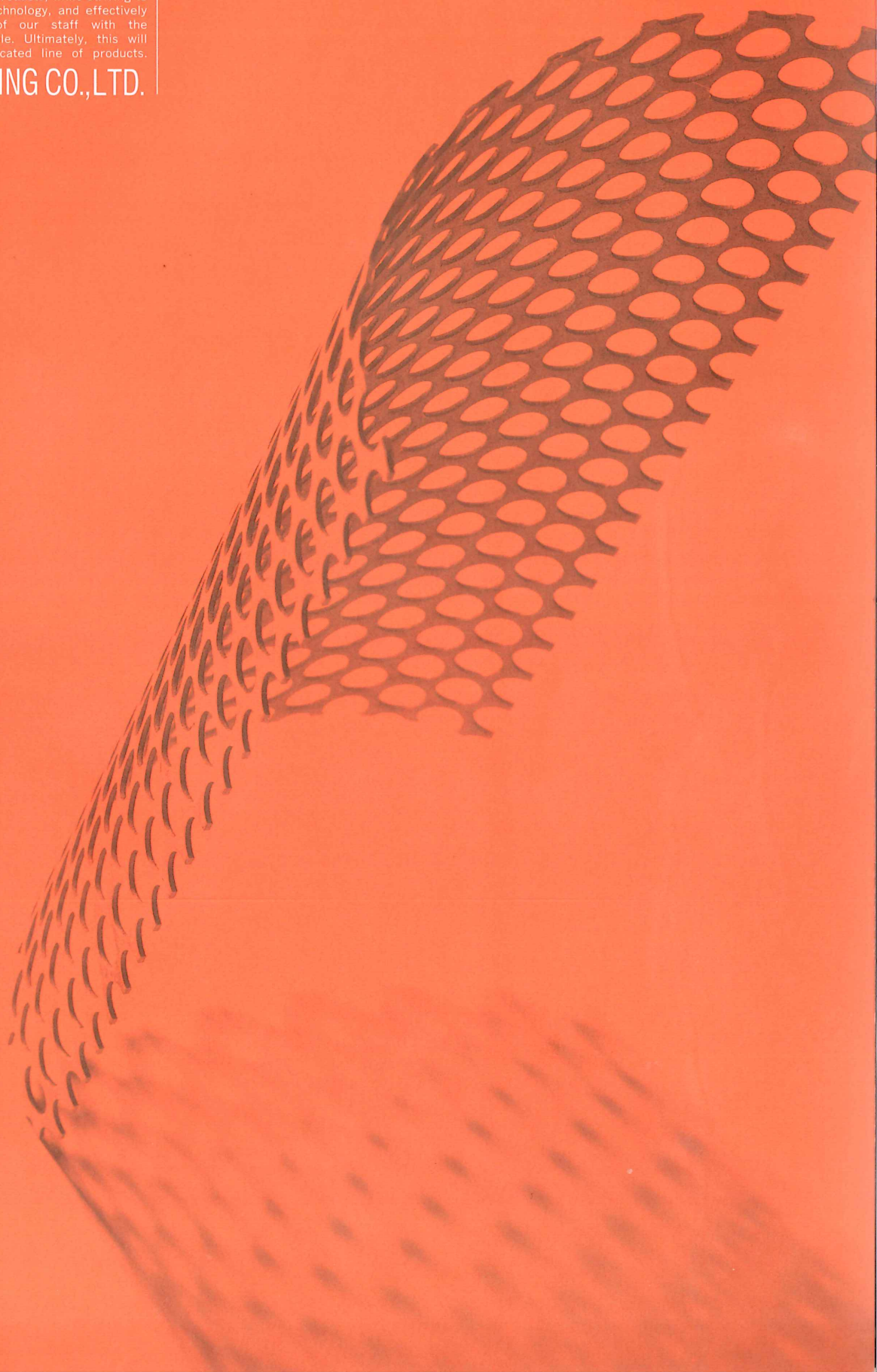


PUNCHING METAL

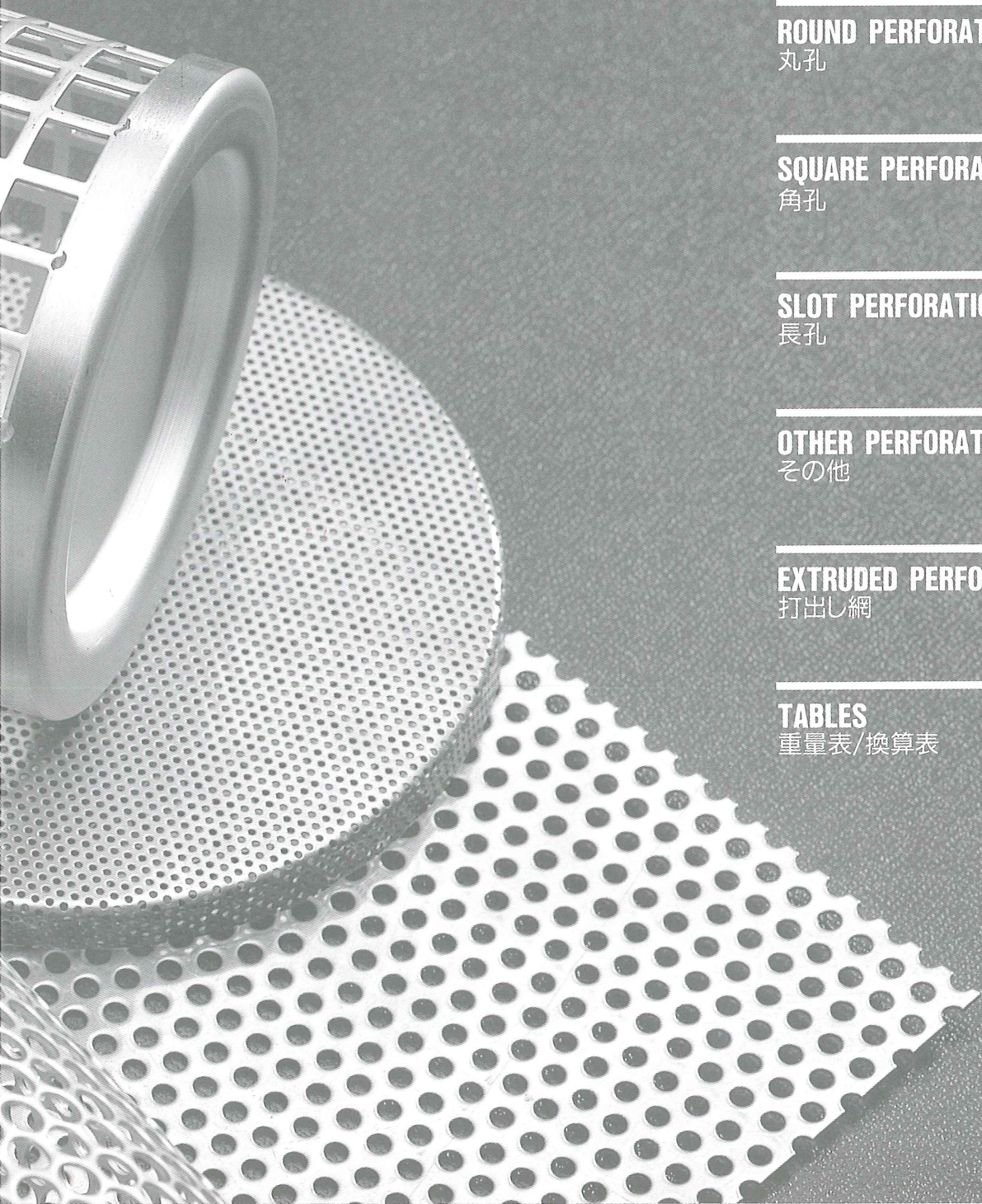
IKK leads the industry through its never-ending pursuit of advanced technology and commitment to pioneering new horizons. It will continue to develop next-generation products, while striving to achieve harmony between man and technology, and effectively integrating the technological prowess of our staff with the needs of industry and society as a whole. Ultimately, this will result in a more advanced and sophisticated line of products.

ISHIKAWA WIRE NETTING CO., LTD.



ART
SPEEDY
FLEXIBILITY
TECHNOLOGY

パンチングメタルは、自動車の部品・精密機械の部品から、インテリア・エクステリアまで幅広い用途を持ち、産業界で高く評価されています。



C O N T E N T S

INTRODUCTION はじめに	P.4
ROUND PERFORATIONS 丸孔	P.10
SQUARE PERFORATIONS 角孔	P.13
SLOT PERFORATIONS 長孔	P.14
OTHER PERFORATIONS その他	P.16
EXTRUDED PERFORATIONS 打出し網	P.18
TABLES 重量表/換算表	P.19

IKKでは、材質の選択はもちろん、厚み、孔径、開孔率、平坦度など、用途に合わせた最適な処理を施した高品質の製品をお届けします。お客様のあらゆるニーズにお応えできるよう、鋼板、ステンレス、アルミ、チタン、プラスチック、など様々な材料で加工致します。

打抜孔の形は、丸孔、角孔、長孔ほか、バリエーションも豊かに取り揃えております。

また、最適なものを簡単に選んでいただけるよう、当パンフレットに豊富な例を載せましたのでご活用ください。

また、通常はプレスによる打抜加工が標準ですが、ドリルによる切削加工、レーザー加工、細穴放電加工、ワイヤーカット放電加工、エッチング加工など、用途に応じ様々な加工をお受けします。プレスによる打抜が不可能な製品でもお問い合わせください。

IKK takes every conceivable factor into consideration to ensure unrivalled product quality. These include material selection, sheet thickness, hole diameter, open area ratio and flatness. Another reason for our high quality is the tailoring of process to individual applications. In order to respond to diverse customer needs, perforated products can be made from steel, stainless steel, aluminum, plastic and various other materials.

In addition to round holes, square holes and slots, a number of other design variations are available. This brochure shows a considerable number of samples in order to simplify selection of the design perfect for your application.

Normally, a press is used for punching of the holes. However, a variety of other manufacturing methods are available for different applications. These include drilling, laser machining, electrical discharge machining, wire electrical discharge machining and etching. Please inquire for products (materials) which cannot be manufactured with a press.

MAIN PRODUCT APPLICATIONS

主な用途

自動車関係……内外装部品、ラジエターグリル、エアフィルター等

選別・洗滌用……穀物・種子・農産物の選別機・洗滌機等の農業・農産物機器類、鉱石・石炭・石油・砂・砂利等の鉱物の選別・洗滌、医療器具の洗滌用

音響・防音・保温……各種防音・吸音装置、車輦、鉄道、航空機、船舶、内燃機等の防音機器・パネル・部品、保温・断熱パネル、音響装置

フィルター・ストレーナー……果汁、製糖、製粉、化学工業、パルプ、各種醸造機、液体、流体燃料、精油、蒸溜機、さく井用スクリーン、ストレーナー、業務用洗濯機

各種通気・通音カバー……音響機器グリル、装飾カバー、電気器具、機械カバー、各種ヒーター、ストーブ、エアコンのカバーグリル、キャビネット、収納庫、農耕機・トラクターのラジエターグリル・防護カバー、手術室等の空調用壁面パネル

厨房用……陳列棚、冷凍・冷蔵庫、水切り、家庭用品、雑貨類

仕切・分離……熱交換機、バッテリー仕切板、バイパスケーサー、フィルター・スクリーン支持板(受網板)

各種棚板・トレイ……海産物・農産物等の乾燥用棚板、業務用オープン、加熱コンベアー用、各種受皿

歩廊・床用材……スベリ止め床材(ノンスリップ)、ステップ

各種スクリーン……振動篩用スクリーン

建築内外装用……天井材、壁材、化粧板、間仕切、装飾手すり、欄干目かくし、浴室、調理場等の側溝蓋、看板、意匠デザイン品、ディスプレイ、照明器具、エクステリア・ガーデン用テーブル、椅子、他建築金物

Automobiles: Parts for interior/exterior decoration and finish; radiator grills and air filters.

Screening & Cleaning Equipment: Selectors and cleaning equipment for cereals, seeds and farm produce; dressing and cleaning equipment for various ores, coal, petroleum, sand and gravels; washing and cleaning equipment for medical supplies.

