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3A COMPOSITES

CORE MATERIALS

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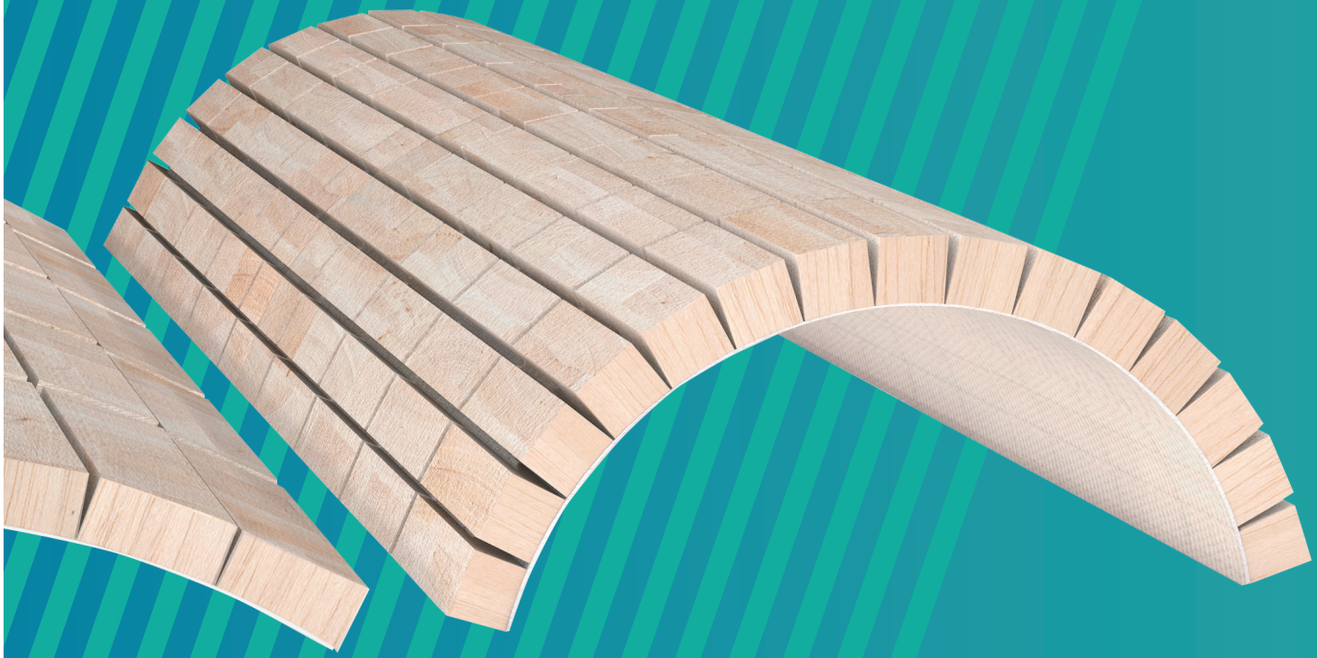

3A COMPOSITES

CORE MATERIALS

BALTEK® Adaptive ContourKore

Optimized finishing for resin infusion

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BALTEK® Adaptive ContourKore
Optimized finishing for resin infusion

BALTEK® Adaptive ContourKore – is an innovative balsa finishing option that optimizes the resin-uptake and drapeability generating a low total cost of ownership and high performance.

With the **Adaptive ContourKore** **3A Composites Core Materials** is ending the current "one-size-fits-all strategy" domination on the balsa market. Now a wide range of **Adaptive ContourKore (CK)** patterns allow a customizable core material design, guaranteeing the best trade-off between core drapeability and resin uptake.
The maximum thickness of flexible balsa core has been increased by 50% allowing designers to design larger composite parts such as longer rotor blades.

Large composite parts with different requirements

The Total Cost of Ownership (TCO) is a function of both direct and indirect material cost – the resin uptake is a major driver of the indirect material cost.

Due to its superior mechanical properties, **BALTEK®** balsa is used in a range of different industries and products. Many of these products have complex 3D shapes requiring a high degree of flexibility in the core material using the traditional **BALTEK® ContourKore** with a 25.4 mm x 50.8 mm (1" x 2)" **CK** pattern. However, the increased flexibility of the core material implies indirect costs, as every cut at the core increases the resin uptake.

