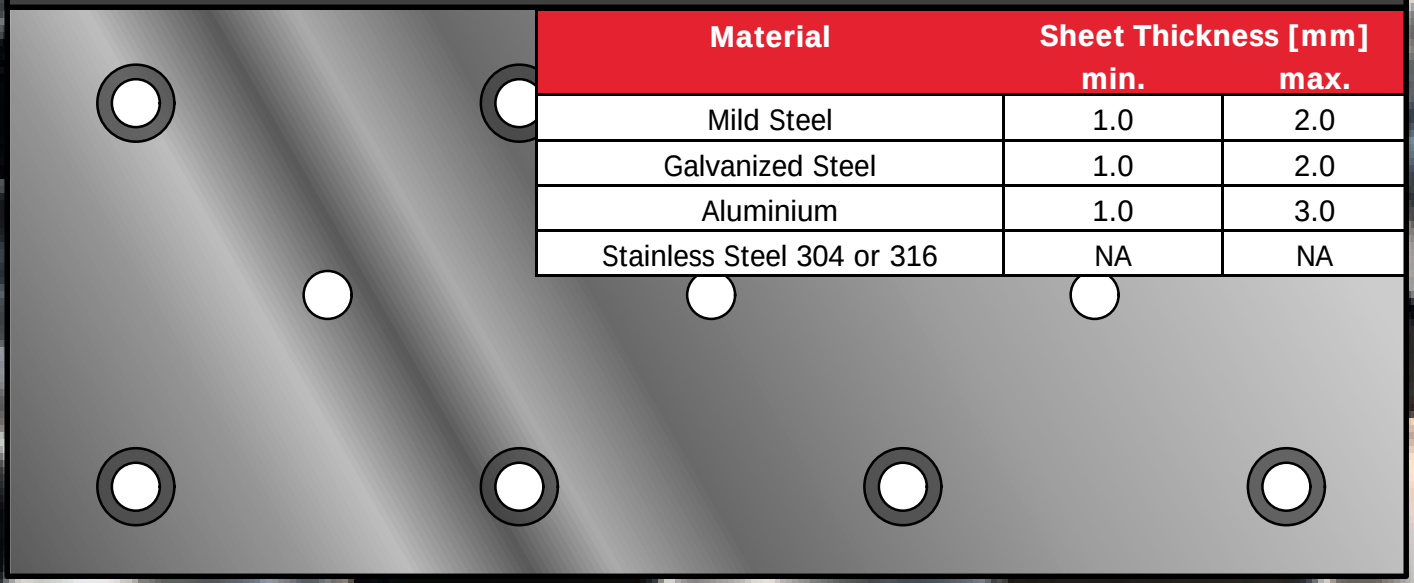
19.0-35.0mm Dimples, 43mm centres
12mm hole @ 43mm centres
21.5 % Open Area



Material	Sheet Thickness [mm]	
	min.	max.
Mild Steel	1.0	2.0
Galvanized Steel	1.0	2.0
Aluminium	1.0	4.0
Stainless Steel 304 or 316	1.6	2.5

OSH6 Safety Tread Plate
With hole in each dimple

7.0-12.0mm Dimples, 50.8mm centres
6.35mm holes @ 50.8mm centres
2.5% Open Area



Material	Sheet Thickness [mm]	
	min.	max.
Mild Steel	1.0	2.0
Galvanized Steel	1.0	2.0
Aluminium	1.0	3.0
Stainless Steel 304 or 316	NA	NA

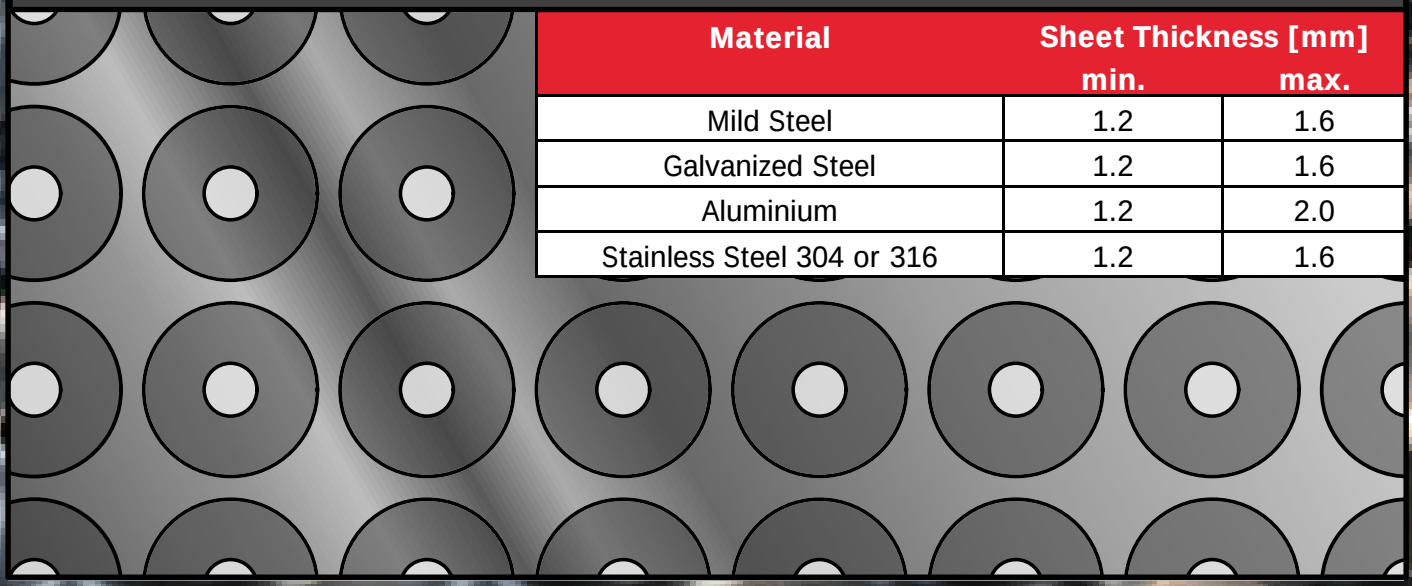
Dimples

We also have a selection of obround, square and rectangle dimple tools to choose from for any special forming requirements.

P622

Option to punch holes in dimples

7.0-23.0mm dimples, 26mm centres, rectangular, 0% Open Area

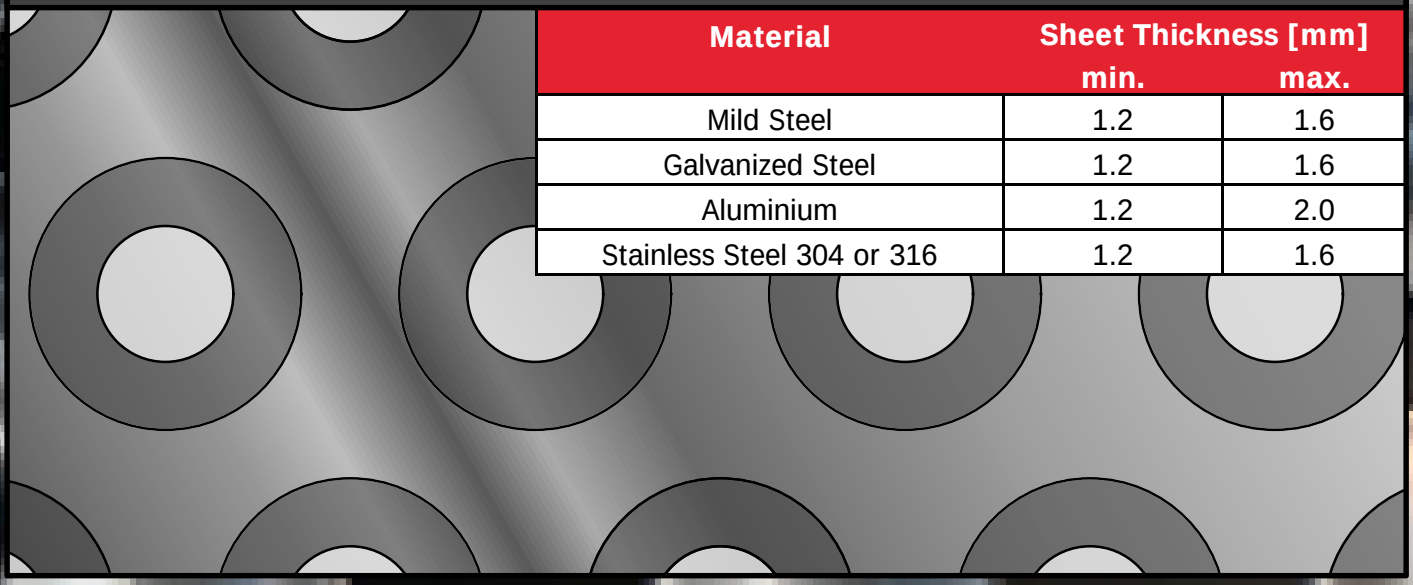


Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.2	1.6
Galvanized Steel	1.2	1.6
Aluminium	1.2	2.0
Stainless Steel 304 or 316	1.2	1.6