Acoustic Conditioning, Sound Insulation & Thermostatic Control: Sound proofing and absorbing equipment; sound proof equipment; panels and parts for vehicles, rolling stock, ships and internal combustion engines; thermostatic and heat insulating panels; acoustic conditioning equipment.

Filters & Strainers: Screens and strainers for fruit juice production, sugar industry, flour industry, pulp industry, brewing industry, oil refining and distillation, rock drilling, and commercial laundry service.

Ventilator Covers, etc.: Grills and protective covers for acoustic equipment, covers for electric equipment and machines, cover grills, cabinets and storage cases for heaters, stoves and air conditioners, radiator grills and protective covers for machines and tractors, air conditioner wall panels for surgical operating rooms.

Kitchen Furnishings: Display shelves, refrigerators, drain boards, household utensils, sundry goods.

Partitions & Spacers: Partitions for heat exchangers and batteries, pipe spacers, filter and screen supports and bracket netting.

Shelves & Trays: Drying shelves for marine and farm products, saucers for commercial ovens and heating conveyors.

Corridor & Floor Materials: Anti-slip floor materials, steps.

Screens: Screens for vibrating sieves.

Interior & Exterior Finishings for Buildings: Ceiling and wall materials, planed boards, partitions, ornamental handrails, fanlight screens, side drain for bathrooms and kitchens, signboards, displays, illumination equipment, tables and chairs for outdoor gardens, other metals articles for buildings.

MATERIALS

材料について

■材料

冷延・熱延鋼板・亜鉛鉄板・表面処理鋼板・塩ビ鋼板・高張力鋼板・ステンレス鋼板・アルミニウム・カラーアルミ・ジュラルミン・銅・黄銅・磷青銅・ニッケル・ニッケルシルバー・チタン・モネルメタル・ティンプレート・プラスチック・ゴムなど。

■素材形状

シート板及びコイルを扱います。

■板のサイズ

●定尺在庫品のサイズは各材質により、下記の通りとなります。

鋼板…… 3'×6' (914 × 1829mm)

ステンレス…… 1000×2000mm、

アルミ…… 1000×2000mm

銅・黄銅…… 1000×2000mm

●なお、定尺切断については若干の許容差をいただきます。

●特注品、コイルをご注文の際は明細図または図面にて御指示ください。

■板厚

鋼板、ステンレス、アルミ、銅・黄銅等は日本工業規格 (JIS) の規準によります。

Available Materials

Cold and hot rolled steel sheet, surface-treated steel sheet, vinyl-laminated steel sheet, high-tension steel sheet, galvanized iron sheet, stainless steel sheet, colored aluminum sheet, duralumin sheet, brass sheet, phosphor bronze sheet, copper sheet, nickel sheet, nickel silver sheet, monel metal sheet, titanium sheet, tin plate, plastic sheet, rubber sheet, and other types of plates and sheets.

Material Shapes

All types of shapes of sheets and coiled sheets are available.

Sheet Size

Perforated stock sizes vary according to the material used, as follows:

Steel sheet 3'×6' (914×1829mm)

Stainless Steel Sheet 1000×2000m

Aluminum Sheet 1000×2000m

Copper & Brass Sheet 1000×2000m

We require a certain level of tolerance in the measurements of resheared perforated stock, and that you furnish a detailed sketch or drawing when placing an order for a product with special margins or coiled perforations.

Sheet Thickness

The thickness of the steel sheet, stainless steel sheet, aluminum sheet, copper sheet and brass sheet is in compliance with the requirements specified in the relevant JIS standard.

DETAILS REQUIRED FOR ORDERS

ご注文に必要な項目

① 材料の種類
Material

② 厚さ
Sheet thickness

③ 幅
Sheet width

④ 長さ
Sheet length

⑤ 孔径
Hole diameter

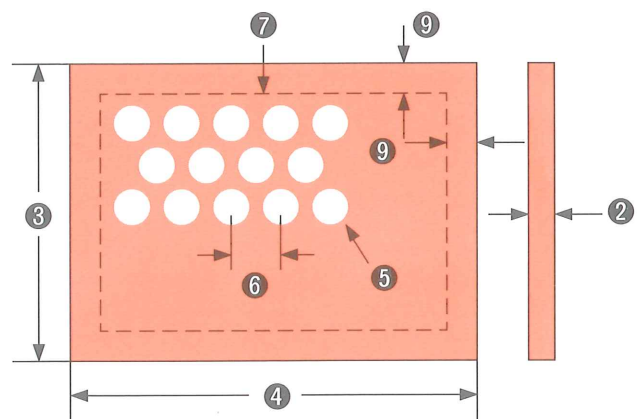
⑥ 間隔 (ピッチ)
Pitch (centers)

⑦ 孔の形状
Perforation pattern

⑧ 目方向
Mesh orientation

⑨ 余白寸法
Margin size

⑩ 数量
Quantity



※ 特注品につきましては、できる限り図面にて御指示ください。
For special order items, please specify on the drawing if possible.

PATTERNS AND PERFORATION DIMENSIONS

打抜きのパターンと目方向について

■飛ばし型

板厚と孔との関係で、孔開けが難しい場合や、非常に効率が悪い場合は、飛ばし型を使用します。この場合、板の両側の「打ち出し部」と「打ち終り部」は一行ごとに、孔が連なって突き出すことになります。

■順型

孔開けに無理がない場合は順型を使用します。この場合、板の両側の「打ち出し部」と「打ち終り部」は一行に揃います。

■千鳥抜の目方向

丸孔、角孔とも通常、板の短い辺(長さ)の方向が「送り方向」となります。また、この方向と異なる「逆抜千鳥」もあります。

■長孔、ダイヤの目方向

板の長さ(長い辺)方向に、孔の長さ方向が平行になるものと、板の幅(短い辺)方向に孔の長さ方向が平行になるものがあります。目方向をご指示ください。

Unfinished End Pattern

This pattern is used when the pitch is extremely short or when regular perforation is difficult or inefficient due to the relationship between the sheet thickness and the hole size. Every other row of perforated holes protrude in a line on both sides of the sheet, i.e. at the "starting" and "ending" side of perforation.

Finished End Pattern

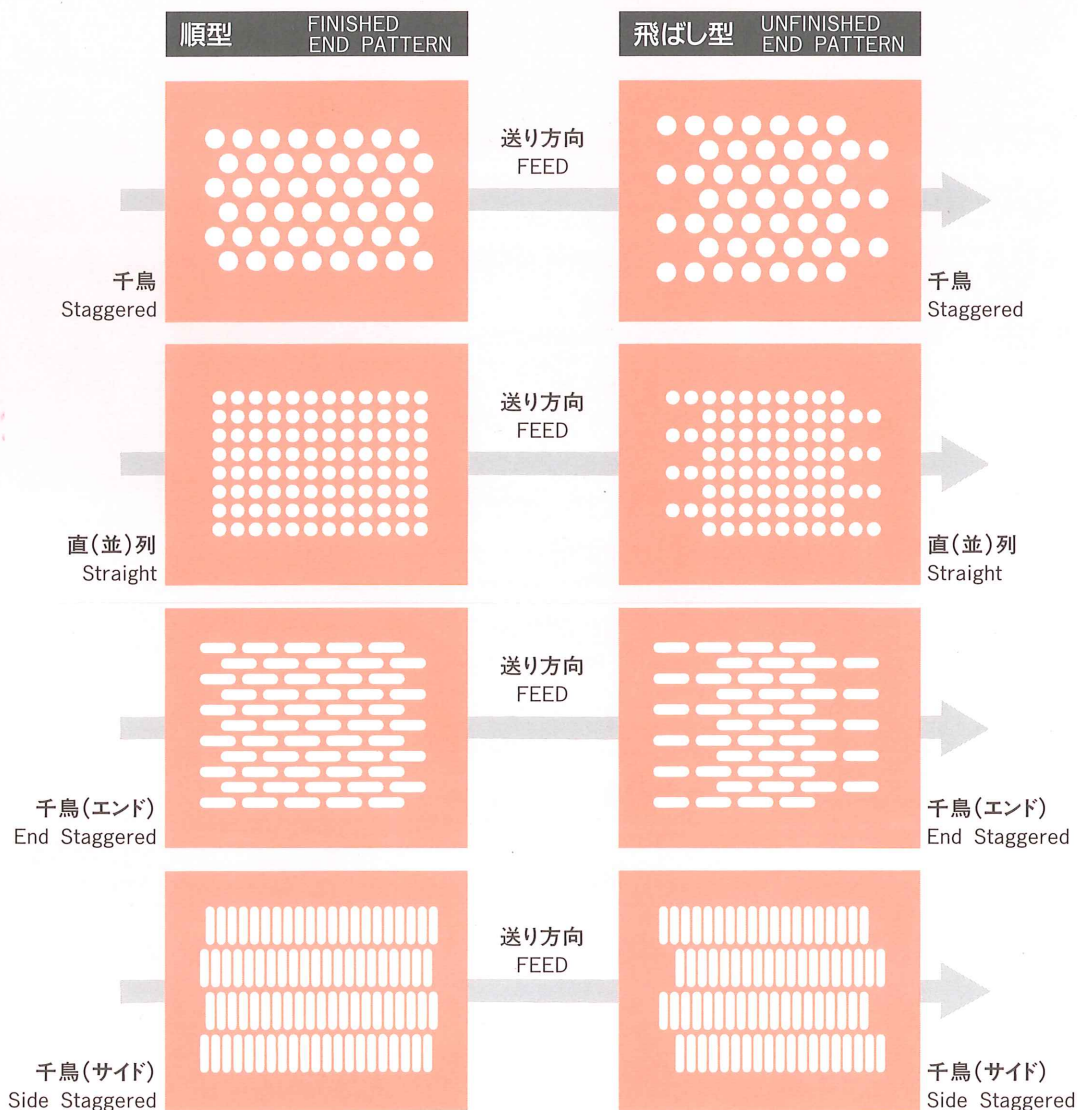
When regular perforation presents no difficulty, a finished end pattern is used. With this pattern, all rows of perforated holes are aligned on both sides of the sheet.

Stagger Directions

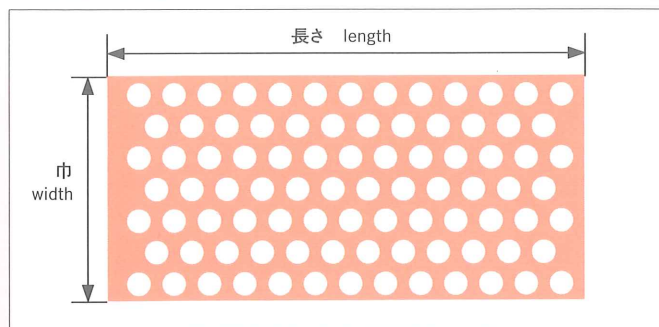
Both round and square holes are made along the longer side of the sheet in such a manner that they are staggered in the direction of the shorter sheet side. They can also be perforated by the "reverse stagger" method, in which they are staggered along the longer side of the sheet.

Perforation Directions for Slots (oblong), Diamonds and Other Holes

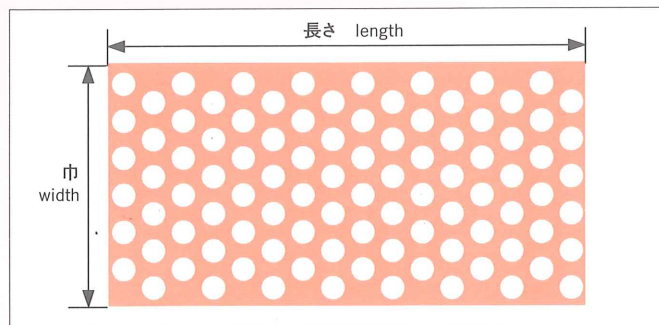
When "end-wise" perforation is selected, the lengthwise direction of holes corresponds with the lengthwise direction of the sheet. For "side-wise" perforation, the lengthwise direction of the holes is perpendicular to the lengthwise direction of the sheet. Please specify "end-wise" or "side-wise."



