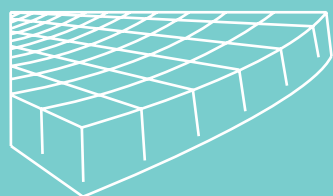
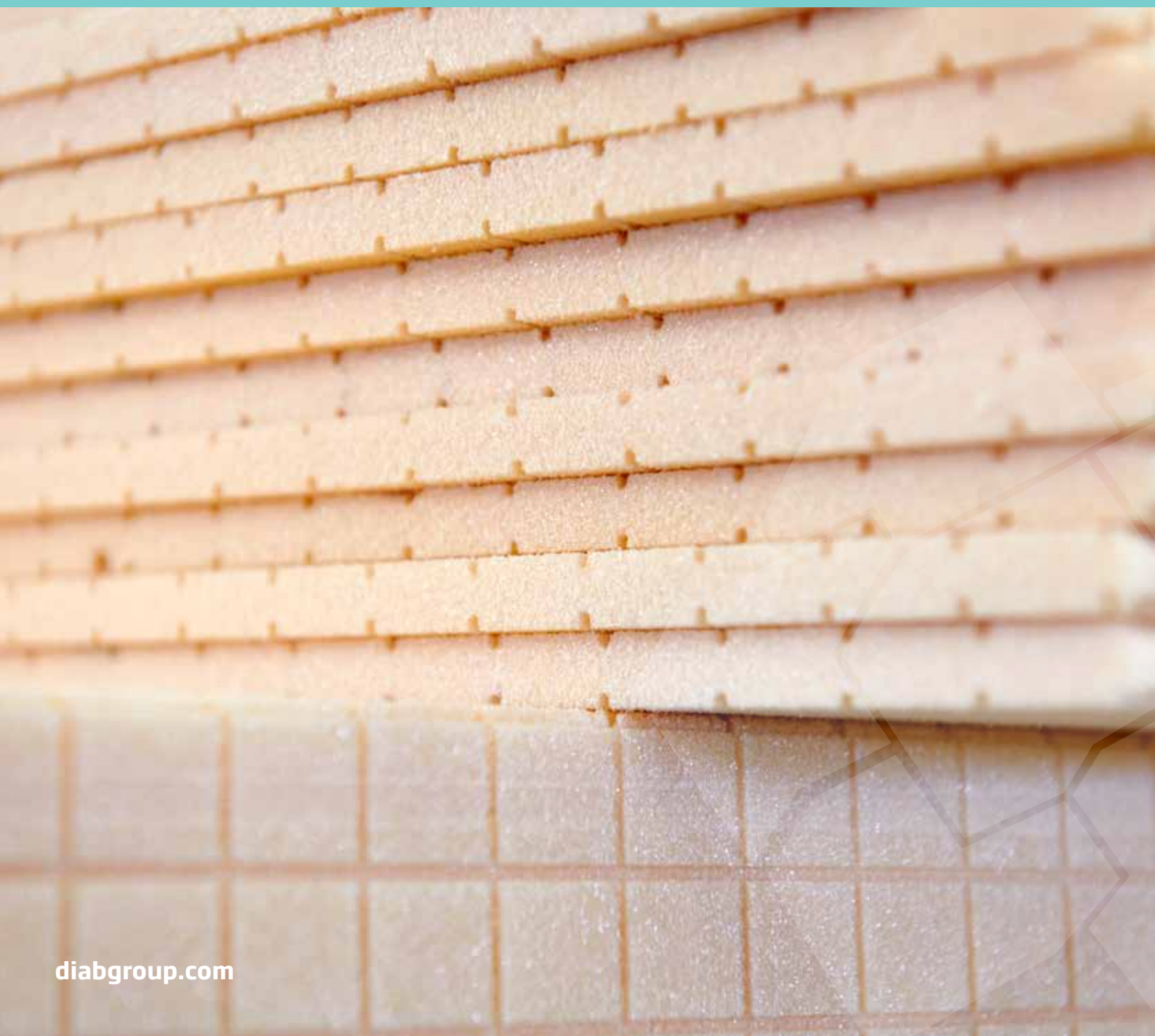


Diab



FINISHING

AT THE CORE
OF YOUR
COMPETITIVE
EDGE



OPTIMISE EFFICIENCY, COST, WEIGHT, AND QUALITY WITH DIAB FINISHING SOLUTIONS

WHAT IS FINISHING?