P644

Option to punch holes in dimples

18.0-36.0mm dimples, 49.0mm centres, staggered, 0% open area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.2	1.6
Galvanized Steel	1.2	1.6
Aluminium	1.2	2.0
Stainless Steel 304 or 316	1.2	1.6

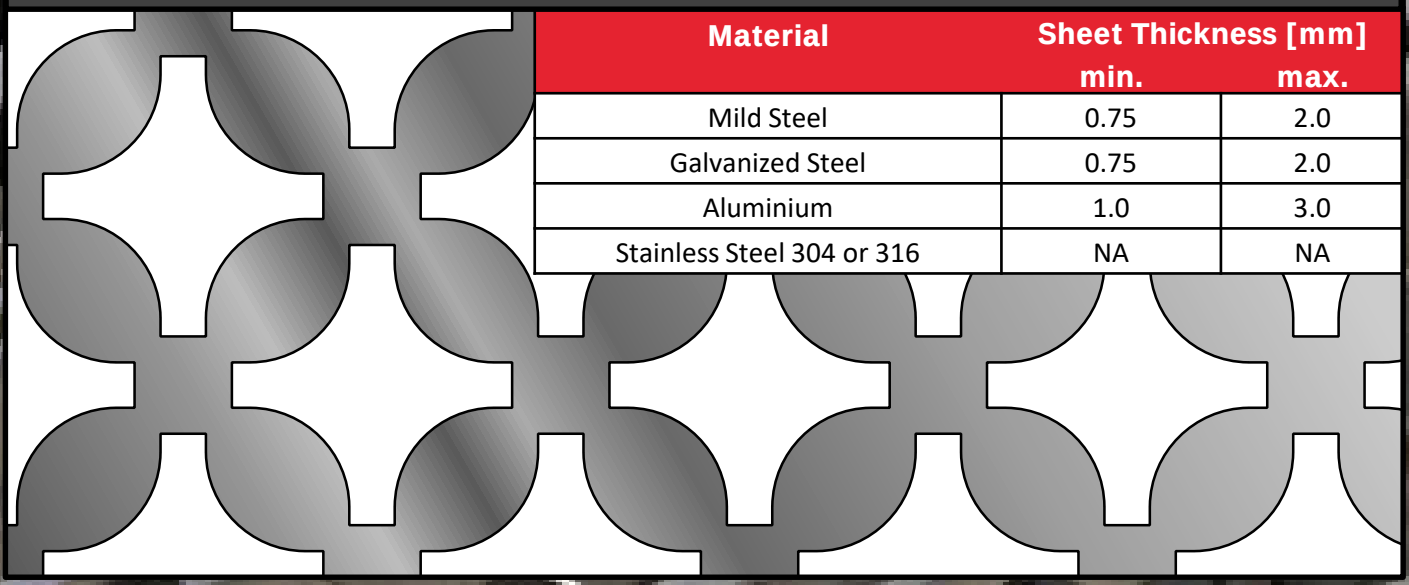
fielden
metalworks

perforated
sheetmetal
specialists

Decorative

Karaka / X375G46

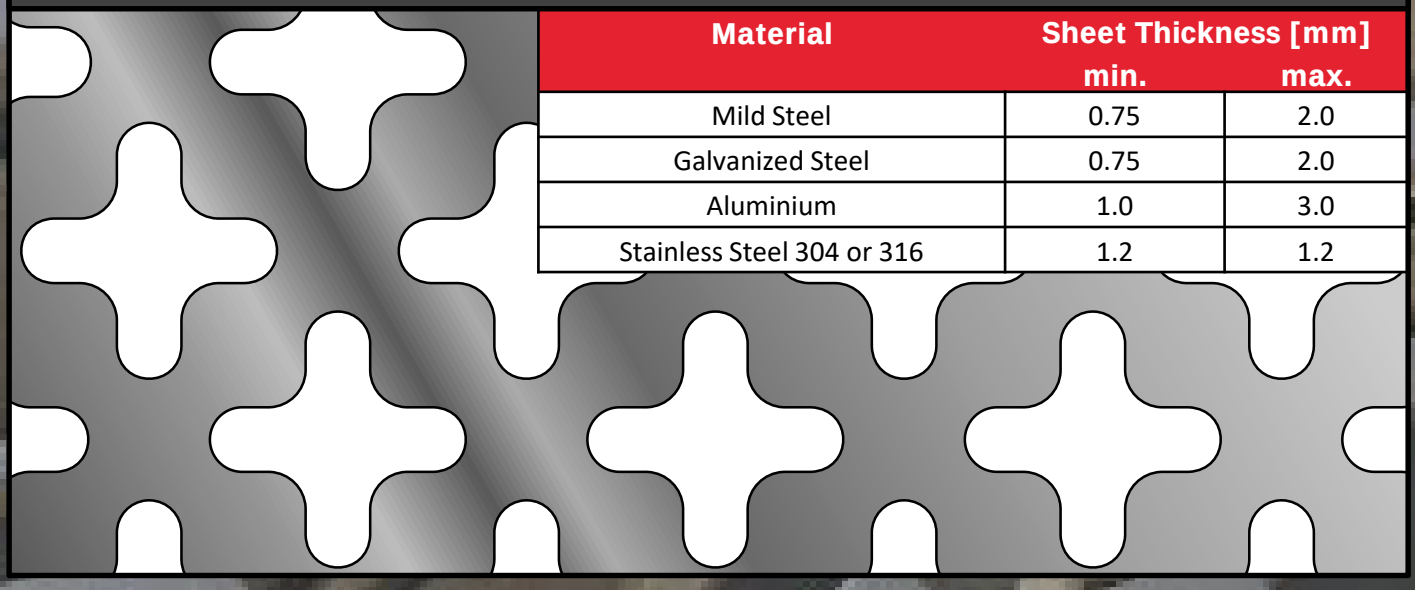
37.5mm cross tool, 46.4% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	2.0
Galvanized Steel	0.75	2.0
Aluminium	1.0	3.0
Stainless Steel 304 or 316	NA	NA

Tarata / X343G41

34.3mm rounded cross tool, 41.3% Open Area

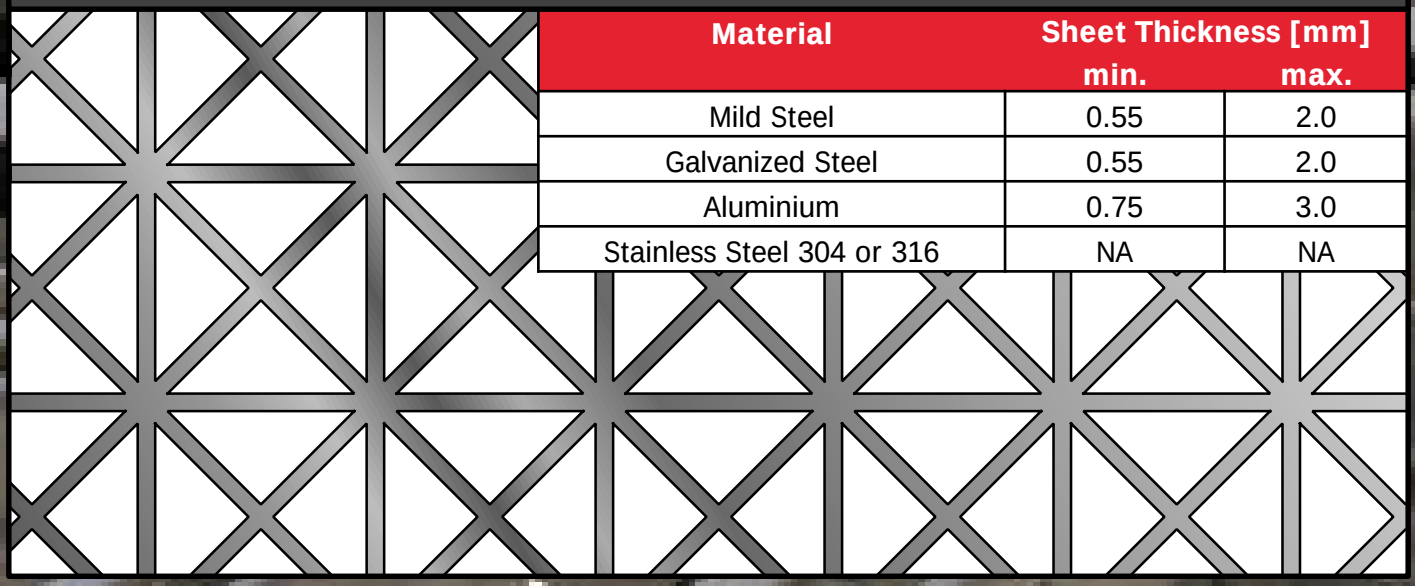


Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	2.0
Galvanized Steel	0.75	2.0
Aluminium	1.0	3.0
Stainless Steel 304 or 316	1.2	1.2