千鳥抜の目方向 DIRECTIONS OF THE STAGGER



通常千鳥抜
Staggered



逆抜千鳥
Reverse Staggered

HOLES SMALLER IN DIAMETER THAN SHEET THICKNESS

板厚より小さい
孔径の場合

通常、板厚より小さい孔、板厚より小さい骨の打抜（プレス）加工は困難ですが、条件によって可能な場合があります。また、打抜（プレス）加工では難しい場合は、ドリル孔加工で製作いたします。

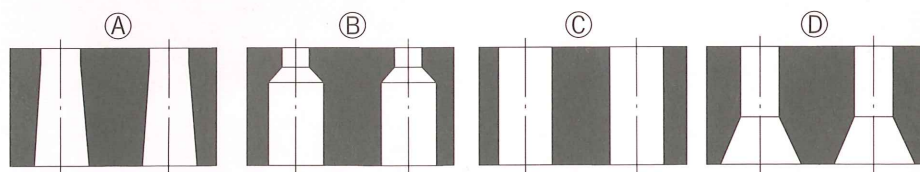
〈孔の断面形状〉

孔の断面形状によりピッチの加工範囲に制限があります。

Normally, it is difficult or not possible to punch holes in a sheet which are smaller in diameter than the thickness of the sheet. If a perforation cannot be performed by press, the holes are drilled to manufacture the desired product.

〈HOLE SECTION〉

Pitch is limited depending on hole section.



パンチングタイプ（通常60°千鳥）

PERFORATED TYPE (normally staggered)

SUS304の場合 SUS304 Stainless Steel

厚みに対しての加工できる孔型 (T>D)

Hole size that can be punched for respective thickness

T 板厚(mm) Thickness	1.2	1.5	2.0	3.0	4.0	5.0	6.0	7.0	8.0
D 孔径(mm) Hole Diameter	0.9	1.0	1.2	1.8	2.5	3.0	3.8	5.0	5.5

ドリルタイプ（60°千鳥、45°千鳥、長孔）

DRILLED TYPE (Staggered, diagonal, slot)

板厚と孔径の比率が更に大きくなる場合

When thickness to hole diameter ratio is larger

板厚 Thickness : 2.0~25.0mm

孔径 Hole Diameter : 1.0~30.0mm

例 Example : T=6.0>D=1.5 T=20.0>D=8.0

MARGINS

余白(ガクブチ)について

■定尺在庫品

板の幅の両端は 5 mm～10mm の最小余白です。板の長さの両端は 5 mm～15mm の最小余白かフチナシになっています。

■定尺切断

四辺のフチ落としか、一部フチ込みになります。

■特注品

フチ寸法をご指定の場合は、板の幅の両端のフチ、板の長さの両端のフチの寸法をご提示ください。また、板の中間に余白が必要な時は、その寸法と打抜開孔範囲をご指示ください。

※千鳥抜の金型は通常偶数になっていますので、板の幅および長さの両端は同じ位置にはなりません(左右、上下で非対象となります)。同位置での終了をご希望の場合は、一本打ちで埋めていくか、あらかじめ型を製作することになります。

また、円盤上におけるフチ指定の場合、通常は円のRに沿って金型のみだけ段差がつきます。この場合は、素材を四角形で加工し、打抜き後に円型にします。

■孔抜開孔範囲の測り方

最初の孔のセンターから最後の孔のセンターまでを測る方法と、最初の孔の端から最後の孔の端までを測る方法があります。

Perforated Stock Sizes

A minimum margin of 5-10mm is provided on both ends in the lengthwise direction of the sheet, and a margin of 5-15mm, or no margin at all is provided on both sides of the sheet.

Margins After Reshearing

Margins are either cut off on all four sheet sides, or are partially left.

Special Margins

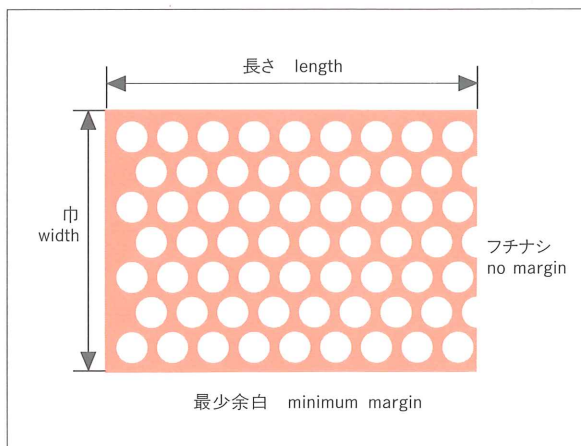
Please indicate any special instructions for end and side margin sizes. If any blank area is to be left in the center of the sheet, please clearly specify the blank area and the perforated area.

*For staggered perforation, the holes will not be at the same location on the sides and ends of the sheet, since an even number of punches and dies are usually used for non-symmetric punching. To complete the perforation at the same point, either a single perforation die is used or a special die is prepared.

When specifying the margin for circular perforation, the periphery is provided with a step which has the same width as the die. Circular perforated products are manufactured by first perforating a square sheet and then cutting it into a circular shape.

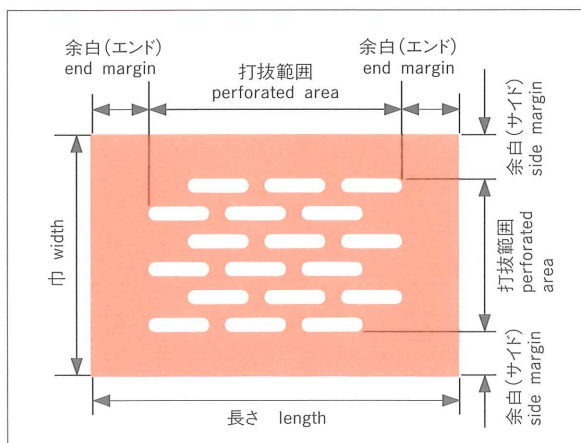
Measurement of Perforated Area

The perforated area can be measured in either of two ways. One is to measure the center-to-center distance between the first and last holes. With the other method, the area is calculated based on the edge-to-edge distance between the first and last holes.



定尺在庫品のガクブチ

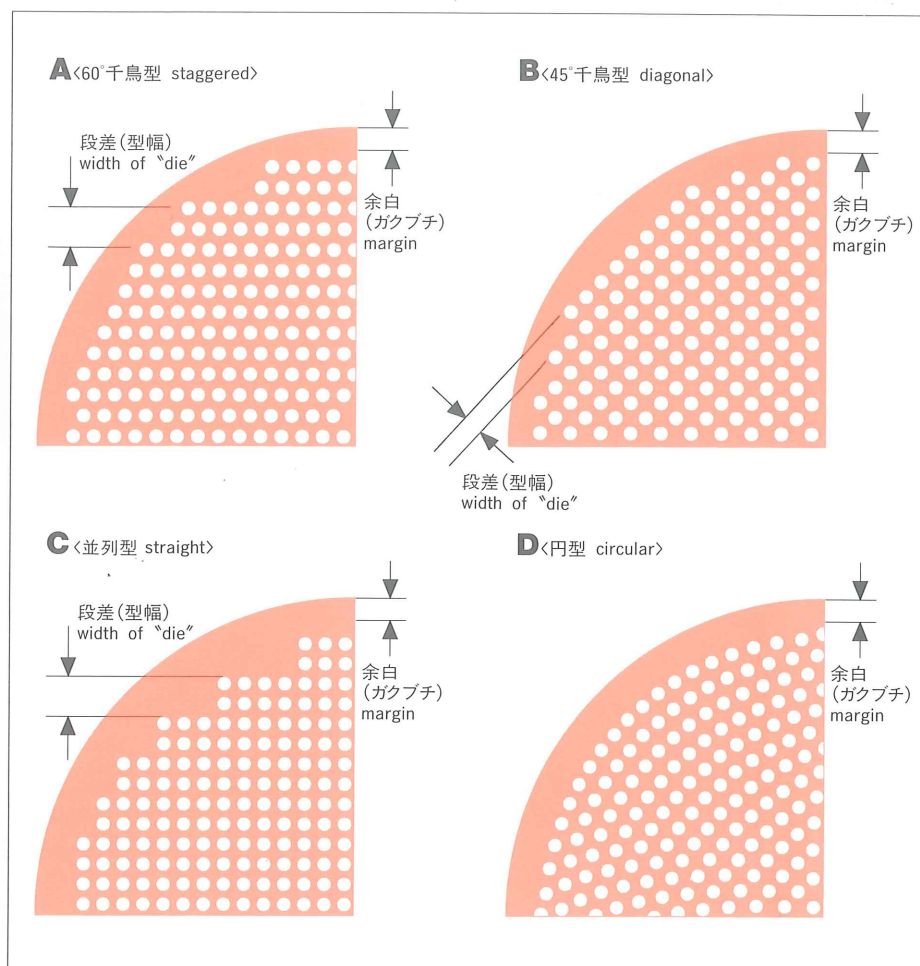
Margins of Perforated Stock



特注品ガクブチ御指定要領

Perforation
with Special Margins

円型抜の参考例
Example
of Circular Perforation



FLATNESS

平坦度について

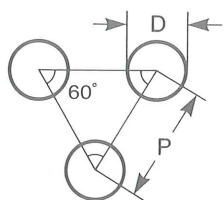
製品はすべて打抜き後、矯正ロールを通して矯正します。ただし、ロール矯正後に若干の板の伸びが生じることがあります。板質、板厚、孔径、ピッチ、板の長さなどの条件によってカンパー許容差をいただきます。

なお、下記の事項にあてはまる場合は、ご相談ください。

- ①余白部分が特別広い場合
- ②打抜き範囲内に余白が必要な場合
- ③開孔率が特別高い場合
- ④比較的厚い板を使用する場合
- ⑤特殊材質の場合
- ⑥板の長さが極めて長い場合

The use of leveling rolls after perforation ensures excellent flatness in all perforated metal products. After straightening, the stress generated by the perforation operation may result in a certain degree of elongation in some cases. Accordingly, we require a certain allowance for camber, which will vary according to the material, thickness and length of the sheet, as well as with the hole diameter and center pitch. Please contact IKK to consult regarding any of the following special requirements:

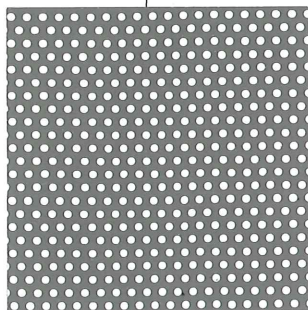
- ①Especially wide margin
- ②Margins within perforated area
- ③High open area ratio
- ④Relatively thick material
- ⑤Special material
- ⑥Long sheet length