Finishing refers to the machining of structural core materials. You can choose from a wide range of cuts, grooves, and perforations in different patterns, each serving a specific purpose for form or flow.

WHY FINISHING?

Depending on the geometry, manufacturing process, or specific component requirements, the selected finishing will have an important role to play for a successful result.

- Formability to adopt to mould surface
- Lower weight with the right grooves and perforations
- Faster and secure resin flow in the vacuum infusion process
- Ensure air evacuation in vacuum infusion or vacuum bonding operations
- Improve surface finish of final parts

Most Diab finishes for Flow also has economic savings since there is no need for an additional flow medium to achieve a good flow and wet out of fibres. Also, the number of resin inlets can be reduced due to the excellent flow characteristic acquired in the proven design of grooves and perforations.

WHY FINISHING FROM DIAB?

Diab is a world-leading supplier of sandwich core materials with long experience in developing finishing solutions. With deep technical knowledge in most manufacturing methods for composites, we understand what criteria are essential for the finishing to fit the purpose. We select the most appropriate one from our wide selection of finishes for form or flow based on the requirements.





AN OPTIMISED FINISHING FOR EVERY GEOMETRY AND MANUFACTURING PROCESS

The complexity of the component and the curvature of the mould influence which core finishing selection fits best into the mould shape with a minimum of spring back and reduced resin consumption. Together with the geometry and expected performance of the product, it is crucial to analyse the finishing used for each manufacturing method. The manufacturing process defines what finishing for form and flow we will use

- Wet lamination. Here typically, formable finishing cuts with or without glass fibre backing are used. With this method, weight is usually not the most critical factor compared to other processes.
- Vacuum Infusion. Core finishing selection for proper resin distribution on both sides of the core is vital. Grooves and perforations are often used in combination. Surface finish requirements is another area where adequate finishing affects the result.
- Resin Transfer Moulding (RTM) includes two stiff counter moulds. Here usually, perforations only are used to evacuate air and for resin distribution.
- Prepreg. Used for weight critical components, often with thin carbon laminates. Perforations used for air evacuation under vacuum consolidation. Also, prepreg manufacturing may influence the choice of core grade.

DIAB FLOW, FORM AND FLOW & FORM

Use this overview as a quick reference guide or as a springboard for discussions with our experts on the finishing selection for your project.

DIAB FORM FINISHING OPTIONS

To create curves, you have formable finishing options. Diab has developed unique solutions especially suited to fit the needs of single and double-curved geometries so you can get the best performance out of every design.

DIAB FLOW FINISHING OPTIONS

Cuts or shallow grooves on the core surface will allow the resin to distribute and wet out the laminate.

Perforations allow air evacuation, and in a vacuum infusion process, the perforations will transfer resin from one side of the core to the other, ensuring proper laminate wet-out. Perforations are also used when working with prepreg or when using core bedding adhesives. These finishes can be successfully combined with formable options.

DIAB FLOW & FORM FINISHING

A combination of our Flow and Form finishing options when you need both adapt to the curvature of your product and distribute resin in your manufacturing process.

TIGHT TOLERANCE FINISHING

Tight tolerance can be achieved by machining the core in different ways depending on demand. One finishing option includes extreme narrow thickness tolerance with a very smooth surface finish.

DIAB APPLICATION CENTER

Realising the total value of composite designs

Diab Application Center is our powerful team with engineers, product specialists, and process specialists ready to team up with you to realise the total value of composites.

PRODUCT SUPPORT

We are here to support you with selecting the suitable core material for your application, advice on fit for purpose finishing, and essential guidance on different manufacturing processes. Product support always comes for free with the purchase of our products.

COMPOSITE CONSULTING GROUP (CCG)

Our experience in sandwich core materials and related manufacturing processes is well documented.