Decorative

Harakeke / T175X67

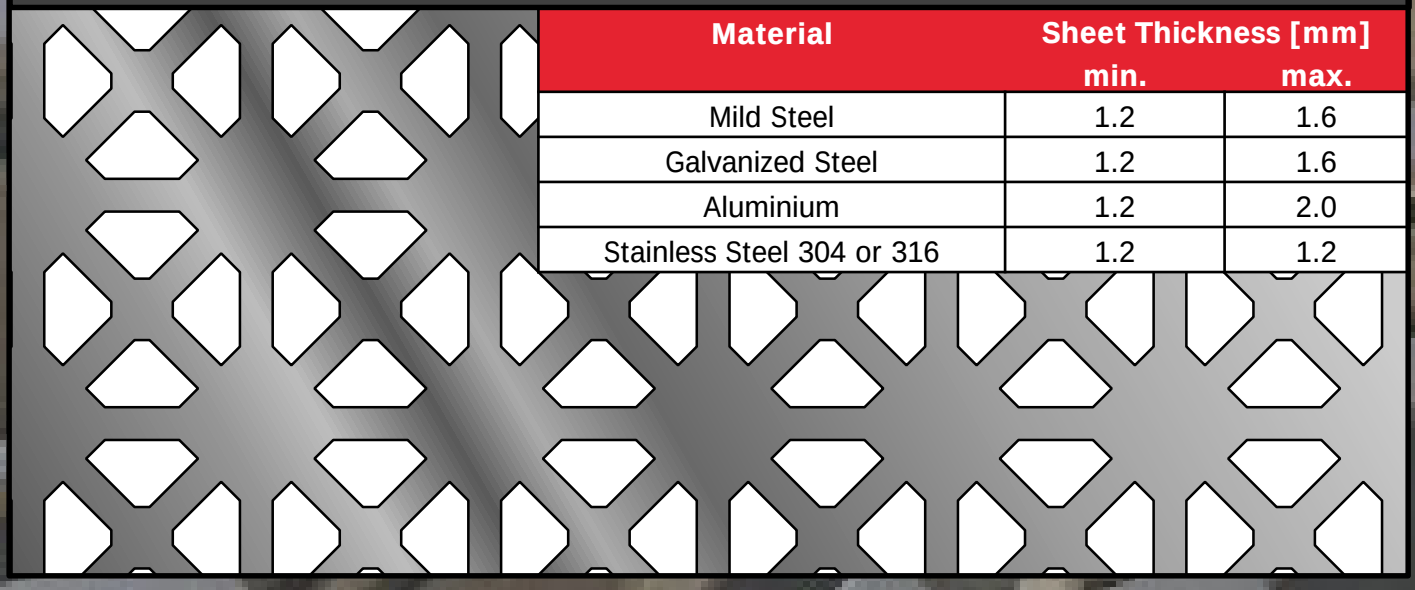
17.5mm triangles arranged in a woven pattern, 66.5% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.55	2.0
Galvanized Steel	0.55	2.0
Aluminium	0.75	3.0
Stainless Steel 304 or 316	NA	NA

Punga Tahi / X152S40

26mm square, special cluster, Rectangular, 39.7% Open Area

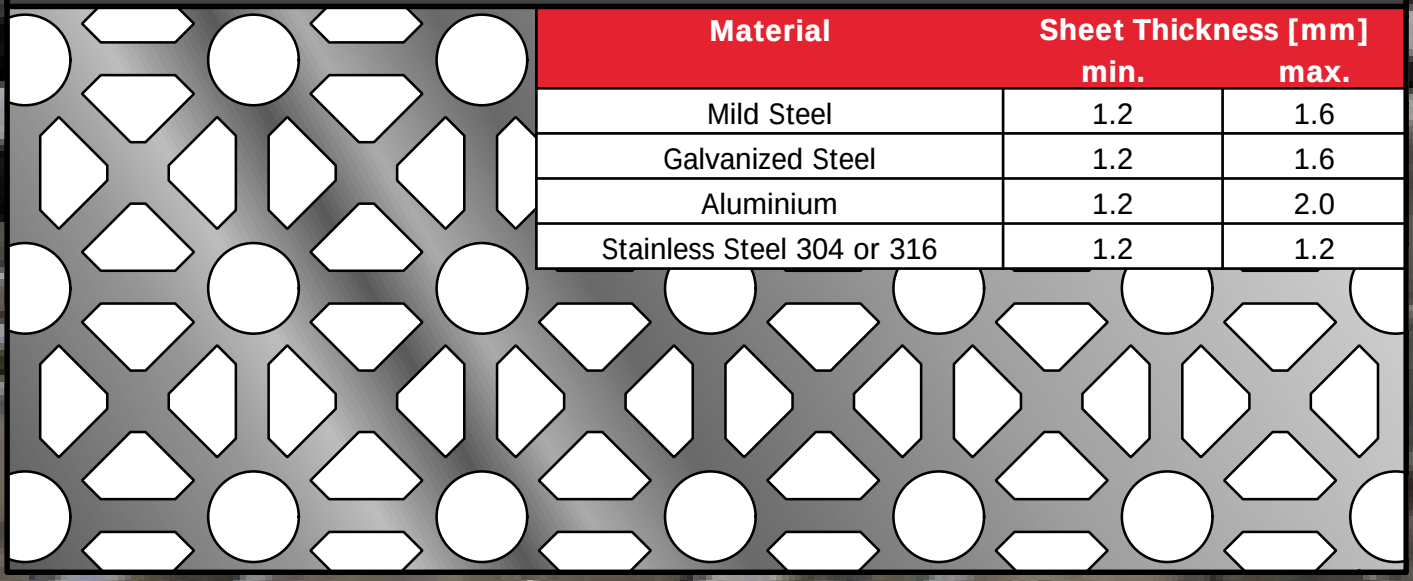


Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.2	1.6
Galvanized Steel	1.2	1.6
Aluminium	1.2	2.0
Stainless Steel 304 or 316	1.2	1.2

Decorative

Punga Rua / X152S52

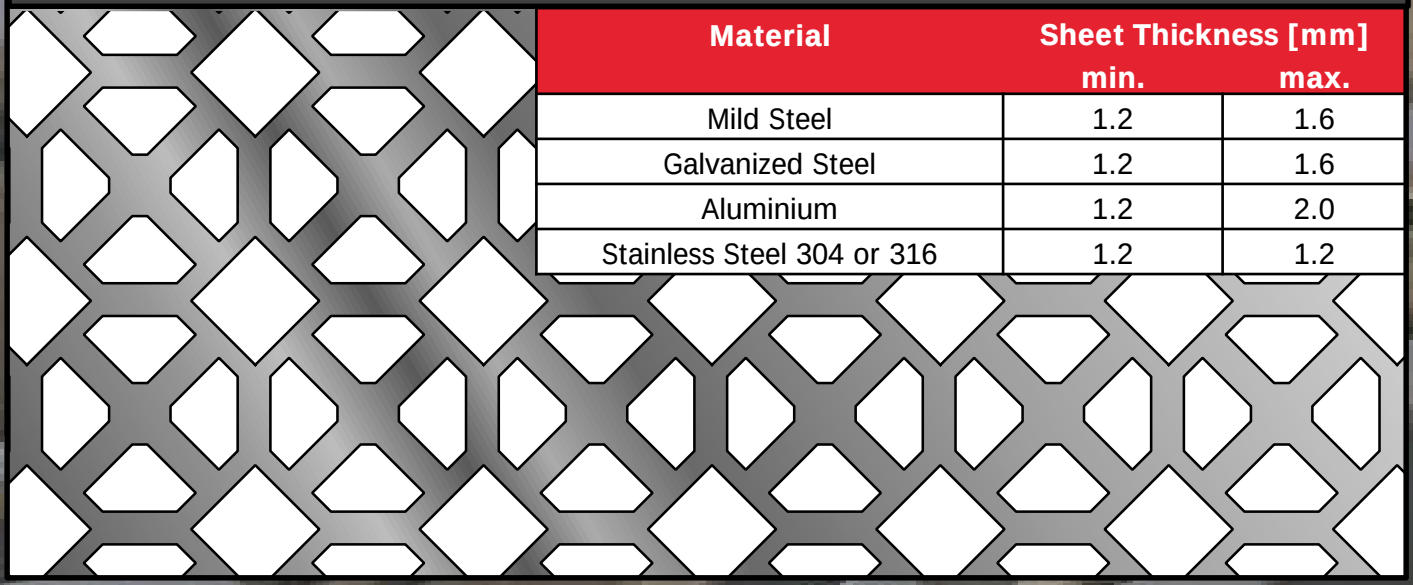
26mm SQ Special Cluster with 12mm Round tool, Rectangular, 52.1% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.2	1.6
Galvanized Steel	1.2	1.6
Aluminium	1.2	2.0
Stainless Steel 304 or 316	1.2	1.2