開孔率 Open area ratio: R

$$R = 90.68 \left(\frac{D}{P} \right)^2$$

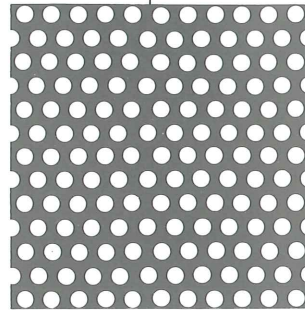
A1020 | D1.0 × P2.0
R22.6%



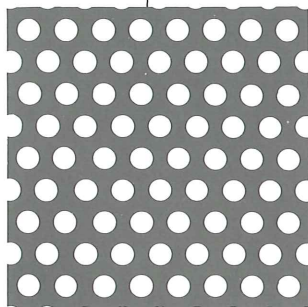
A1530 | D1.5 × P3.0
R22.6%



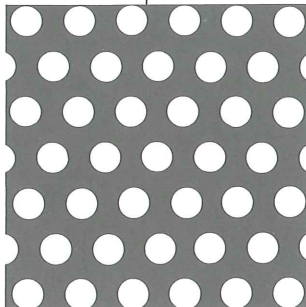
A2035 | D2.0 × P3.5
R29.6%



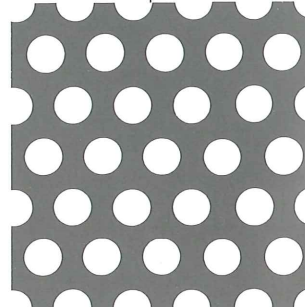
A3050 | D3.0 × P5.0
R32.6%



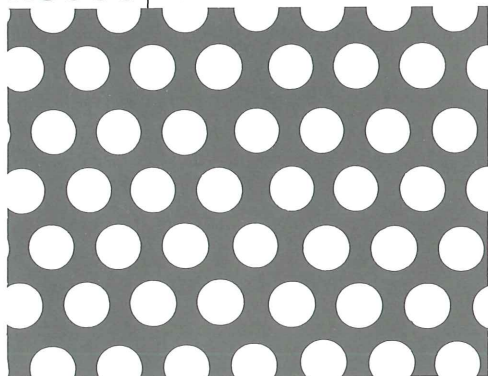
A4070 | D4.0 × P7.0
R29.6%



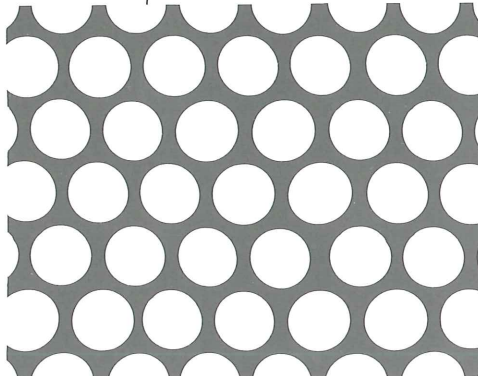
A5080 | D5.0 × P8.0
R35.4%



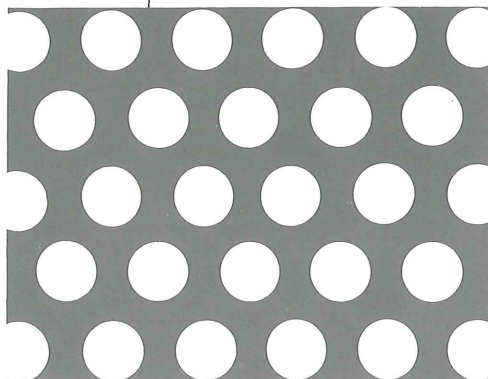
A6090 | D6.0 × P9.0 R40.2%



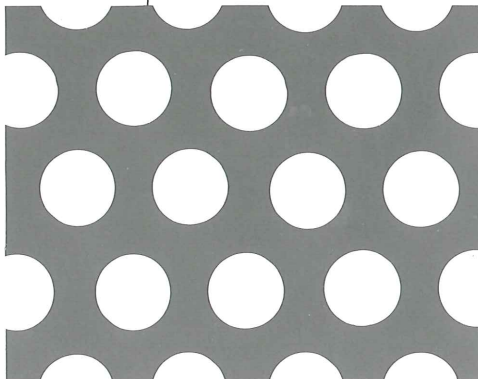
A8010 | D8.0 × P10.0 R57.9%



A8012 | D8.0 × P12.0 R40.2%



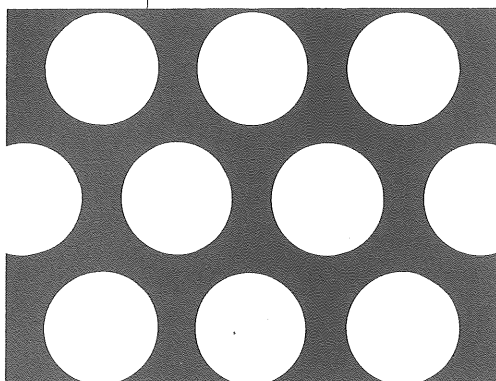
A1015 | D10.0 × P15.0 R40.2%



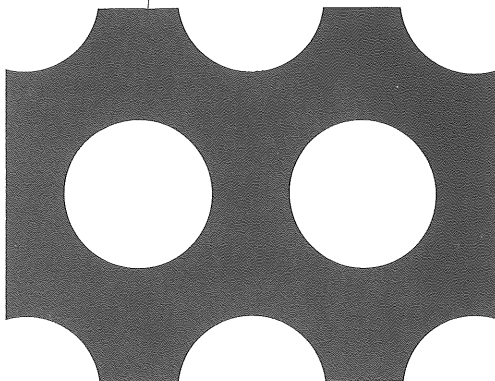
ここに掲載したものは代表的なサイズです。ご希望に応じて、その他のサイズでの製作もいたします。ただし、材料・板厚・寸法などにより製作不可能な場合がありますので、まずはお問い合わせください。

The sizes listed in this catalog are representative of the sizes we manufacture. Other sizes are available upon request. It may not be possible to manufacture some designs depending on the material, thickness, dimensions and other specifications. Please inquire for details.

A1520 D15.0×P20.0
R50.9%



A2030 D20.0×P30.0
R40.2%



ここに掲載したものは代表的なサイズです。ご希望に応じて、その他のサイズでの製作もいたします。ただし、材料・板厚・寸法などにより製作不可能な場合がありますので、まずはお問い合わせください。

The sizes listed in this catalog are representative of the sizes we manufacture. Other sizes are available upon request. It may not be possible to manufacture some designs depending on the material, thickness, dimensions and other specifications. Please inquire for details.

孔径に対する 標準ピッチ及び開孔率 (丸孔60°千鳥型)

Standard Pitch and Open Area Ratio for Hole Diameter (Round, staggered)

オーダーNo. Order No.	孔径 Hole Diameter	ピッチ Pitch	開孔率 Open Ratio
	Dmm	Pmm	R%
A0510	0.5	1.0	23.0
A0613	0.6	1.36	17.6
A0815	0.8	1.55	24.2
●A1020	1.0	2.0	22.6
●A1530	1.5	3.0	22.6
A2030	2.0	3.0	40.2
●A2035	2.0	3.5	29.6
A2535	2.5	3.5	46.2
A3040	3.0	4.0	50.9
●A3050	3.0	5.0	32.6
A4050	4.0	5.0	58.0
A4060	4.0	6.0	40.2
●A4070	4.0	7.0	29.6
A4560	4.5	6.0	50.9
A5060	5.0	6.0	62.9
●A5080	5.0	8.0	35.4
A6075	6.0	7.5	58.0

オーダーNo. Order No.	孔径 Hole Diameter	ピッチ Pitch	開孔率 Open Ratio
	Dmm	Pmm	R%
●A6090	6.0	9.0	40.2
A6010	6.0	10.0	32.6
●A8010	8.0	10.0	57.9
●A8012	8.0	12.0	40.2
A8013	8.0	13.0	34.3
A1012	10.0	12.5	58.0
A1013	10.0	13.0	53.6
●A1015	10.0	15.0	40.2
A1215	12.0	15.0	57.9
A1218	12.0	18.0	40.2
●A1520	15.0	20.0	50.9
A1521	15.0	21.0	46.2
A1522	15.0	22.0	42.0
A1621	16.0	21.0	52.5
●A2030	20.0	30.0	40.2
A2535	25.0	35.0	46.2
A3400	30.0	40.0	50.9

●印は、当カタログの10～11ページに掲載してあるものです。

また、通常板厚より小さい孔、板厚より小さい骨の打抜は困難ですが、条件により可能な場合があります。一度ご相談下さい。

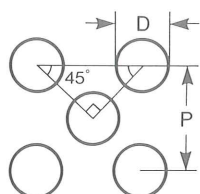
● indicates items which are shown on page 10-11 in this catalog.

Normally, it is not possible to punch holes smaller or bars smaller than the thickness of the material, but this problem may be overcome depending on the conditions. Please inquire for details.

ROUND PERFORATIONS

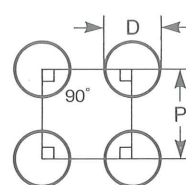
丸孔

丸孔 45°千鳥型 Round holes, diagonal



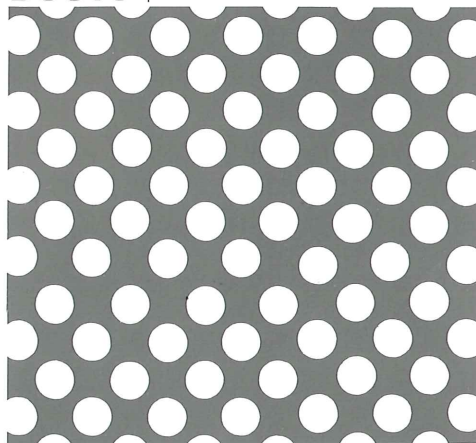
開孔率：R
Open area ratio
 $R = 157.08 \left(\frac{D}{P}\right)^2$

丸孔 並列型 Round holes, straight

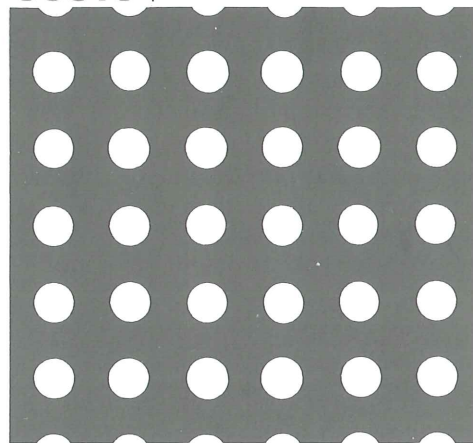


開孔率：R
Open area ratio
 $R = 78.54 \left(\frac{D}{P}\right)^2$

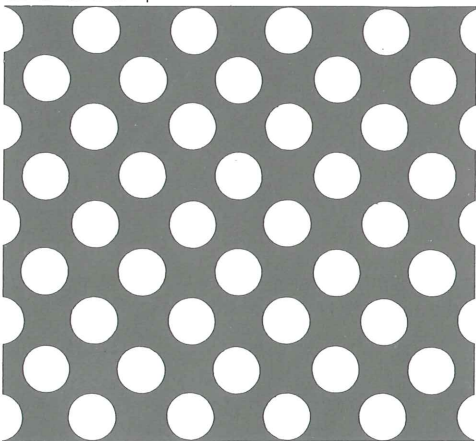
B0510 | D5×P10 R39.3%



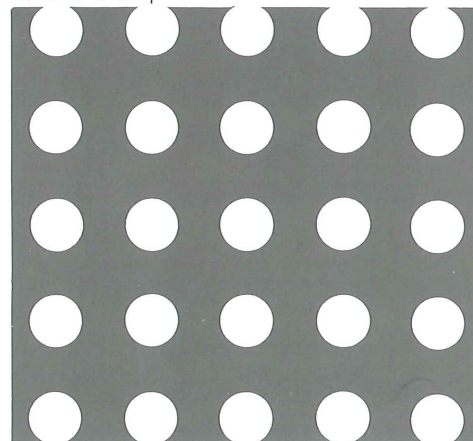
C0510 | D5×P10 R19.6%



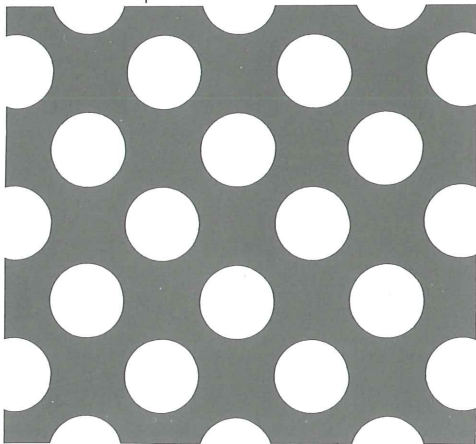
B0613 | D6×P13 R33.5%



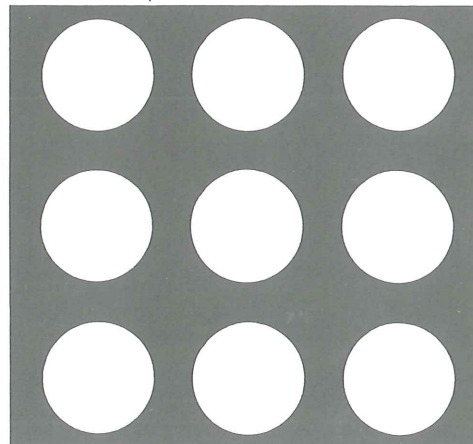
C0713 | D7×P13 R22.8%



B1020 | D10×P20 R39.3%



C1520 | D15×P20 R44.2%



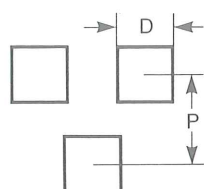
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SQUARE PERFORATIONS

