

Grooved & Perforated

Main feature: Distributor

GPL1 is an attribute to our core materials, developed to make the infusion process reliable, fast and robust on flat or slightly curved surfaces, while imprints on the surface are minimized.

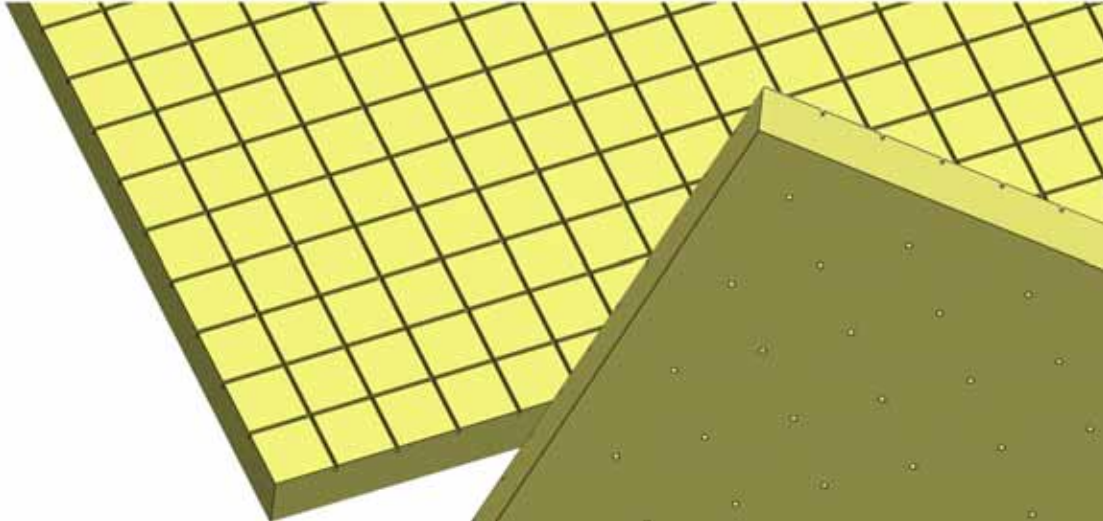


Figure 1: GPL1 top view (left picture) and bottom view (right)

Description GPL1

As shown above, one side of the core is grooved and perforated, while the other side has perforations only.

Typical measurements:	
Grooves	
Center-to-center	20mm
Depth (D)	2mm
Width (W)	1mm
Perforations	
Center-to-center ^a	40mm
Diameter perforation	Ø 2mm

a. Perforations are arranged in a diamond pattern.

Benefits

- Reduces cost
- Saves labor
- Minimizing the risk of print through from the core
- Facilitating easy and fast lay-up of infusion strategy

GPL1 is a development from its precursor GPC1, with further optimization of grooves and perforations to minimize resin consumption and to further achieve weight savings.

In addition to excellent infusion characteristics, GPL1 also has economical savings since there is no need for additional flow mediums to achieve a good flow and wet out.

Typical applications

- Decks
- Top sides
- Hulls
- Panels
- Webs
- Stiffeners

GPL1 is very well suited for flat applications where efficiency and large volumes are important.

Process characteristics

- Good wet-out
- Robust
- Fast
- Reliable

The dimensions of the grooves and perforations enable both low and high viscosity resins to flow securely to both sides of the core, which means that GPL1 is both reliable and fast when used in an infusion process. Good control of process conditions plus in-house evaluation of sustainability for the application is recommended prior to starting full scale manufacturing.

The design of the grooves (width, depth and distance between them) in combination with the perforations yields a fast flow and a proper saturation of fibers and core surface, which secures a good bond line.

The purpose of the perforations is to ensure a good transfer of resin to both sides of the core. A further advantage is that the infusion feeder lines can be positioned where most strategically appropriate, independent of the core sheet position.

As mentioned earlier, another important benefit of perforations is that they yield less print through from resin shrinkage compared to having grooves facing the outer surface.

Limitations and considerations

Resin consumption increases with thickness, due to perforations.

GPL1 is intended for flat surfaces¹.

¹. In combination with another finishing code, for example GS30, GPL1 may be used also for applications with curved surfaces.

Finishing Solutions

DIAB utilizes a combination of its complete range of finishing options to provide an optimized solution based on customers' requirements and objectives. Should the standard range not fulfill the needs, tailor made cuts and solutions can be defined and developed. Normally this is not needed as the range of options and DIAB competence covers majority of needs in various industries.

Kits

To fully optimize the application for cost, performance and quality DIAB can engineer and design a core kit delivered in lay-up sequence. The kit of precut pieces is optimized for mechanical requirements, lay-up, manufacturing process, cost and quality objectives. The kit is produced by our skilled personnel using a combination of traditional and CNC equipment to achieve the desired result.

By working with kits our customers gain access to the full competence of DIAB in terms of engineered design, core materials and range of manufacturing techniques, all having a profound impact on the ability to reach the objectives of the application from cost, quality and performance point of view.

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