Punga Toru / X152S56

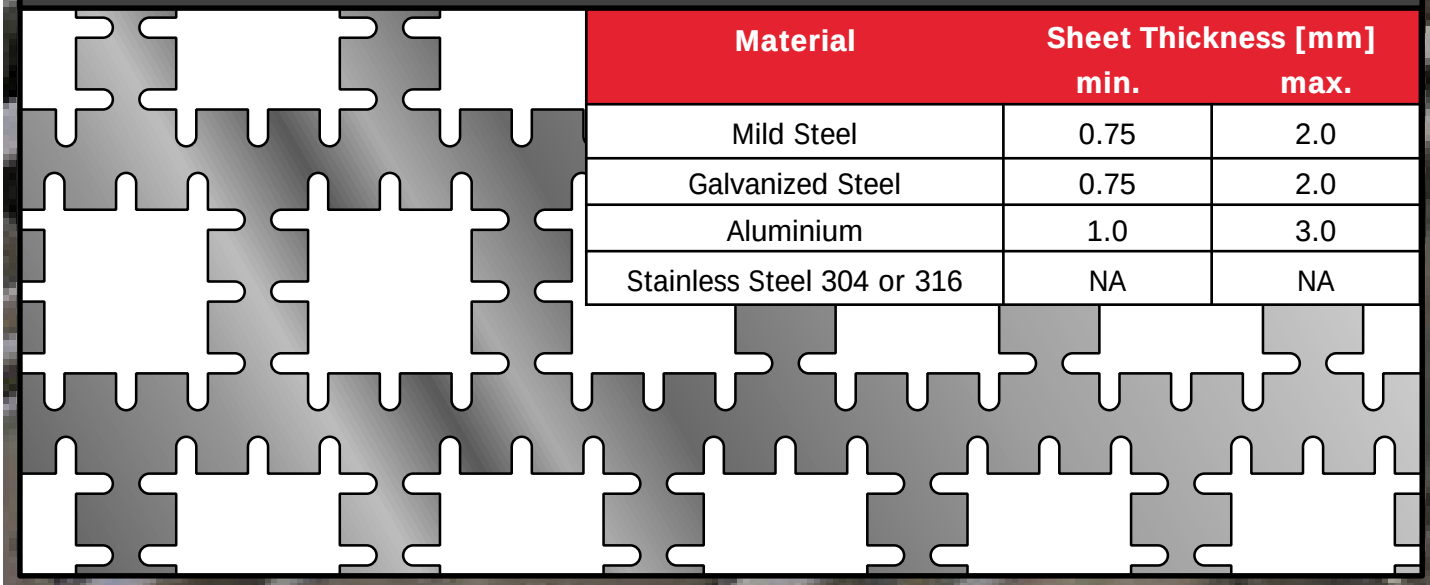
26mm SQ Special Cluster with 12mm Square tool, Rectangular, 55.5% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.2	1.6
Galvanized Steel	1.2	1.6
Aluminium	1.2	2.0
Stainless Steel 304 or 316	1.2	1.2

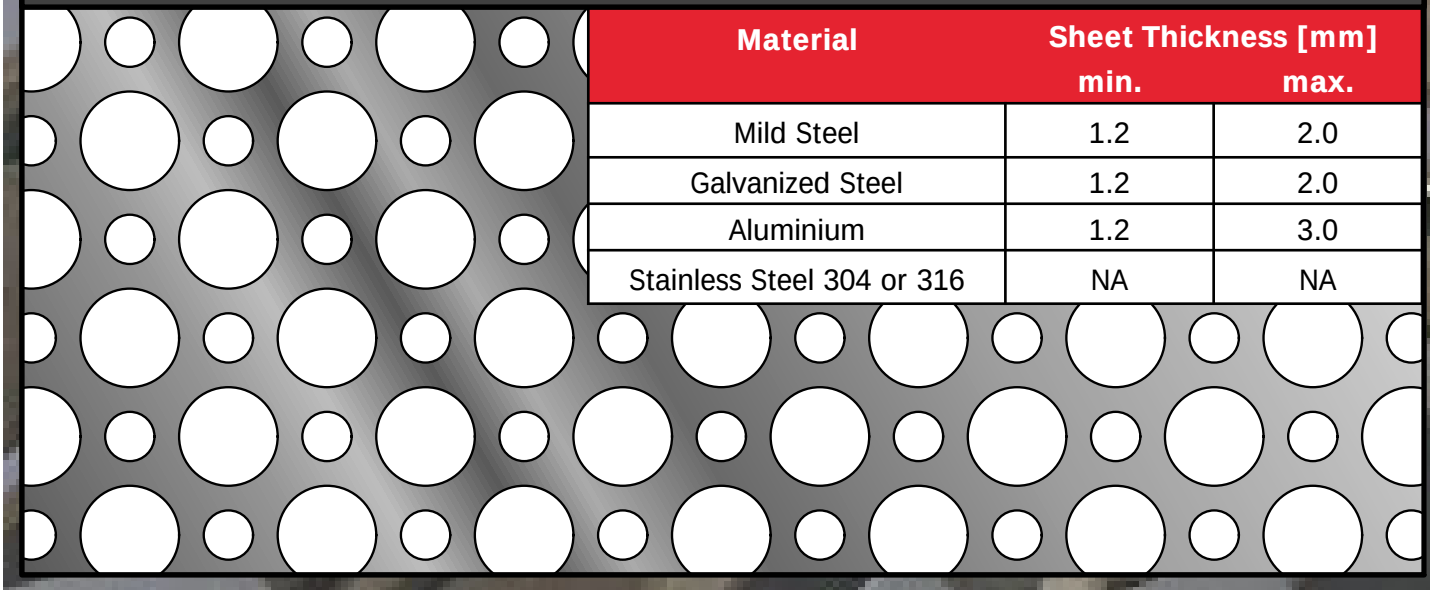
Decorative

Tutu / X318G54 — 31.6mm SQ, Staggered, 54.0% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	2.0
Galvanized Steel	0.75	2.0
Aluminium	1.0	3.0
Stainless Steel 304 or 316	NA	NA

Manuka / X127B25 — ø12.70mm & ø6.35mm alternating, 45° Stagger, 24.5% Open Area



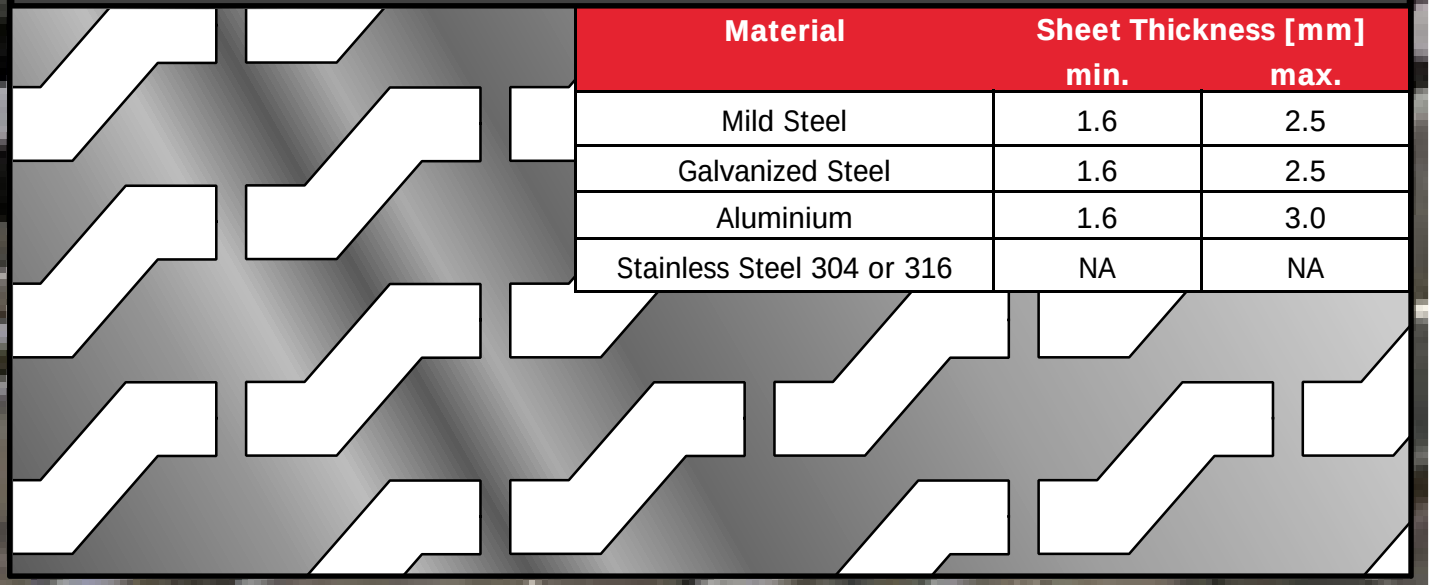
Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.2	2.0
Galvanized Steel	1.2	2.0
Aluminium	1.2	3.0
Stainless Steel 304 or 316	NA	NA

