

Q100 (GSC30/GPC1)

Grid Scored, Grooved & Perforated

Main feature: Formable / Distributor

Allows a very fast and robust resin flow in closed molding applications where there are curved geometries. Q100 provides a secure wet-out on both sides of the core, while it still provides one surface with good surface finish.

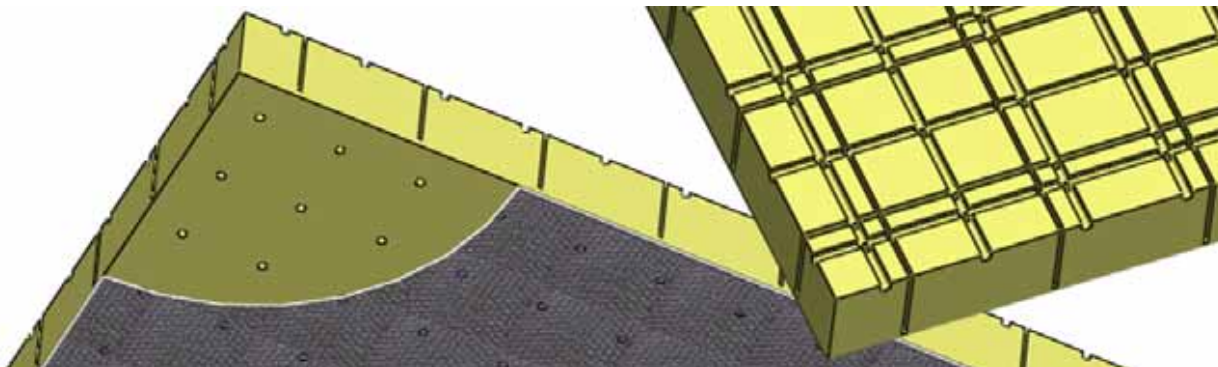


Figure 1: Q100 top view (right picture) and bottom view (left)

Description

By combining two existing finishes a third finishing is created with new features. Q100 is a combination of grid GS30, grooved and perforated materials.

Typical measurements:	
GS30	
Center-to-center (c - c)	30mm
Depth (D)	~2mm from bottom of sheet
Width (W)	~0.9mm U-shaped cuts
GPC1	
Center-to-center (c - c)	20mm
Depth (D)	2mm
Width (W)	2mm
Perforation (Ø)	2mm

Benefits

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

In addition to excellent infusion characteristics, Q100 also has economical benefits since there is no need for additional infusion materials. For

example, flow meshes or flow mats, are not needed due to the effective grooving and perforating of the core. Due to its fast flow, the distances between feeder lines are not as critical as it is the case without this configuration. This means that there are a lot of savings both in labor, materials and consumables compared to other infusion methods.

Peel plies are seldom used in combination with Q100 since the added value is minor. However, it may occasionally be used to facilitate an easier grinding prior to secondary bonding or to get a smoother surface

Typical applications

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

Q100 is very well suited for most kinds of applications where efficiency and large volumes are important due to its flexibility and robustness.

Process characteristics

- Good wet-out
- Robust
- Fast
- Reliable

The size of the grooves and perforations enables a variety of resins with different viscosities to flow securely and fast along the cores surfaces and to both sides of the core, which in its turn secures a good bond between laminate and core.

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 it is most strategically appropriate, independent of the core sheet position.

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

The preferred way to put the Q100 sheet down in a laminate or mold is to turn it so it closes the grid scores, which reduces resin uptake, decreases exothermic peaks and decreases risk of surface printing.

Limitations and considerations

Resin consumption increases with the thickness of the sheet.

It is preferably intended for 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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