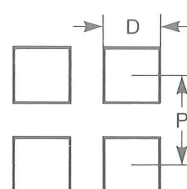
角孔

角孔 千鳥型 Square holes, staggered



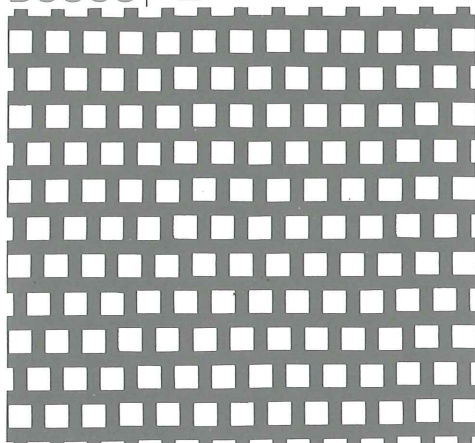
開孔率：R
Open area ratio
 $R=100\left(\frac{D}{P}\right)^2$

角孔 並列型 Square holes, straight

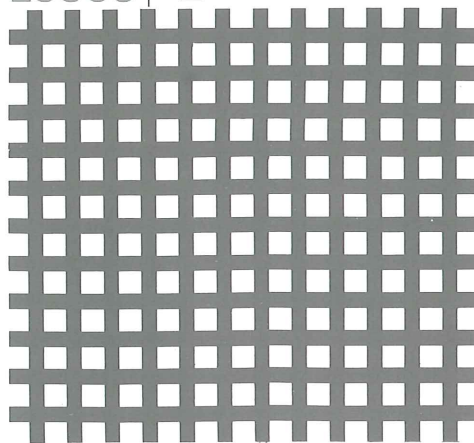


開孔率：R
Open area ratio
 $R=100\left(\frac{D}{P}\right)^2$

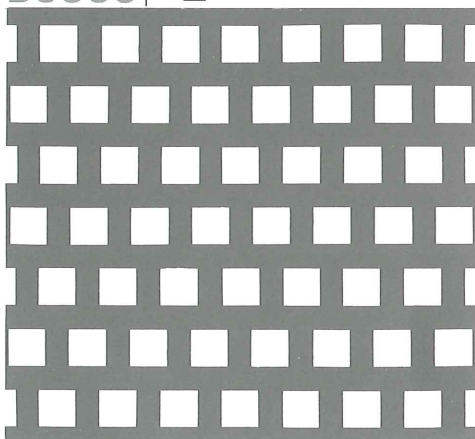
D0305 | 3□×P5 R36%



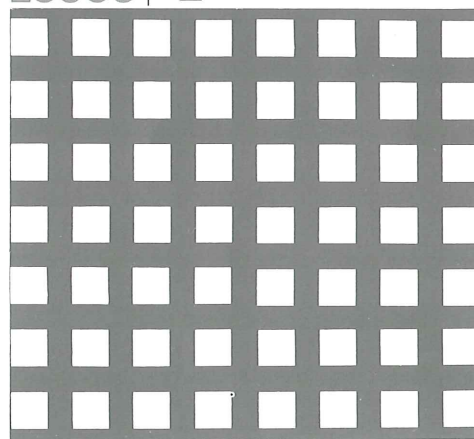
E0305 | 3□×P5 R36%



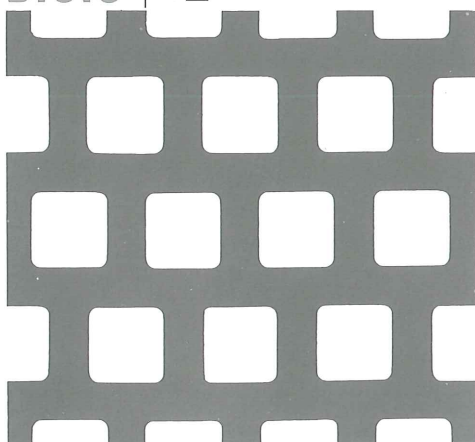
D0508 | 5□×P8 R39%



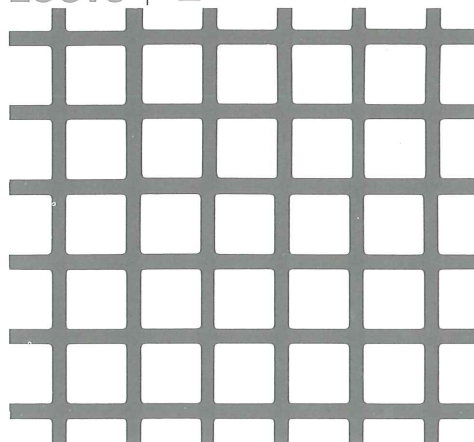
E0508 | 5□×P8 R39%



D1015 | 10□×P15 R44.4%



E0810 | 8□×P10 R64%



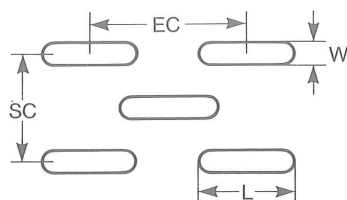
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SLOT PERFORATIONS

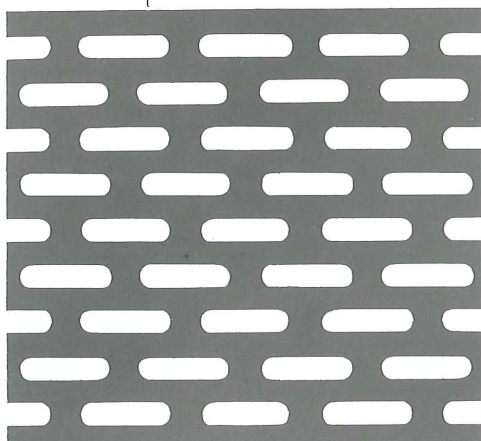
長孔

長孔(長円形)千鳥型 Slots(round edges), Staggered

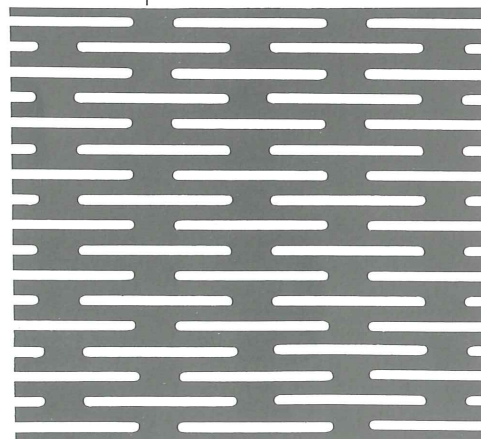


開孔率: $R = \frac{200 \times W \times L - 43 \times W^2}{SC \times EC}$
Open area ratio

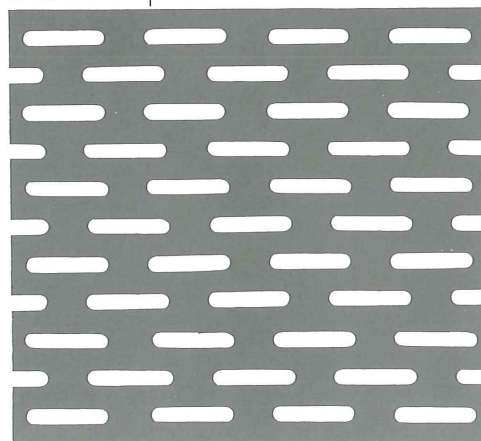
F0312 | W3×L12 R39.3%



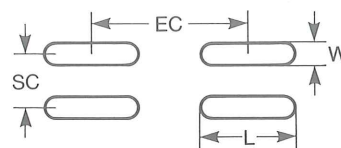
F1520 | W1.5×L20 R35.3%



F2011 | W2×L11 R27%

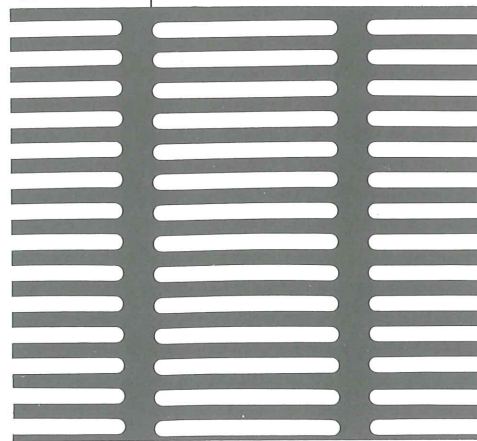


長孔(長円形)並列型 Slots(round edges), Straight

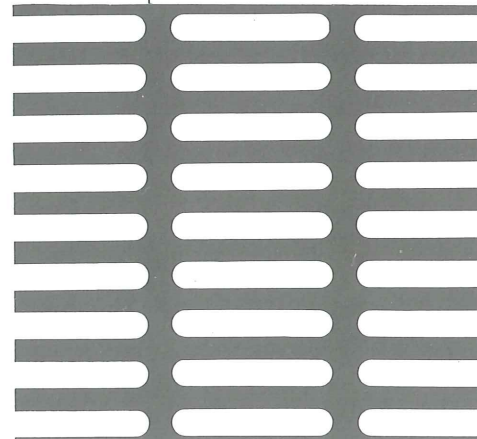


開孔率: $R = \frac{100 \times W \times L - 21.46 \times W^2}{SC \times EC}$
Open area ratio

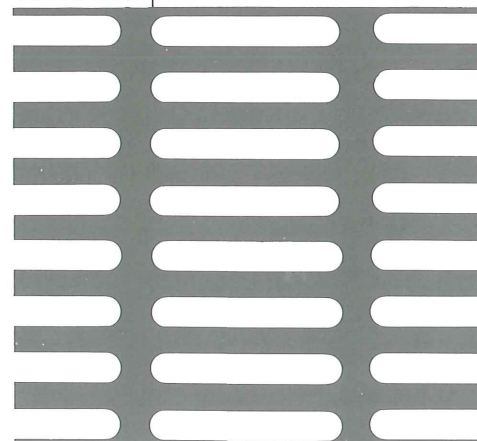
G2024 | W2×L24 R42.5%



G3521 | W3.5×L21 R48%



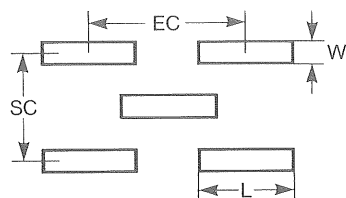
G4025 | W4×L25 R45.6%



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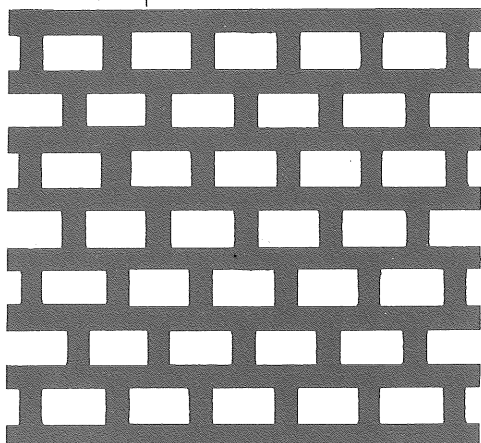
長孔(長方形)千鳥型 Slots(square edges), Staggered