Decorative

These perforations are displayed at a scale of 0.5

Pohutakawa / X311X38

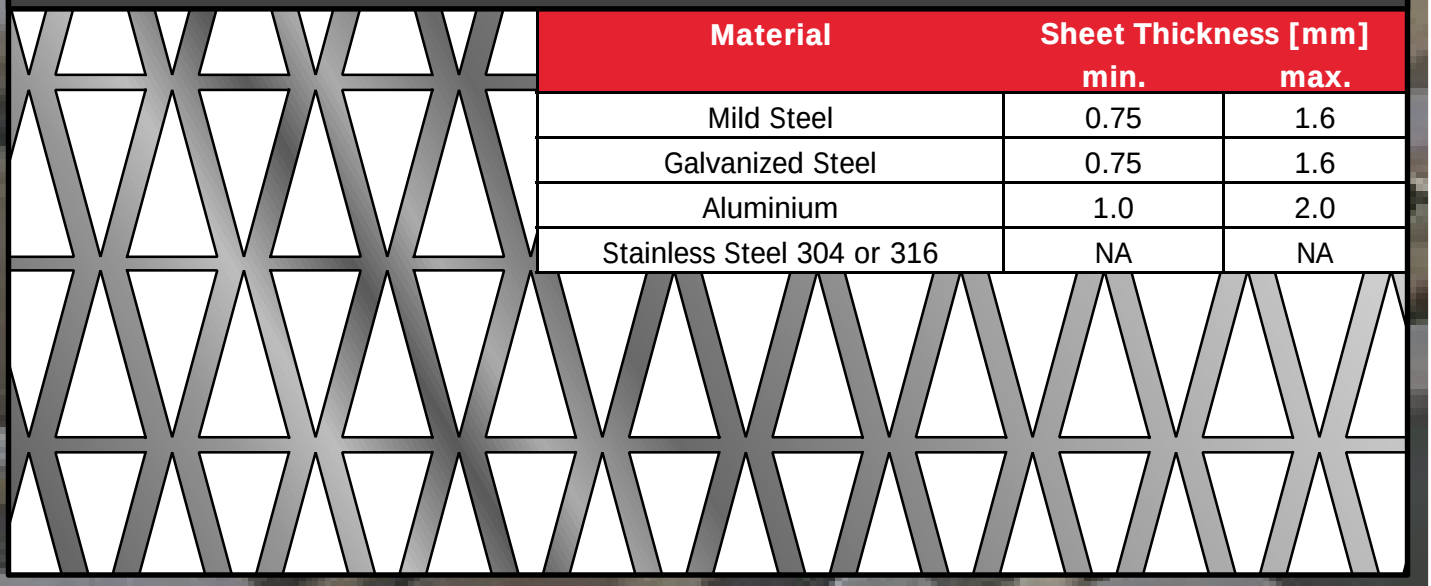
62.2 x 45.4mm composite shape, 38.2% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.6	2.5
Galvanized Steel	1.6	2.5
Aluminium	1.6	3.0
Stainless Steel 304 or 316	NA	NA

Karetu / T442X58

44mm height isosceles triangles, staggered and alternating, 58.0% Open Area



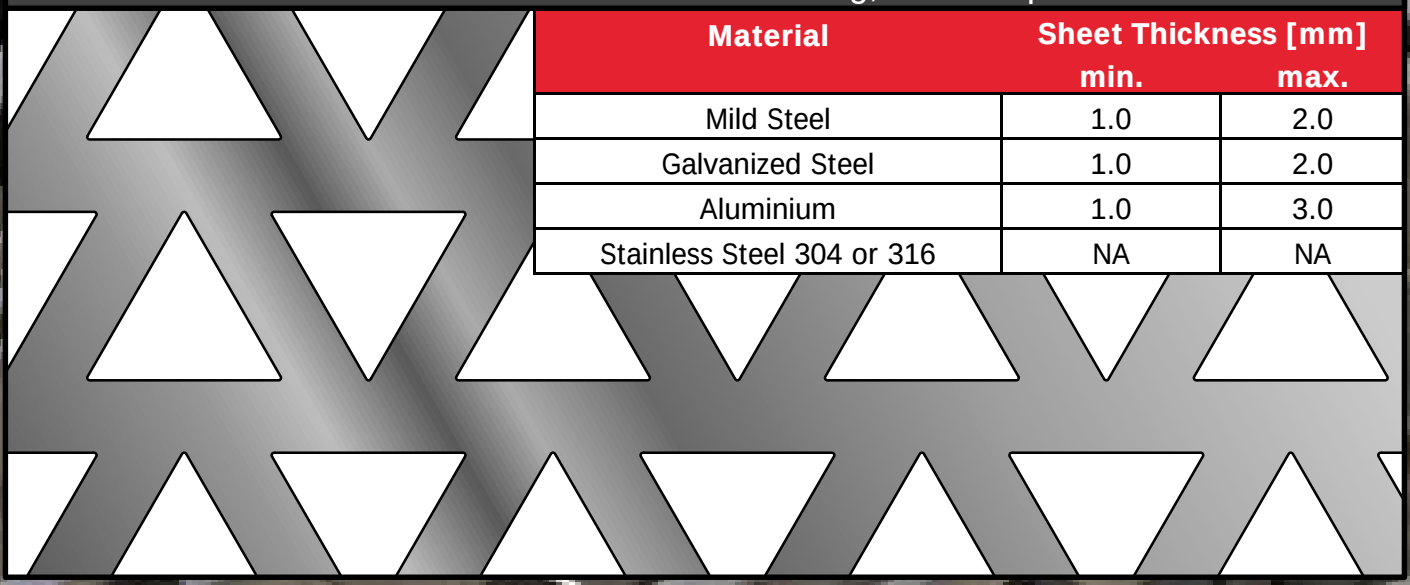
Material	Sheet Thickness [mm] min.	max.
Mild Steel	0.75	1.6
Galvanized Steel	0.75	1.6
Aluminium	1.0	2.0
Stainless Steel 304 or 316	NA	NA

Decorative

These perforations are displayed at a scale of 0.5
They are suited for large scale architectural use

Totara / T536X40

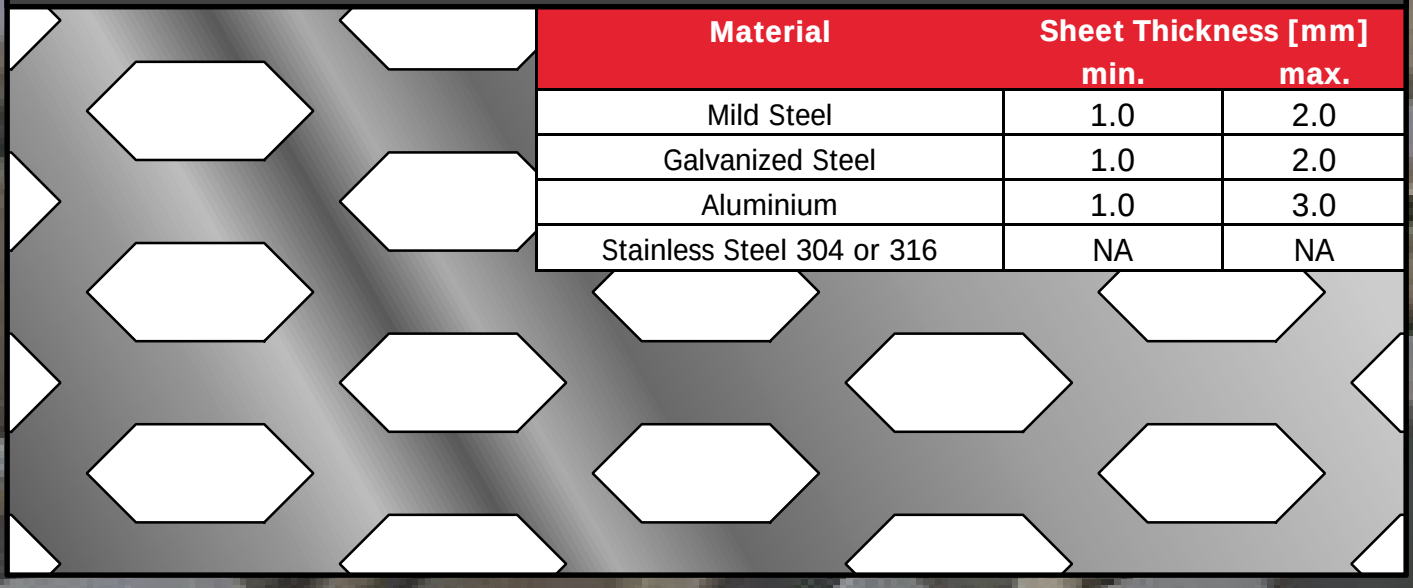
46.5mm side triangles, staggered and alternating, 40.0% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.0	2.0
Galvanized Steel	1.0	2.0
Aluminium	1.0	3.0
Stainless Steel 304 or 316	NA	NA

