

Grooved

Main feature: Distributor

The groove configuration on GRC4 enables a reliable, fast and robust distribution of resin on both sides of the core on flat or slightly curved surfaces.

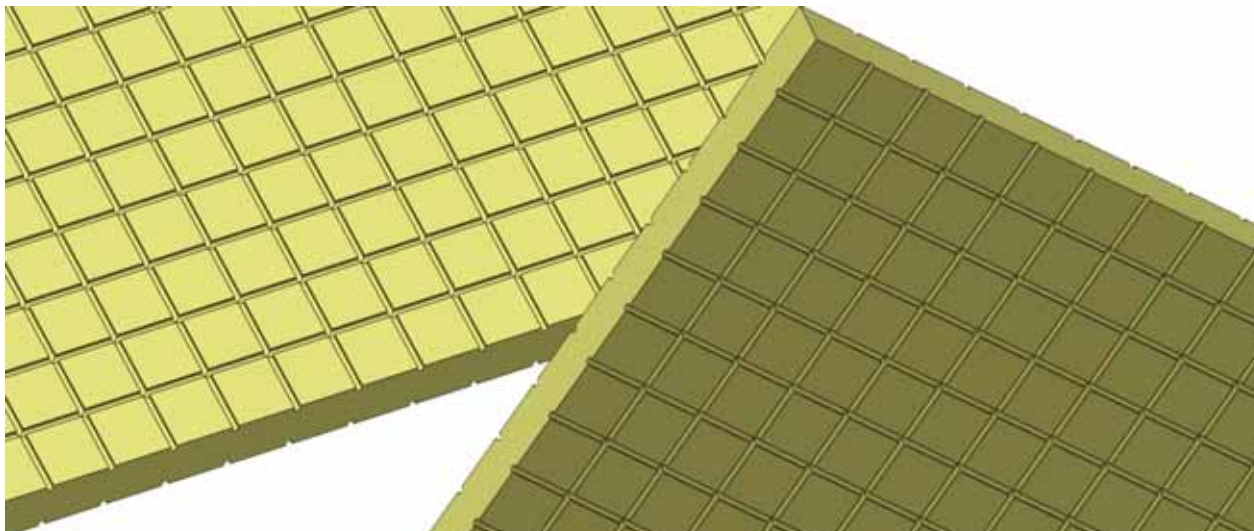


Figure 1: GRC4 top view (left picture) and bottom view (right)

Description

Both sides of the core are grooved in both longitudinal and transverse direction.

Typical measurements:	
Center-to-center (c-c)	20mm
Depth (D)	2mm
Width (W)	2mm

Benefits

- Reduces cost
- Saves labor
- Big process window
- Facilitating easy and fast lay-up of infusion strategy
- Resin consumption not dependent of thickness

In addition to excellent infusion characteristics, GRC4 has economical benefits as there is normally no need for additional infusion materials like flow meshes or flow mats, due to the effective grooving of the core. The fast flow normally reduces the number of feeder lines needed to get a part effectively wetted out. This means a lot of savings

both in labor, materials and consumables compared to other infusion methods.

Peel plies are seldom used in combination with GRC4 since the added value is minor. However, it might occasionally be used to facilitate an easier grinding prior to secondary bonding or to get a smoother surface.

Typical applications

- Panels
- Superstructures
- Webs
- Stiffeners

GRC4 is very well suited for flat applications where efficiency and large volumes are important. This is true, in particular, when the core thickness is 20mm or more and there is no need for a good finish on one side of the application.

GRC4 is not to recommend on surfaces with high surface finish demands due to the risk of print through from grooves.

Process characteristics

- Good wet-out
- Robust
- Fast
- Reliable

The dimensions of the grooves enable both low and high viscosity resins to flow steadily.

The design of the grooves (width, depth and distance between them) generates a fast flow and a proper saturation of fibers and core surface, which secures a good bonding between core and laminate.

Limitations and considerations

Resin consumption due to groove configuration is not related to core thickness. There is no transverse flow in GRC4, since there are no perforations.

The grooves can have an effect on the surface finish of a product, however the end results depends mainly on used process and resin properties.

GRC4 is intended for flat surfaces¹.

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.

¹. In combination with another finishing code, for example GS30, GRC4 may be used also in applications with curved surfaces.

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Box 201
312 22 Laholm, Sweden
Phone: +46 (0)430 163 00
E-mail: info@se.diabgroup.com