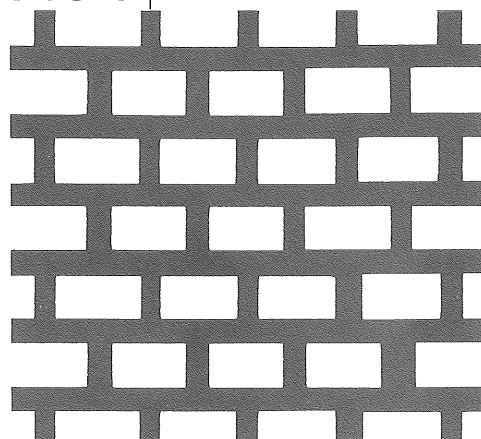
開孔率：R
Open area ratio

$$R = \frac{200 \times W \times L}{SC \times EC}$$

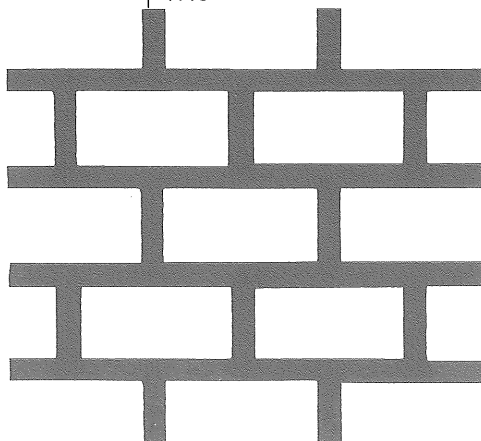
H4580 | W4.5 × L8 R43.6%



H0610 | W6 × L10 R51.3%



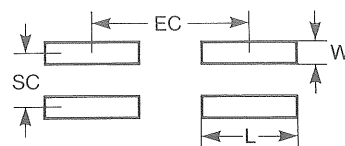
H1020 | W10 × L20 R66.9%



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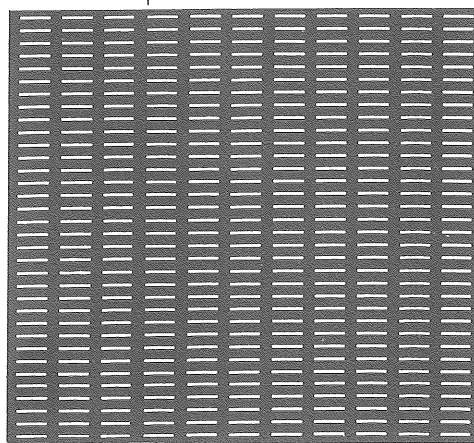
長孔(長方形)並列型 Slots(square edges), Straight



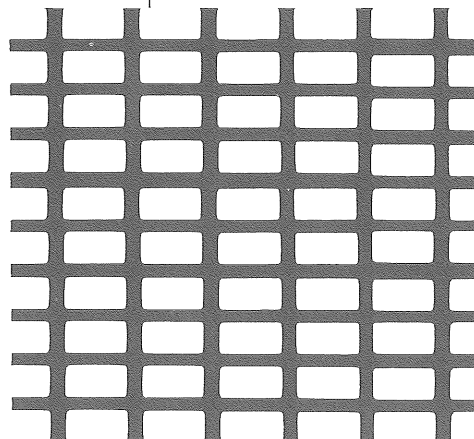
開孔率：R
Open area ratio

$$R = \frac{100 \times W \times L}{SC \times EC}$$

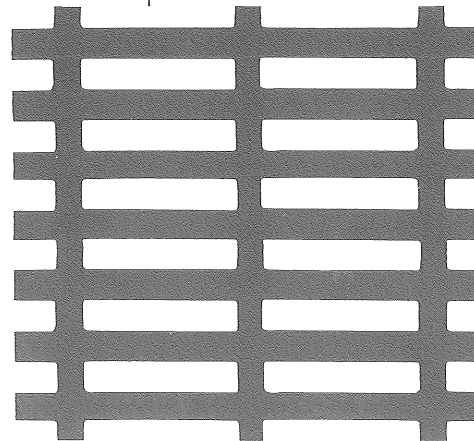
J0440 | W0.4 × L4 R20.8%



J0408 | W4 × L8 R53.3%



J0420 | W4 × L20 R41.7%

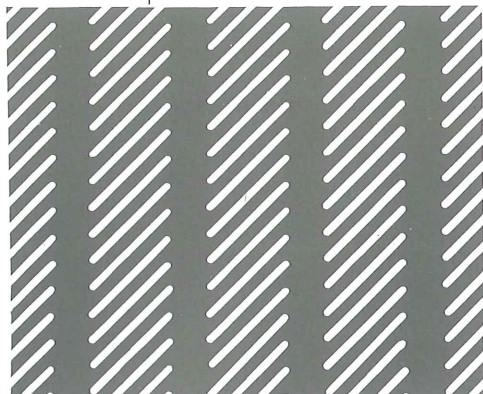


OTHER PERFORATIONS

その他

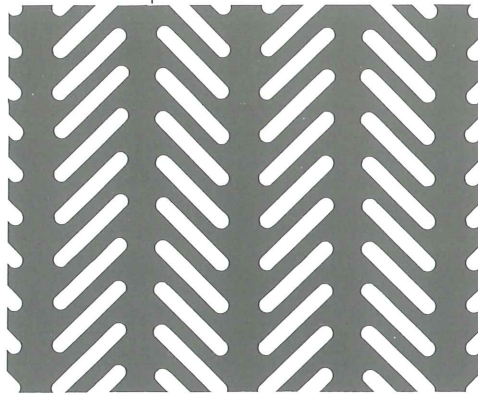
K0115

斜形 inclined
W1×L15



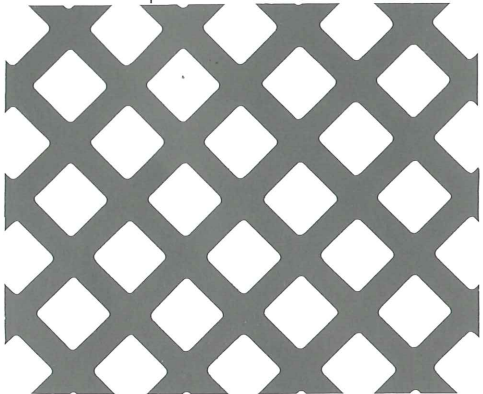
L0213

ヘリンボーン Herringbone
W2×L13



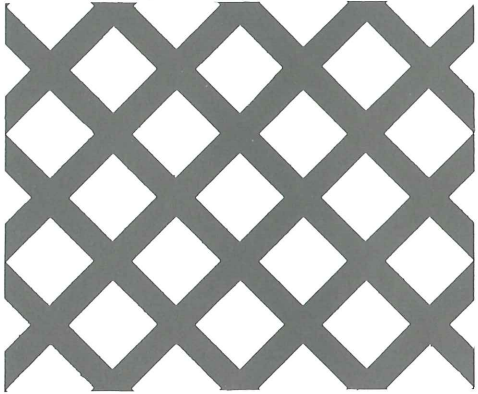
M7105

ダイヤ形 Diamond
7□×10.5P R44.4%



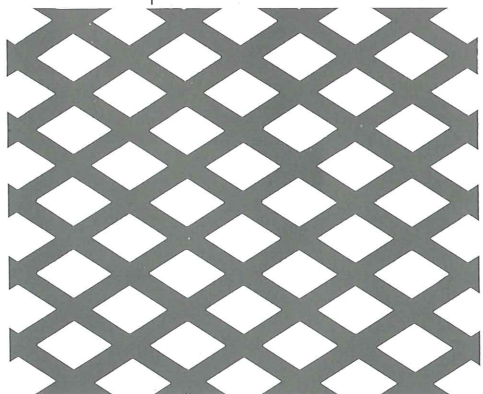
M8512

ダイヤ形 Diamond
8.5□×12P R50.2%



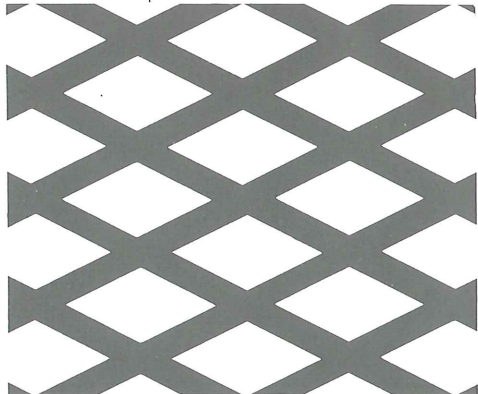
N6510

菱形 Diamond
6.5×10 R43.3%



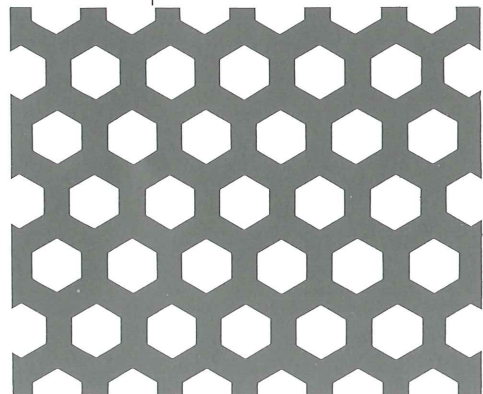
N1020

菱形 Diamond
10×20 R51%



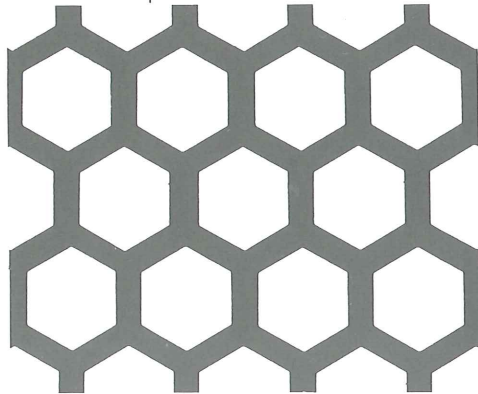
P6510

六角形 Hexagonal
6.5×10P R45%



P1215

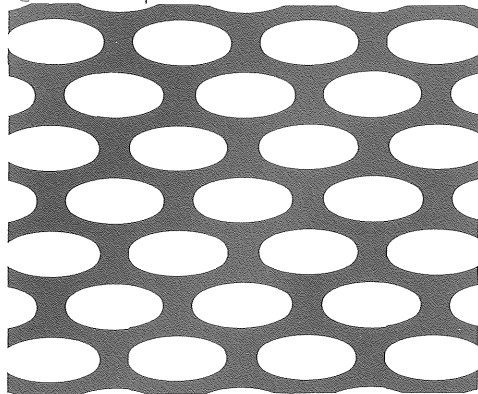
六角形 Hexagonal
12×15.5P R56%



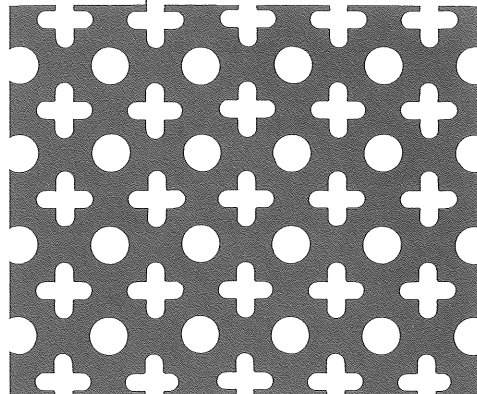
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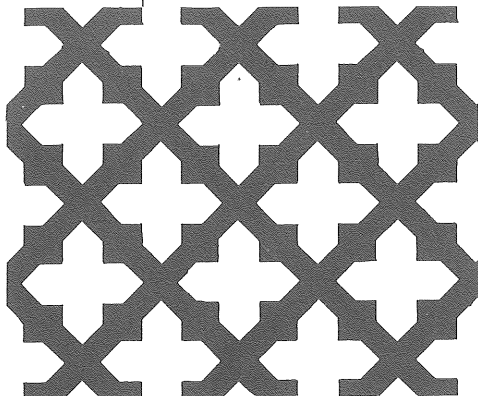
Q0613 | 雲型 Oval
6×13