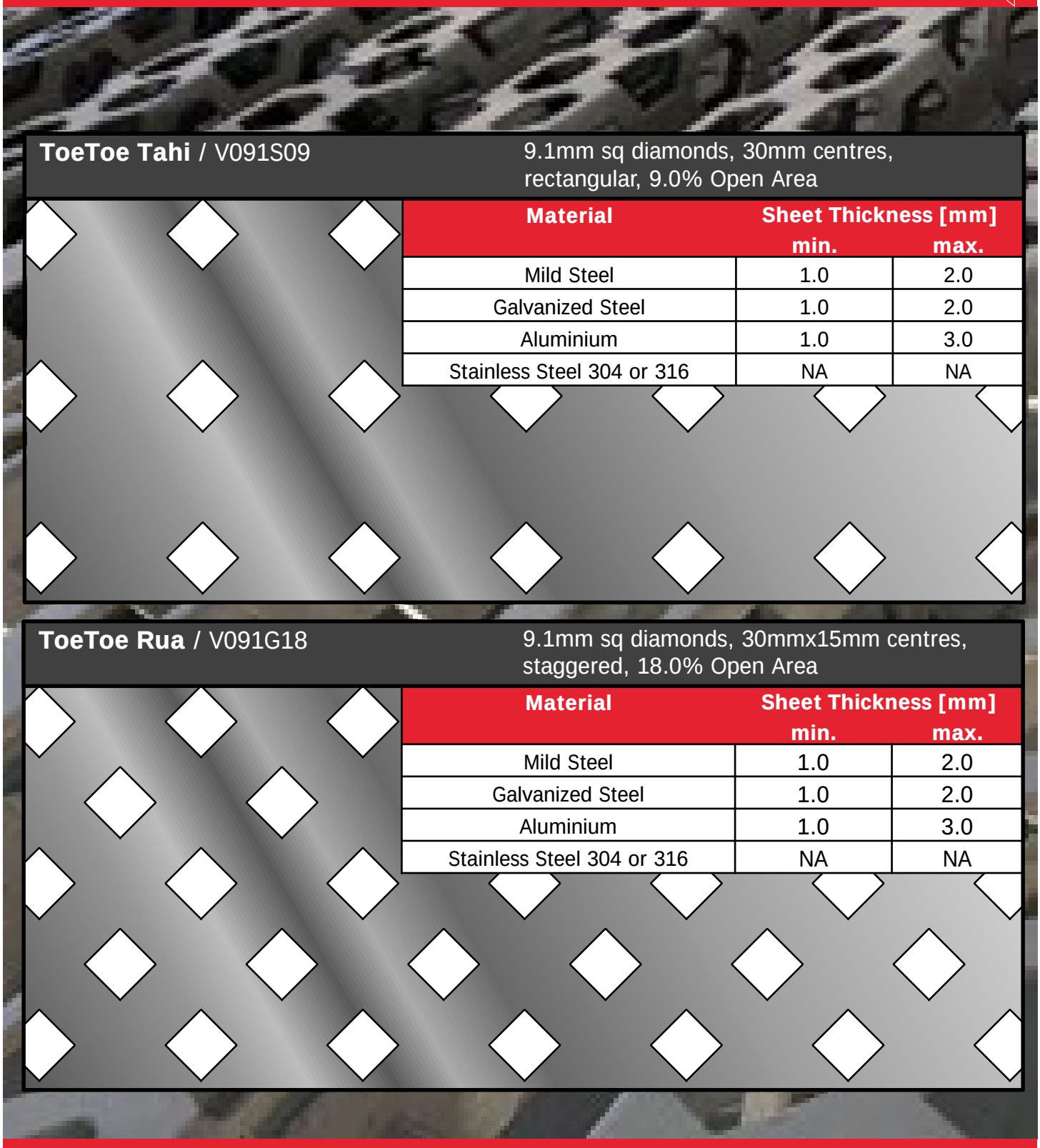
Kauri / X600G38

26mm irregular hexagons, staggered, 38.0% Open Area



Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.0	2.0
Galvanized Steel	1.0	2.0
Aluminium	1.0	3.0
Stainless Steel 304 or 316	NA	NA

Decorative - Diamonds



ToeToe Tahi / V091S09

9.1mm sq diamonds, 30mm centres, rectangular, 9.0% Open Area

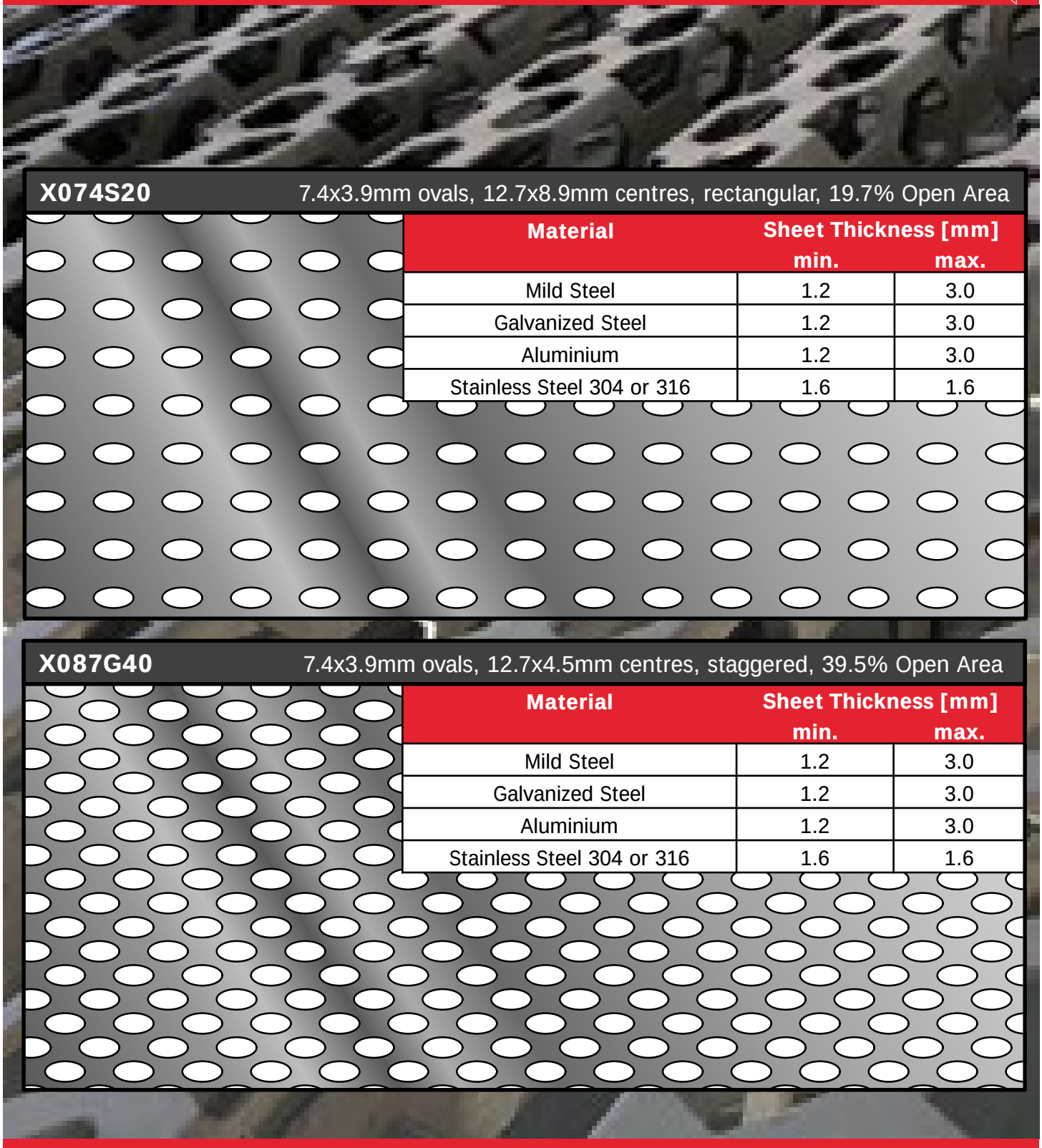
Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.0	2.0
Galvanized Steel	1.0	2.0
Aluminium	1.0	3.0
Stainless Steel 304 or 316	NA	NA

ToeToe Rua / V091G18

9.1mm sq diamonds, 30mmx15mm centres, staggered, 18.0% Open Area

Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.0	2.0
Galvanized Steel	1.0	2.0
Aluminium	1.0	3.0
Stainless Steel 304 or 316	NA	NA

Decorative - Ovals



X074S20

7.4x3.9mm ovals, 12.7x8.9mm centres, rectangular, 19.7% Open Area

Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.2	3.0
Galvanized Steel	1.2	3.0
Aluminium	1.2	3.0
Stainless Steel 304 or 316	1.6	1.6

X087G40

7.4x3.9mm ovals, 12.7x4.5mm centres, staggered, 39.5% Open Area

Material	Sheet Thickness [mm] min.	max.
Mild Steel	1.2	3.0
Galvanized Steel	1.2	3.0
Aluminium	1.2	3.0
Stainless Steel 304 or 316	1.6	1.6

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Custom Perforations

Fielden Engineers are able to work with you to create custom perforations for your specific requirements.