Larger parts in general require less drapeability of the core material. Therefore, **3A Composites** has developed the **BALTEK® Adaptive ContourKore.**

Resin uptake reduction

For a 25.4 mm **BALTEK® SBC.100** panel the resin uptake is reduced by 0.6 kg/m² when using a 76.2 mm x 152.4 mm (3" x 6") **CK** instead of the 25.4 mm x 50.8 mm (1" x 2"). This is equivalent to a 17% reduction in the resin uptake.

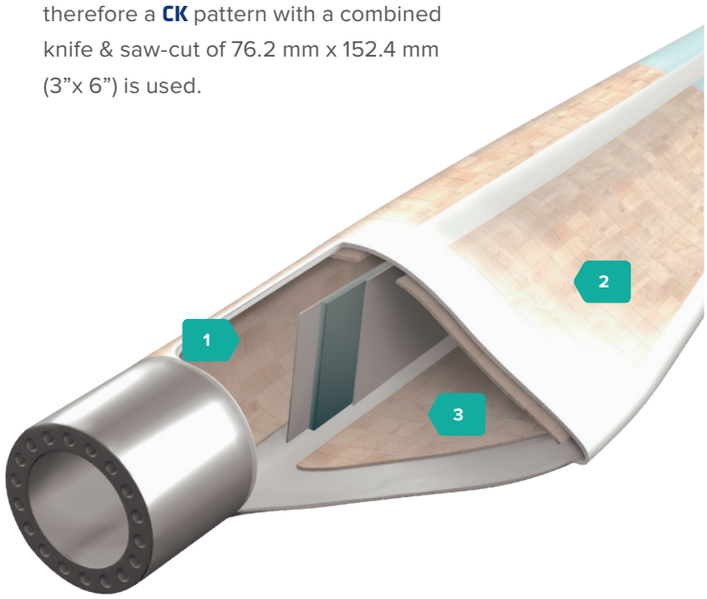
For an application specific validation of the saving opportunities please contact the **3A Composites** solutions engineering teams specialized in assisting industrial customers with material qualification and homologation.

Use in wind turbine rotor blades

1. For a typical leading edge, a small radius requires higher drapeability, hence a traditional 25.4 mm x 50.8 mm (1" x 2") **CK** is used.

2. The upper shell of the tailing edge section is rather flat, thus only a **CK** pattern with 152.4 (6") cuts in the lengthwise direction is used.

3. Towards the root section designers may specify thicker core material (e.g. 70 mm), therefore a **CK** pattern with a combined knife & saw-cut of 76.2 mm x 152.4 mm (3"x 6") is used.



Finishing options configuration

The **Adaptive ContourKore** is offered with a range of pre-defined ContourKore patterns. The first column specifies the width-wise cut and the second refers to the length-wise cut. The three examples of the rotor blade application are highlighted.

Width-wise Panel Cut		CORE THICKNESS (mm)											
mm	inches	6.4	12.7	19.1	25.4	31.8	38.1	44.5	50.8	57.2	63.5	69.9	75.0
0	0												
25.4	1	Standard											
50.8	2												
76.2	3												

Length-wise Panel Cut		CORE THICKNESS (mm)											
mm	inches	6.4	12.7	19.1	25.4	31.8	38.1	44.5	50.8	57.2	63.5	69.9	75.0
0	0												
50.8	2	Standard											
152.4	6												
Example					1		2					3	

Pushing the boundary: Flexible balsa core with thicknesses up to 75 mm

To accommodate the market requirements for a very thick and high-quality flexible balsa core material, **3A Composites** is introducing a new combined saw & blade cutting technique within the new **Adaptive ContourKore**.

Global availability and sustainability

3A Composites Core Materials has a global sourcing base and manufacturing set-up. Over 13.000 ha of FSC®-certified plantations in two independent regions ensure global supply for industrial customers.

3A Composites Core Materials balsa plantations are FSC®-certified, and sustainable as confirmed by external audits. Ask for FSC®-certified products!

At a glance:

- **Up to 17% resin uptake reduction for a BALTEK® SBC.100 panel with 25.4 mm thickness**
- **Maximum core thickness increased from 50 mm to 75 mm**
- **80+ ContourKore combinations for mass customization**
- **Improved cutting quality**

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