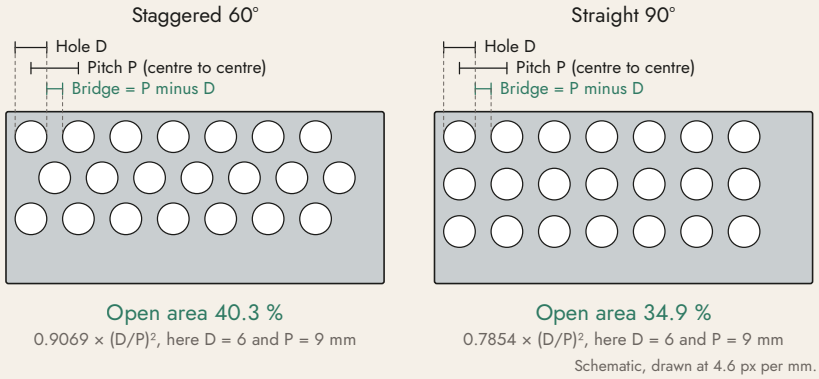
Perforated, laser-cut and *expanded metal*

Open area is 0.9069 times (D/P) squared for round holes in a 60-degree stagger. Check the bridge against the sheet thickness, and ask the partner for its own hole and web limits.

AT A GLANCE

Pattern	Open area	Narrowest bridge	Example (mm)
Round, 60° stagger (ISO 7806 code R)	$0.9069 \times (D/P)^2$	P – D	D 6, P 9: 40.3 %
Round, in line	$0.7854 \times (D/P)^2$	P – D	D 6, P 9: 34.9 %
Square, in line or half-pitch stagger (C)	$(S/P)^2$	P – S	S 6, P 9: 44.4 %
Hexagon, honeycomb (H)	$(W/P)^2$, W across flats	P – W	W 6, P 9: 44.4 %
Round-ended slot (LR)	$[w(L – w) + \pi w^2/4] / (Px \times Py)$	Py – w across, Px – L along	w 5, L 20, 26 × 11: 33.1 %
Expanded metal, diamond	From the supplier's table for the product	The strand	Ask for SWD, LWD, strand and thickness
Laser-cut pattern	From the drawing (CAD)	Every web, and every bridge to an island	Fabricator's minimum feature and web

D hole diameter, P pitch between neighbouring centres, S square side, W hexagon across flats, w slot width, L slot length, Px and Py slot pitches. Formulas are checked against ISO 7805-2:1987; expanded and laser-cut patterns need the supplier's or the drawing's figure.



Hole, pitch and bridge in a staggered and a straight pattern, with the open areas for 6 mm holes at 9 mm pitch. Original drawing by Make Bespoke Studio, to the scale stated.

SPECIFICATION WORDING

PERFORATED SHEET

[Material], [ ] mm thick, perforated with [round (R) / square (C) / slot (LR)] holes, [D = __ mm], at [60-degree stagger / in line], pitch [P = __ mm], to give a calculated open area of [__] % over the perforated field. Bridge [P minus D = __ mm], not less than the sheet thickness. Unperforated border [__ mm] on [all sides]. Hole size measured on the [punch] side; visible face is the [die / punch] side. Flatness [ ] mm, judged against approved sample [ref. __].

LASER-CUT PATTERN

Pattern as drawing [ ], supplied as [DXF / DWG], cut from [material], [ ] mm thick. Every enclosed shape is to be tied by the bridges shown; the fabricator is to flag any island before cutting. Minimum feature [ ] mm and minimum web [ ] mm, as confirmed by the fabricator for this material and thickness. Edges that show are to be dressed to sample [ref. __]. Finishing is [before / after] cutting.

EXPANDED METAL

Expanded metal, [standard (raised) / flattened], [material], SWD [ ] mm, LWD [ ] mm, strand width [ ] mm, thickness [ ] mm, open area [ ] % from the supplier's table for this product. Long way of the diamond [horizontal / vertical]. Edges [open / closed]. Sample to be approved in [the light] and from [the viewing positions] stated.

FABRICATOR TO CONFIRM

Before pricing, the fabricator is to state in writing the smallest hole, the narrowest bridge or web, and the largest sheet it can perforate or cut flat in this material and thickness, and where the pattern is likely to distort.

TERMS USED

Open area
The share of a perforated field that is hole: the total area of the holes divided by the area of the perforated part of the plate (ISO 7805-2).

Pitch
The distance between the centres of neighbouring holes. The bridge between two holes is the pitch minus the hole size.

Bridge (web)
The metal left between two neighbouring holes or cut shapes. Also the narrow strip left uncut to tie an island to the rest of a laser-cut sheet.

Island
A piece of metal enclosed by a cut that nothing joins to the rest of the sheet, so it falls out unless a bridge ties it.

Expanded metal
Sheet slit and stretched into a diamond-shaped mesh with no waste. It is one piece, unlike woven wire mesh.

STANDARDS AND SOURCES

- ISO 7805-2:1987, industrial plate screens, part 2, thickness below 3 mm (BS 6620-2:1991): text read from a public preview. ISO stage 90.93, confirmed 25 Nov 2022; BSI: current, under review, identical to ISO 7805-2.
- ISO 7806:1983, codification for designating perforations: preview read. ISO stage 90.93, confirmed 25 Nov 2022.
- ISO 7805-1:1984 (plate 3 mm and over): listing only: confirmed 25 Nov 2022. Text not read.
- A US perforator's purchasing guide (2017); an online laser-cutting service's guide (2022); a fabricator's expanded-metal terminology page: read; fabricator practice, not standards.

Full guide: https://makebespoke.com/trade/technical/perforated-laser-cut-and-expanded-metal. Make Bespoke Studio coordinates manufacture through its partner workshops. Figures are guidance only and your specification governs; some may be superseded, so contact the studio to verify.