Combining Processes

- Our range of in-house processes can be combined to manufacture complete products with cutting, punching, forming, folding, fabrication and powder-coating. These can be combined to produce a cost effective result.

Customised Tooling and Special Patterns

- We can provide customised perforations to suit your requirements. We have a large range of tooling we can utilise/modify to suit your project and create special patterns. We can also design and manufacture custom tooling to increase efficiencies for larger volume work or provide that unique perforation you are looking for.

Picture Perforations and Gradient Perforations

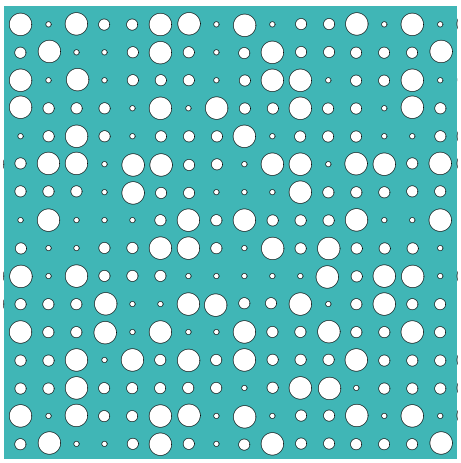
- We can generate picture perforations and graduated perforations by varying hole sizing and spacing.

Project management

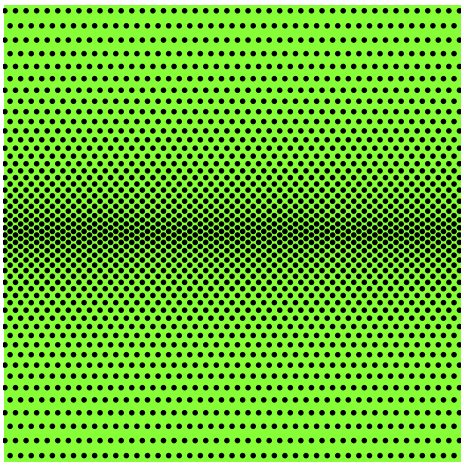
- In-house design and project management services are available to ensure your project goes to plan.

Special Patterns

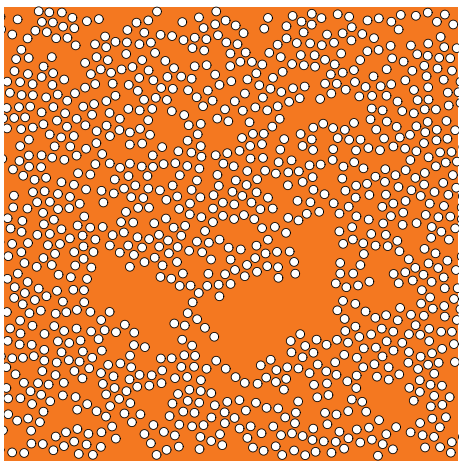
We can produce a variety of patterns ideal for architectural spaces as privacy screens, room dividers, banisters or just for decoration.



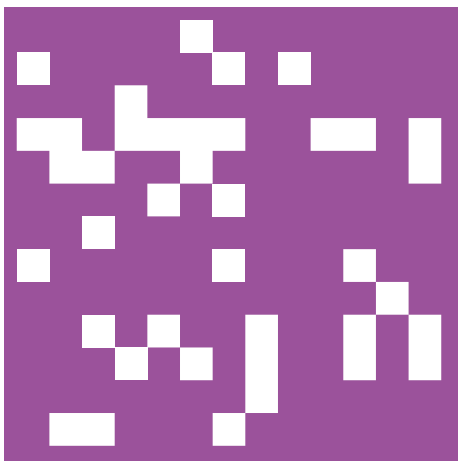
Effervescence
Varied round hole sizes in a rectangular grid



Gradients
We can produce custom patterns with varied hole spacing to create graduated patterns in any shape/size or direction



Randomised Patterns
Random patterns utilising any shape can be produced on request



DigiCamo
Using randomised square patterns in a grid pattern mean each panel can be unique

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Picture Perforations

We run in-house specialist software to transform your images into perforations of different hole sizes and spacings to create a permanent image in sheet metal.

All we require is a suitable image in a digital format and we can work with you to produce an extraordinary and unique result.

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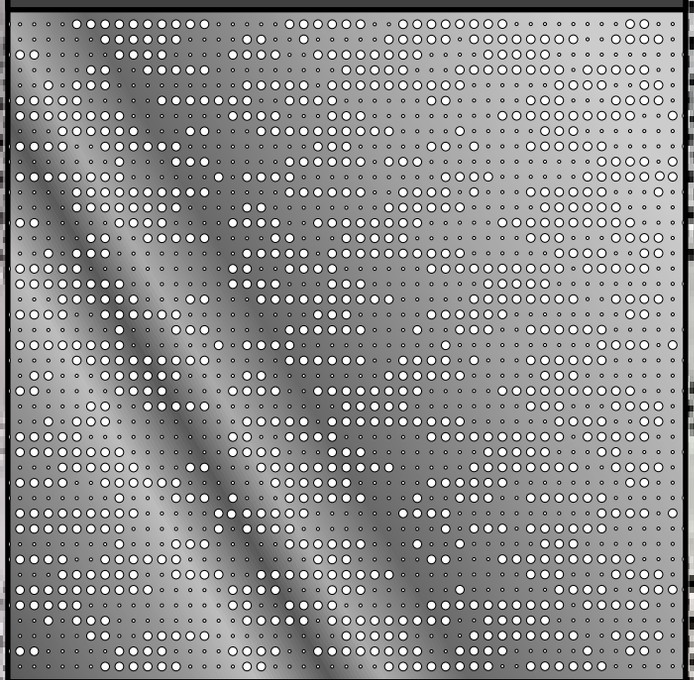
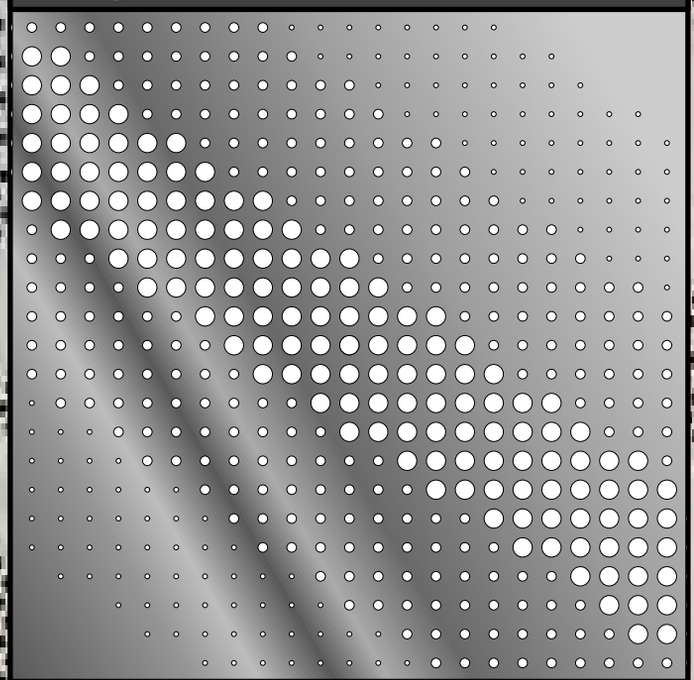
Decorative - Rounds