CCG provides specialised composite technology and engineering services to improve your product further. With broad competence within everything from design and structural engineering to process optimisation - including flow modelling for closed moulding, tooling design, and infusion training - we ensure that you can realise the total value of composite designs.

CCG consists of mechanical and process engineers, material scientists, naval architects,

and composite technicians with many years of experience from various industries. Our process consultants routinely work on applications using hand lay-up, vacuum infusion, RTM and RTM Light, prepregs, pultrusion, and filament winding, among others.

COMPOSITE PART & PROTOTYPE PRODUCTION

Prototyping and short production runs have high investment costs and can limit other daily operational activities. Our experienced engineers and fabricators can quickly bring your concepts to reality, whether a start-up or an existing business lacking resources or equipment.

TESTING

Understanding the material and its behaviour in a variety of environmental conditions is key to optimised design. Let us help you characterise your composite solution, core materials, and sandwich structures with our own calibrated testing equipment and network of authorised test labs for exotic test methods. Beyond material testing, we can help with a proof of concept, material characterisation, and many field tests that require real-world applications.

SAVE TIME, MONEY, AND RESOURCES WITH OUR FINISHING OPTIONS

Name	Finishing type	Description	Function	Other note
PFC	Perforated	3 mm perforations in diamond pattern with 100/50 mm distance.	To secure proper core bonding to laminate in bagging operations with core bonding adhesive or bagging of wet laminates.	For infusion PF20 perforation recommended to secure good wet out.
PF20	Perforated	2 mm perforations in squared pattern with 20 mm distance.	To secure proper core bonding to laminate in bagging operations and/or resin flow with vacuum assisted process like infusion.	Most common perforation option for prepreg or infusion.
GRC 4	Grooved	2x2 mm grooves in width and/or length direction of the core, cc 20 mm on one or two sides.	Fast and reliable distribution of resin in vacuum assisted process for flat or slightly curved surfaces.	Well suited for panels with larger areas and especially core thickness above 20 mm. Not recommended with high surface finish requirements.
GRC6	Grooved	2x2 mm grooves cc 20 mm along the sheet on two sides.	Fast and reliable distribution of resin in vacuum assisted process for flat or slightly curved surfaces.	Well suited for panels with larger areas and especially core thickness above 20 mm. Not recommended with high surface finish requirements.
GRC8	Grooved	2x2 mm grooves cc 20 mm across the sheet on two sides.	Fast and reliable distribution of resin in vacuum assisted process for flat or slightly curved surfaces.	Well suited for panels with larger areas and especially core thickness above 20 mm. Not recommended with high surface finish requirements.
GPC1	Grooved & Perforated	2x2 mm grooves cc 20 mm in length and width direction on one side. 2 mm perforations in square pattern in the grooves.	Very fast and reliable distribution of resin in vacuum assisted process for flat or slightly curved surfaces. Perforations will transfer resin and wet out mould side laminate.	Can be combined with Form finishing options like GS30 or similar for more curved areas. Reduced impact of print through due to small perforations.
GPC2	Grooved & Perforated	2x2 mm grooves cc 20 mm in length and width direction on both sides of the core. 2 mm perforations in square pattern in the grooves.	Very fast and reliable distribution of resin in vacuum assisted process for flat or slightly curved surfaces. Perforations will transfer resin and wet out mould side laminate.	Not recommended with high surface finish requirements.
GPC8	Grooved & Perforated	2x2 mm grooves cc 20 mm along the sheet on two sides. 2 mm perforations square pattern in the grooves.	Fast and reliable distribution of resin in vacuum assisted process for flat or slightly curved surfaces. Perforations will transfer resin and wet out mould side laminate.	Not recommended with high surface finish requirements.
GPL1	Grooved & Perforated	1x2 mm grooves cc 20 mm in length and width direction on one side of the core. 2 mm perforations in diamond pattern 40/20 mm in the grooves.	Reliable distribution of resin in vacuum assisted process for flat or slightly curved surfaces. Perforations will transfer resin and wet out mould side laminate. Reduced impact of print through due to small perforations.	GPL1 is a development from GPC1, with further optimization of grooves and perforations to minimize resin consumption and to further achieve weight savings.

