

Grid Scored

Main feature: Formable

GS60 is a grid scored material in two directions, which makes it formable and flexible for use in curved molds or applications.

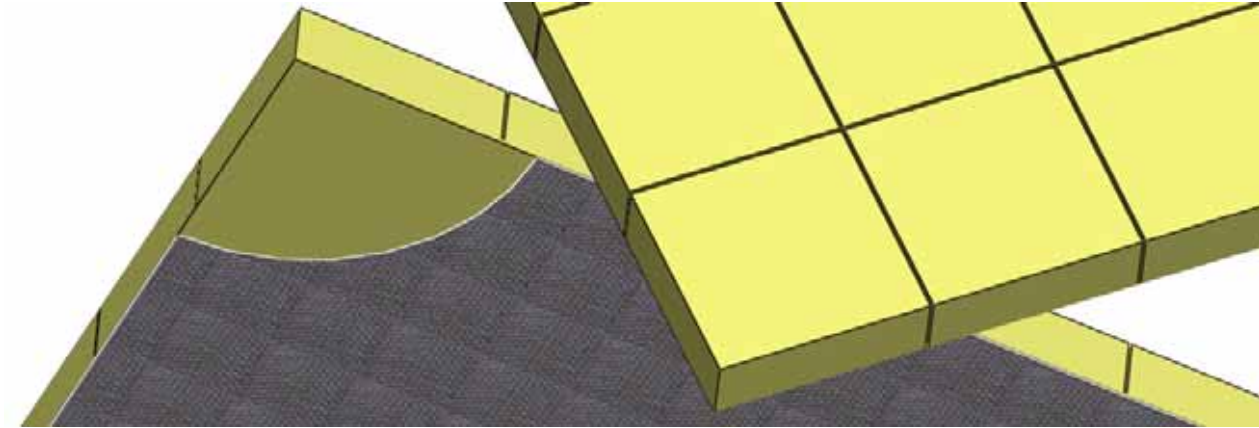


Figure 1: GS60 bottom view (left picture) and (right) top view.

Description

The sheet has U-shaped cuts in length and width direction of the sheet almost all the way through the core. To reinforce the sheet a light weight fiberglass scrim fabric is used on the opposite side of the cuts.

Typical measurements:	
Center-to-center	60mm
Depth (D)	~2mm from bottom of sheet
Width (W)	~0.9mm

Benefits

- Easy and robust to handle
- Formable
- Low resin consumption

GS60 is an interesting choice on slightly curved surfaces, it has less number of grid scores in comparison with many other grid scored materials, which has a great impact on the resin consumption in resin transfer molding processes.

The most common way to install grid scored materials in a curved mold is to allow the grid scores to close, in a concave mold - the cuts are facing the installer. GS60 thin cuts and wide center to center will reduce:

- the resin uptake
- the resin shrinkage (giving less surface printing)
- the risk of exothermic reactions.

Typical applications

- Blades
- Nacelles,
- Hulls
- Superstructures
- Tanks
- Etc.

GS60 conforms and shapes itself, which in practise means that it evens out any irregularities on a previously laid laminate for instance.

Process characteristics

Suitable for slightly

curved surfaces, whether your manufacturing method is hand laminating, vacuum bonding or infusion. GS60 is an alternative for shapes with fairly large radiuses.

GS60 is used in hand lay-up or sprayed lay-up processes. In wet lay-up techniques it is preferred to wet prime the core before putting it down in a laminate, which preferably is a chopped mat bedding layer.

The proper and recommended method in wet lay-up manufacturing is to use a vacuum bonding technique combined with a suitable core bedding adhesive.

The grid score grooves are only for curvature and should not be confused with infusion grooving. For infusion, additional finishing is needed

In infusion or other vacuum resin transfer molding processes GS60 is often combined with other finishing options as mentioned to secure a good wet-out of the surface of the core.

The preferred way to turn the GS60 down in a laminate or mold is to enable it to close the grid scores, which reduces resin uptake, decreases exothermic peaks and decreases risk of surface printing.

Limitations and considerations

If the core is placed correctly in the mold, as described in process characteristics, the grid scores will be closed or next to closed.

If the core is not placed correctly, the curvature grooves will be opened/widened, creating gaps which will be filled up with resin and creating race tracks in resin transfer molding processes.

In infusion consumption of resin increases with thickness.

In comparison with GS30 the formability is less with GS60.

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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