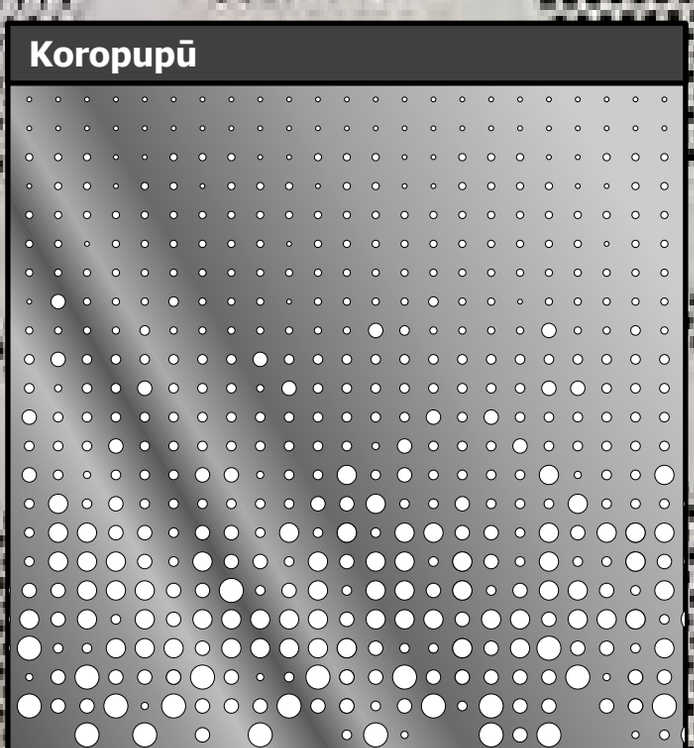
Matirua



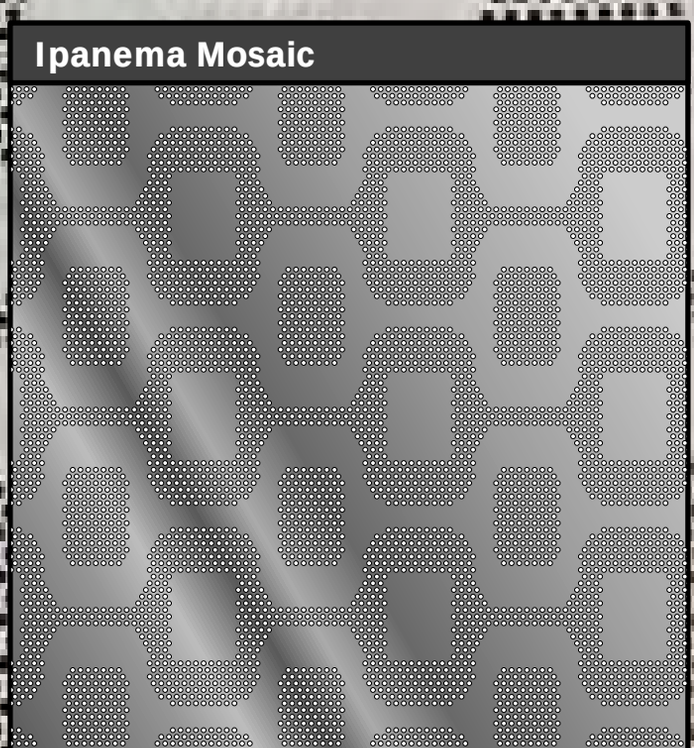
Putaputaweta Graduation



Koropupū

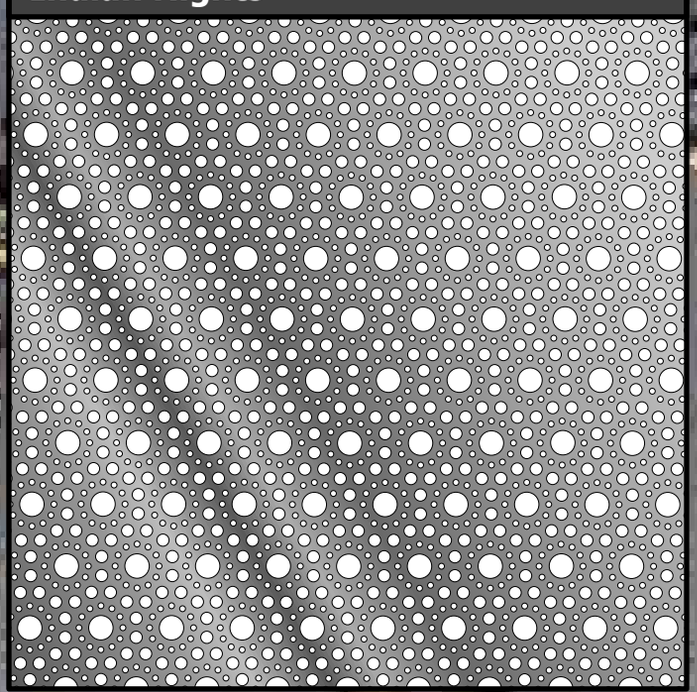


Ipanema Mosaic

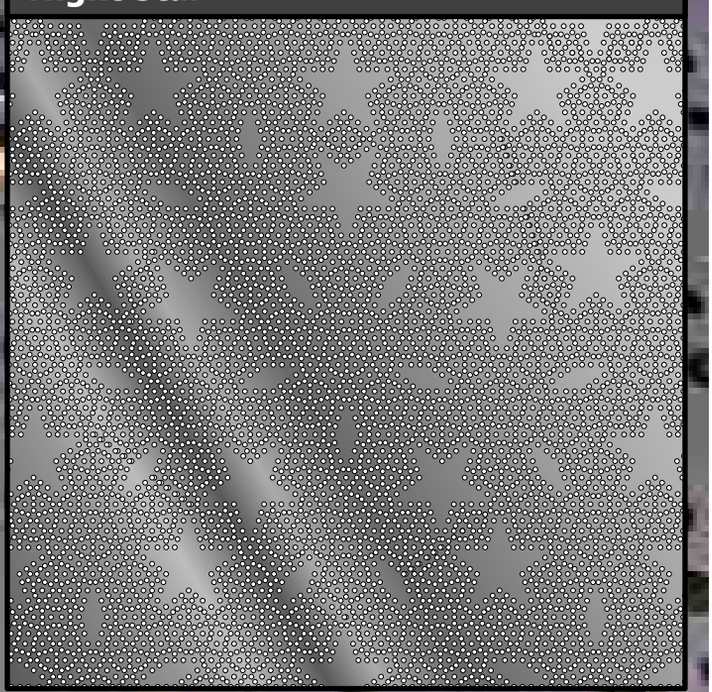


Decorative - Rounds

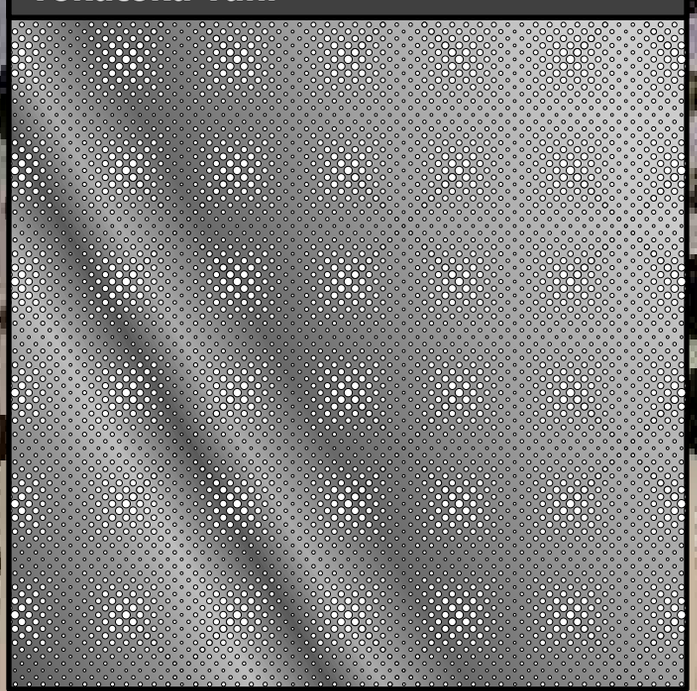
Indian Nights



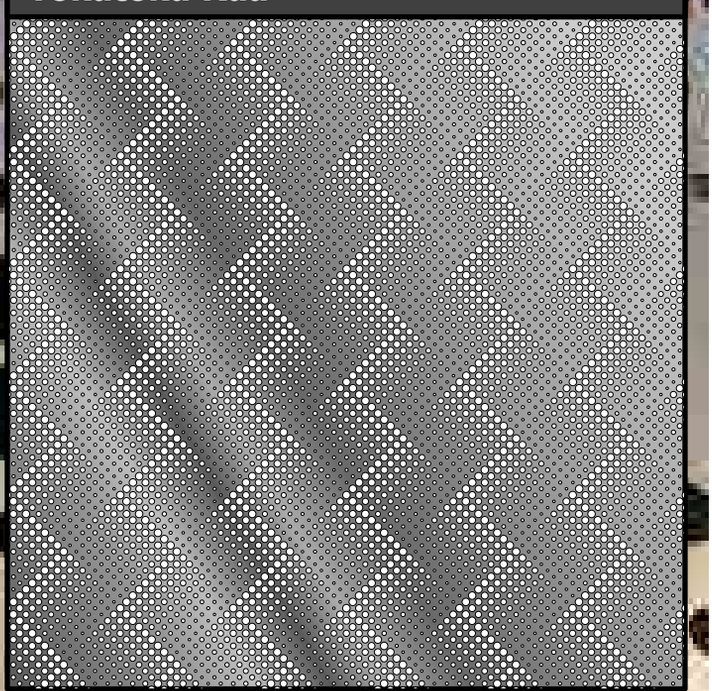
Night Star



Tokutoku Tahi



Tokutoku Rua



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We are serious about our commitment to minimising the environmental impact of our activities.
Wherever possible we prefer to use recyclable materials, which is especially valid for our metal products.

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We are an Enviro-Mark® programme member

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