Name	Finishing type	Description	Function	Other note
GS30	Cuts with scrim	Grid scored 30x30 mm with a glass fiber scrim backing. 0,9 mm wide cuts.	Cuts will allow core to easily adopt to mould surface in most common applications and use.	Scrim down or up depending on manufacturing process. Typically scrim down in hand lay up and infusion, scrim up with core bedding adhesive.
GW30	Cuts with scrim	Grid scored 30x30 mm with a glass fiber scrim backing. 1,3 mm wide cuts.	Cuts will allow core to easily adopt to mould surface in most common applications and use.	The wider cuts allowing more narrow curvature and higher density core to be cut.
OD30	Cuts with scrim	0,9 mm wide cuts in length direction with cc 30 mm. Scrim backed.	Single curvature.	
DC30	Cuts	Grid scored material in two directions on both sides with slight off set. The 0,9 mm cuts to 55% of core thickness. No scrim backing.	For slight curved areas. The offset cut intersections acts as air/resin flow.	Semi flexible.
DW30	Cuts	Grid scored material cc 30 mm in two directions on both sides with slight off set. The 1,3 mm cuts to 55% of core thickness. No scrim backing.	For slightly curved areas. The offset cut intersections acts as air/resin flow.	Semi flexible. Similar to DC30 but for higher density or thickness.
GS10	Cuts with scrim	Grid scored 10x10 mm with a glass fiber scrim backing.	The 10 mm squares allow sheet to follow smaller mould radius.	Available up to 5 mm only.
Q100	Cuts & Grooves & Perforations	A grid scored scrim backed GS30 with 2x2 mm GPC1 grooving and 2 mm perforation in the grooves.	Very fast and reliable distribution of resin and laminate wet out in infusion process for curved areas.	Reduced risk of print through due to the small perforations on mould side.
Q103	Cuts & Grooves & Perforations	A grid scored scrim backed GW30 with 2x2 mm GPC1 grooving and 2 mm perforation in the grooves.	Very fast and reliable distribution of resin and laminate wet out in infusion process for curved areas.	Wider cut due to density or thickness limitations.
Q200	Cuts & Thin Grooves	A grid scored scrim backed GS30 with thin shallow V-grooves centered in the 30x30 blocks on both sides.	The V-groove crossing with the GS cut act as perforations to facilitate fast and robust resin flow for curved areas.	The thin V-grooves and GS cuts minimize the risk of print through.
Q201	Cuts & Thin Grooves	A grid scored scrim backed GW30 with thin shallow V-grooves centered in the 30x30 blocks on both sides.	The V-groove crossing with the GW cut act as perforations to facilitate fast and robust resin flow for curved areas.	Wider cut due to density or thickness limitations.
Q300	Cuts & Perforation	A grid scored scrim backed GS30 with 2 mm PF20 perforations.	A fast and reliable distribution of resin in vacuum assisted process for curved areas.	Reduced risk of print through due to the small perforations on mould side.
PSC	NA	Plain sheet without finishing.		
T10	Skiving	Specially slitted for tightest thickness tolerance: +/- 0,1 mm.	Tightest possible tolerance with smooth surface allow very low resin consumption.	Thin flexible sheets for lightest weight requirements. Min & max thicknesses and available grades apply.
Z	Skiving	Specially slitted for tight thickness tolerance: +/- 0,2 mm.	Tight tolerance with smooth surface allow very low resin consumption.	Thin flexible sheets for lightest weight requirements. Min & max thicknesses and available grades apply.
T	Sanded	Sanded for tight thickness tolerance: +/- 0,25 mm.		

An optimised finishing for every geometry and manufacturing process



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Diab is a world leader in sandwich composite solutions that make customers' products stronger, lighter and smarter. Diab provides a range of core materials, cost-effective kits and finishings, along with in-depth knowledge on composites. Diab also provides engineering services for composite technology through Composites Consulting Group (CCG). Diab is a participant in the UN Global Compact.

Subject to possible printing errors and changes.