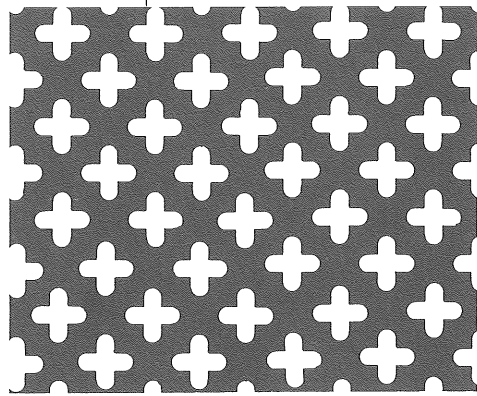
R-1 | 丸十 Zero and cross
R32%



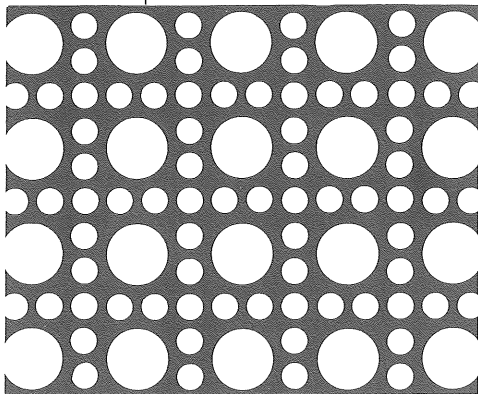
S-1 | 剣十字 Modified cross
R43%



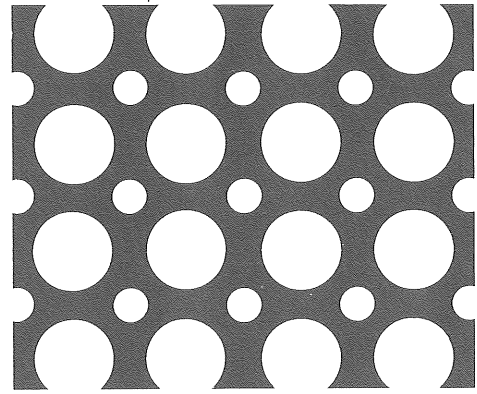
T-1 | カスリ Cross
R36%



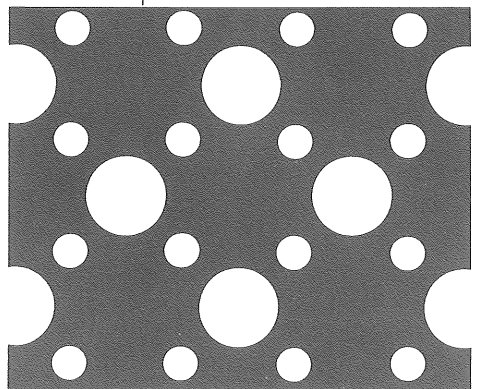
U-1 | ラウンドケーン
Big and small holes R40%



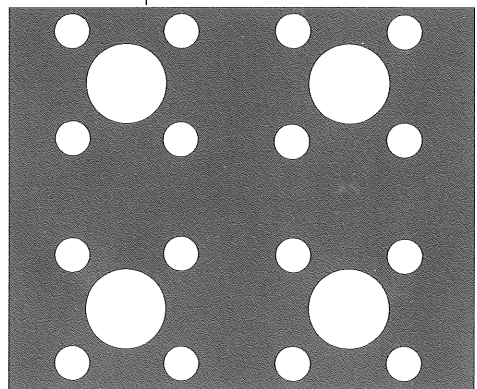
PA-1 | パーフォアートA Perfor-Art A
D10×12P R63%



PA-2 | パーフォアートB Perfor-Art B
D10×24P R32%



PA-3 | パーフォアートC Perfor-Art C
D10×24P R22.3%



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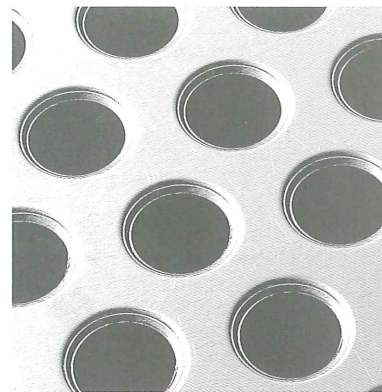
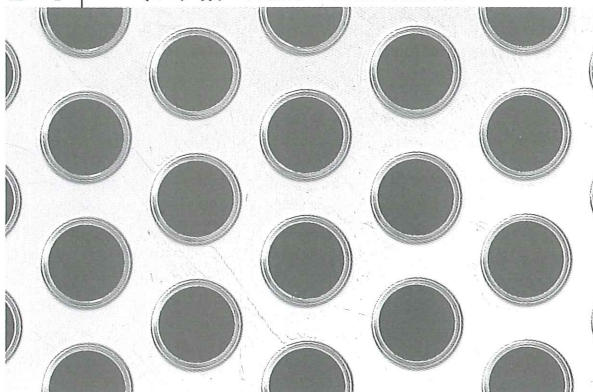
EXTRUDED PERFORATIONS

打出し網

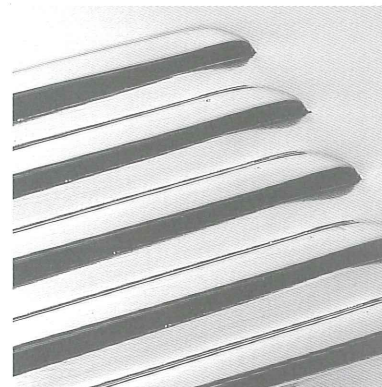
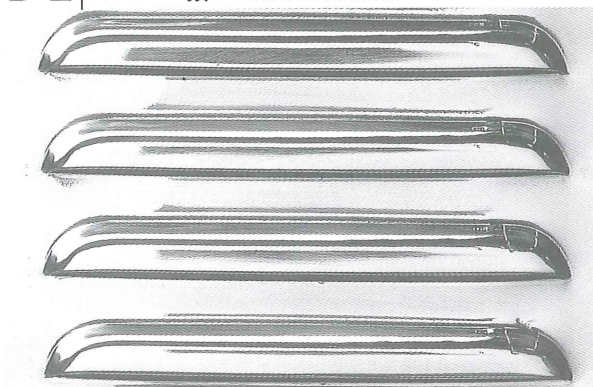
上から見た形状
Viewed from top
(70%縮少 70%reduction)

斜め下から見た形状
Viewed diagonally
(70%縮少 70%reduction)

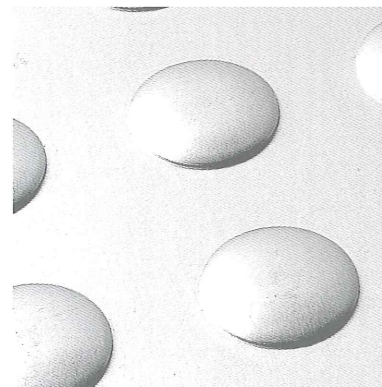
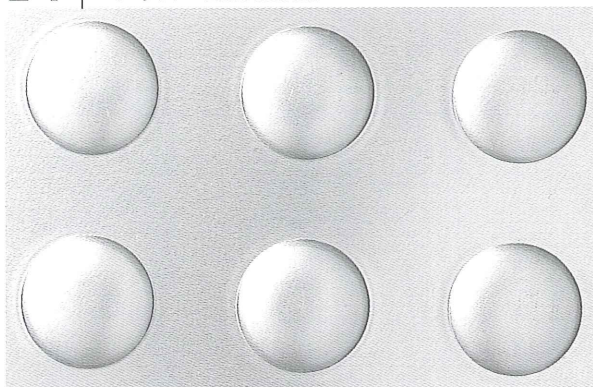
B-1 | バーリング抜 Burred Perforations



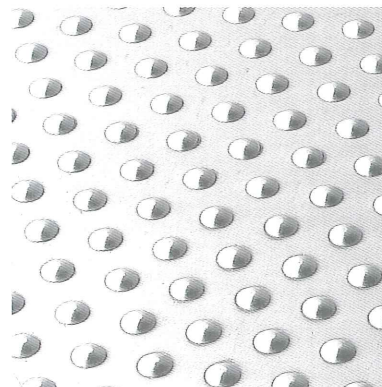
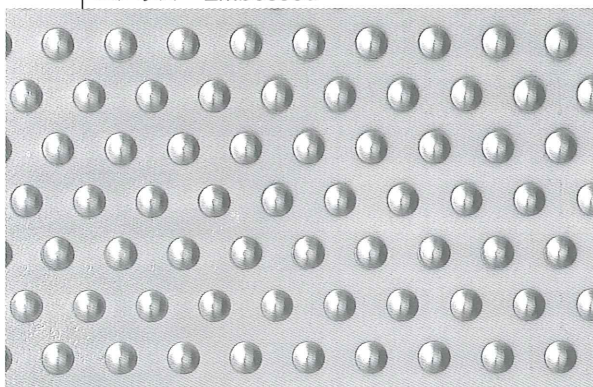
B-2 | ルーバー抜 Fixed Louvers



E-1 | エンボス Embossed



E-2 | エンボス Embossed



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ステンレス鋼板重量表 WEIGHT OF STAINLESS STEEL

SIZE (ft) 寸法 (mm) THICKNESS (mm) 厚さ (mm)	SUS-304							SUS-430			
	3.28×6.56	3.28×9.84	3×6	3×10	4×8	4×10	5×10	3.28×6.56	3×6	4×8	4×10
	1000×2000	1000×3000	914×1829	914×3048	1219×2438	1219×3048	1524×3048	1000×2000	914×1829	1219×2438	1219×3048
	Weight per Piece in Kilograms							Weight per Piece in Kilograms			
	kg/枚	kg/枚	kg/枚	kg/枚	kg/枚	kg/枚	kg/枚	kg/枚	kg/枚	kg/枚	kg/枚
0.3	4.76	7.14	3.98	6.63				4.62	3.86		
0.4	6.34	9.52	5.30	8.84				6.16	5.15		
0.5	7.93	11.9	6.63	11.0	11.8	14.7		7.70	6.44	11.4	14.3
0.6	9.52	14.3	7.96	13.3	14.1	17.7		9.24	7.72	13.7	17.2
0.7	11.1	16.7	9.28	15.5	16.5	20.6		10.8	9.01	16.0	20.0
0.8	12.7	19.0	10.6	17.7	18.9	23.6	29.5	12.3	10.3	18.3	22.9
0.9	14.3	21.4	11.9	19.9	21.2	26.5	33.2	13.9	11.6	20.6	25.7
1.0	15.9	23.8	13.3	22.1	23.6	29.5	36.8	15.4	12.9	22.9	28.6
1.2	19.0	28.5	15.9	26.5	28.3	35.4	44.2	18.5	15.4	27.5	34.3
1.5	23.8	35.7	19.9	33.1	35.4	44.2	55.3	23.1	19.3	34.3	42.9
2.0	31.7	47.6	26.5	44.2	47.1	58.9	73.7	30.8	25.7	45.8	57.2
2.5	39.7	59.5	33.1	55.2	58.9	73.7	92.1	38.5	32.2	57.2	71.5
3.0	47.6	71.4	39.8	66.3	70.7	88.4	111.0	46.2	38.6	68.6	85.8
3.5	55.5	83.3	46.4	77.3	82.5	103.0	129.0				
4.0	63.4	95.1	53.0	88.4	94.3	118.0	147.0	61.6	51.5	91.5	114.0
4.5	71.4	107.0	59.7	99.4	106.0	133.0	166.0	69.3	57.9	103.0	129.0
5.0	79.3	119.0	66.3	110.0	118.0	147.0	184.0	77.0	64.4	114.0	143.0
6.0	95.2	143.0	79.6	133.0	141.0	177.0	221.0	92.4	77.2	137.0	172.0
7.0	111.0	167.0	92.7	155.0	165.0	206.0	258.0	108.0	90.0	160.0	200.0
8.0	127.0	190.0	106.0	177.0	189.0	236.0	295.0	123.0	103.0	183.0	229.0
9.0	143.0	214.0	119.0	199.0	212.0	265.0	332.0	139.0	116.0	206.0	257.0
10.0	159.0	238.0	133.0	221.0	236.0	295.0	368.0	154.0	129.0	229.0	286.0
12.0	190.0	285.0	159.0	265.0	283.0	354.0	442.0	185.0	154.0	275.0	343.0
15.0	238.0	357.0	199.0	331.0	354.0	442.0	553.0				
16.0	254.0	381.0	212.0	354.0	377.0	472.0	589.0				
19.0	301.0	452.0	252.0	420.0	448.0	560.0	700.0				
20.0	317.0	476.0	265.0	442.0	471.0	589.0	737.0				

●計算方法 Calculation Formula :
 厚×巾×長×比重＝重量 (kg)
 Weight of stainless steel (kg)
 =T ×W ×L ×Specific weight

比重 Specific weight : SUS-3047.93 SUS-430.....7.70 SUS-316.....7.98
 SUS-316L.....7.98

アルミニウム板重量表 WEIGHT OF ALUMINUM

厚さ Thickness (mm)	JIS H4000 A1050P		JIS H4000 A5052P	
	400×1,200mm	1,000×2,000mm	1,000×2,000mm	1,250×2,500mm
	kg	kg	kg	kg
0.3	0.392	1.632		
0.4	0.522	2.176		
0.5	0.653	2.720	2.690	
0.6	0.783	3.264		
0.8	1.044	4.352	4.304	
1.0	1.306	5.440	5.380	
1.2	1.567	6.528	6.456	
1.5	1.958	8.160	8.070	
1.6	2.089	8.704	8.608	
2.0	2.611	10.880	10.760	
2.5		13.600	13.450	
3.0	3.917	16.320	16.140	25.218
3.2			17.216	26.900
4.0	5.222	21.760	21.520	33.625
5.0	6.528	27.200	26.900	42.031
6.0	7.834	32.640	32.280	50.437
8.0	10.445	43.520	43.040	67.250
10.0	13.056	54.400	53.800	84.062
12.0		65.280	64.560	100.875
15.0		81.600	80.700	126.093
16.0				134.500
18.0				151.312
20.0		108.800	107.600	168.125
25.0		136.000		210.156
30.0		163.200		252.187

注 各合金の1枚当り重量は下記の各係数を上記1枚当り重量に
乗じて算定する。

Note : The alloy weight per sheet can be obtained by applying the following
coefficients to the weight per sheet shown above.

1050 : 1.0000	3003 : 1.0074	3004 : 1.0037	2011 : 1.0406
2014 : 1.0332	2017 : 1.0295	2117 : 1.0111	2018 : 1.033
2024 : 1.0221	2025 : 1.0295	4032 : 0.9926	5005 : 0.9963
6151 : 0.9963	5052 : 0.9889	6053 : 0.9926	5056 : 0.9742
6061 : 0.9963	6062 : 0.9963	6063 : 0.9963	7075 : 1.033

●計算方法：厚×巾×長×比重＝重量(kg)

アルミニウム比重：A 1050P 2.72

A 5052P 2.69

Calculation Formula:

Weight of aluminum(kg) = T × W × L × Specific weight

Specific weight of aluminum : A 1050P 2.72

A 5052P 2.69

黄銅及び銅板重量表 WEIGHT OF BRASS AND COPPER

厚さ Thickness (mm)	黄銅/BRASS JIS H3100, C2801P		銅/COPPER JIS H3100, C1100P	
	365×1,200mm	1,000×2,000mm	365×1,200mm	1,000×2,000mm
	kg	kg	kg	kg
0.1	0.369		0.389	
0.15	0.554		0.584	
0.2	0.738		0.779	
0.25	0.923		0.973	
0.28			1.090	
0.3	1.108		1.168	
0.35	1.292		1.363	
0.4	1.477		1.557	7.112
0.45	1.662			
0.5	1.846	8.430	1.947	8.890
0.6	2.215	10.116	2.336	10.668
0.7	2.585	11.802	2.726	12.446
0.8	2.954	13.488	3.115	14.224
0.9	3.323			
1.0	3.692	16.860	3.894	17.780
1.2	4.431	20.232	4.673	21.336
1.3	4.800			
1.4	5.169		5.451	
1.5	5.538	25.290	5.841	26.670
1.6	5.908	26.976	6.230	28.448
1.8	6.646		7.009	
2.0	7.385	33.720	7.788	35.560
2.2	8.123			
2.3	8.492	38.778	8.956	40.894
2.4	8.862		9.345	
2.5	9.231	42.150	9.735	44.450
2.6	9.600		10.124	
2.8	10.338			
3.0		50.580	11.681	53.340
3.2		53.952	12.460	56.896
3.5			13.628	
4.0		67.440	15.575	71.120
4.5		75.870		80.010
5.0		84.300		88.900
6.0		101.160		106.680
10.0		168.600		177.800
12.0		202.320		
15.0		252.900		266.700
16.0		269.760		
20.0		337.200		355.600
25.0		421.500		444.500

●計算方法：厚×巾×長×比重＝重量(kg)

黄銅比重：C 2801(BSP) …8.43

銅 比重：C1100P(CUP) …8.89

Calculation Formula:

Weight of brass and copper(kg) = T × W × L × Specific weight

Specific weight of brass : C 2801(BSP) … 8.43

Specific weight of copper : C 1100P(CUP) …8.89

鋼板重量表 WEIGHT OF STEEL SHEETS AND PLATES

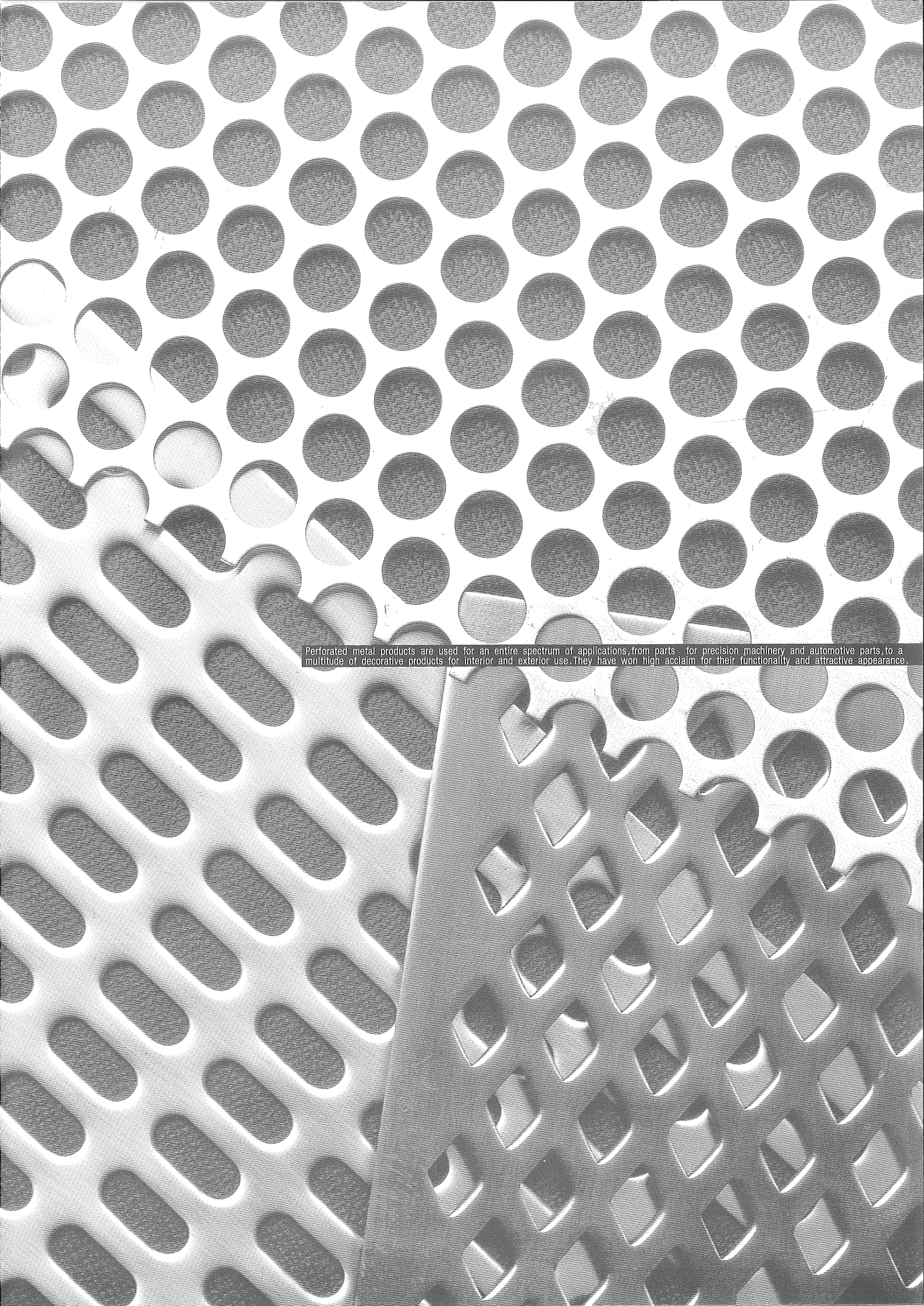
SIZE (W×L) ft 寸法 (巾×長) mm		3×6 914×1829	4×8 1219×2438	5×10 1524×3048	SIZE (W×L) ft 寸法 (巾×長) mm		3×6 914×1829	4×8 1219×2438	5×10 1524×3048
THICKNESS mm 厚さ mm	Weight per sq. Meter in Kgs 単位重量 kg/m ²	Weight per Piece in Kilograms			THICKNESS mm 厚さ mm	Weight per sq. Meter in Kgs 単位重量 kg/m ²	Weight per Piece in Kilograms		
		kg/枚	kg/枚	kg/枚			kg/枚	kg/枚	kg/枚
0.23	1.806	3.02	5.37	8.39	3.5	27.48	45.9	81.7	128
0.24	1.884	3.15	5.60	8.75	4.0	31.40	52.5	93.3	146
0.25	1.962	3.28	5.83	9.11	4.5	35.32	59.1	105	164
0.26	2.041	3.41	6.07	9.48	4.76	37.37	62.5	111	172
0.27	2.120	3.54	6.30	9.85	5.0	39.25	65.6	117	182
0.28	2.198	3.68	6.53	10.2	5.5	43.18	72.2	128	201
0.29	2.276	3.81	6.76	10.6	6.0	47.10	78.8	140	219
0.30	2.355	3.94	7.00	10.9	6.35	49.85	83.3	148	232
0.32	2.512	4.20	7.47	11.7	6.5	51.02	85.3	152	237
0.35	2.748	4.59	8.17	12.8	7.0	54.95	91.9	163	255
0.40	3.140	5.25	9.33	14.6	7.94	62.33	104	185	290
0.45	3.532	5.91	10.5	16.4	8.0	62.80	105	187	292
0.50	3.925	6.56	11.7	18.2	9.0	70.65	118	210	328
0.55	4.318	7.22	12.8	20.1	9.53	74.81	125	222	347
0.60	4.710	7.88	14.0	21.9	10.0	78.50	131	233	365
0.65	5.102	8.53	15.2	23.7	11.00	86.35	144	257	401
0.70	5.495	9.19	16.3	25.5	11.11	87.21	146	259	405
0.75	5.888	9.84	17.5	27.3	12.0	94.20	158	280	438
0.80	6.280	10.5	18.7	29.2	12.7	99.70	167	296	463
0.85	6.672	11.2	19.8	31.0	13.0	102.0	171	303	474
0.90	7.065	11.8	21.0	32.8	14.0	109.9	184	327	510
0.95	7.458	12.5	22.2	34.6	14.29	112.2	188	333	521
1.0	7.850	13.1	23.3	36.5	15.0	117.8	197	350	547
1.2	7.420	15.8	28.0	43.8	15.88	124.7	208	371	579
1.4	10.99	18.4	32.7	51.0	16.0	125.6	210	373	583
1.6	12.56	21.0	37.3	58.3	17.0	133.4	223	396	620
1.8	14.13	23.6	42.0	65.6	17.46	137.1	229	407	637
2.0	15.70	26.3	46.7	72.9	18.0	141.3	236	420	656
2.3	18.06	30.2	53.7	83.9	19.0	149.2	249	443	693
2.6	20.41	34.1	60.7	94.8	19.05	149.5	250	444	694
2.8	21.98	36.8	65.3	102	20.0	157.0	263	467	729
2.9	22.76	38.1	67.6	106					
3.0	23.55	39.4	70.0	109					
3.2	25.12	42.0	74.7	117					

●計算方法：厚×巾×長×比重＝重量(kg) 鉄比重：7.85

Calculation Formula:

Weight of steel sheets(kg) = T×W×L×specific weight

Specific weight of steel: 7.85

The image displays three different types of perforated metal products. The top half features a sheet with a uniform grid of circular holes. The bottom left shows a sheet with elongated oval holes. The bottom right shows a sheet with square holes. The sheets are arranged in an overlapping fashion, creating a layered effect. The lighting highlights the metallic texture and the depth of the perforations.

Perforated metal products are used for an entire spectrum of applications, from parts for precision machinery and automotive parts, to a multitude of decorative products for interior and exterior use. They have won high acclaim for their functionality and attractive appearance.



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