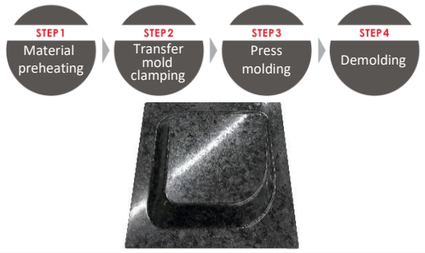
Entering into an era where previously impossible shapes are now possible!

F 1 Complex Shape Formability

Flexcarbon makes it possible now to make shapes that could not be made before by press molding complex shapes, for example, shapes of uneven thickness, honeycomb shapes and others can be made. Considering the requirements of our customers we propose two molding methods that will lead to mass production.

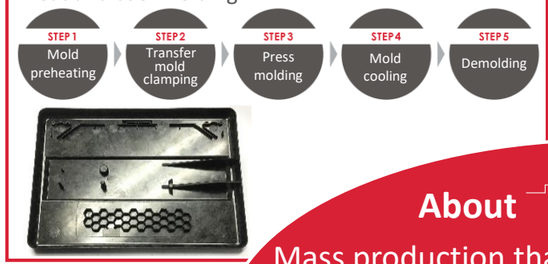
1. Stamping Molding

Preheat the material, 1 minute high-cycle molding by cold press method possible. Development of new high flow material capable of forming complex shapes.

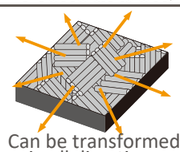
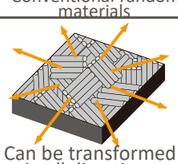
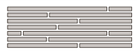


2. Heat & Cool

Heat the mold; improve material flow, by filling in the material (fiber and resin) to the tip of a fine complex shape, mass production is achieved through heat and cool molding.



F 2 Isotropic and Physical Stability

	Flexcarbon	Conventional random materials	Textile Stampable Sheet
Surface deformation	 Can be transformed in all directions	 Can be transformed in all directions	 Does not deform in the fiber direction
Deformation in thickness direction	 Thin (50μm) substrate lamination 20 layers or more in 2mm 	 Thick (200μm) substrate lamination 	 Thick (200μm) substrate lamination 
	High-quality mass-produced pro--ducts with complex shapes can be produced	High quality mass production is not possible	Unable to make molded products with complicated shapes

Flexcarbon specifications

Sheet thickness	1.0 ~ 2.0 mm
Fiber length	13 or 26 mm
VF	40 Vol%
Specific gravity	1.4
Resin (glass transition temperature)	Thermoplastic epoxy (Tg=100-125℃)
Recommended processing temperature	200℃ (Demolding temperature: Under 70℃)

Physical Property Data

Bending strength	506Mpa	ASTM D-790 (L/D=32)
Flexural modulus	29Gpa	
Tensile strength	259Mpa	JIS K7 164
Tensile modulus	30Gpa	
Izod Impact value	83KJ/m2	ISO 180/1U

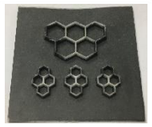
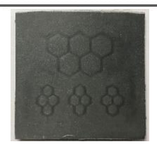
Using void-less thin layer tape material, with unique lamination technology, high strength and isotropy can be obtained, and with this homogeneous material molding process, excellent productivity is possible.

About Flexcarbon

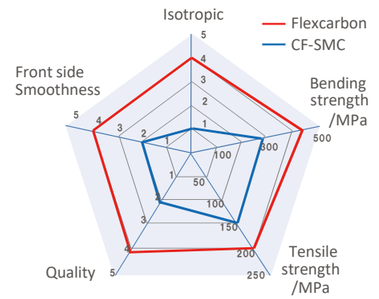
Mass production that could not be achieved with conventional carbon fiber composite materials can be achieved with the simultaneous forming of complex shapes and high strength through the use of thermoplastic CFRTP sheets.

—There are 4 Functions—

F 3 Free Formability by Means of Thin and Multilayer

	Flexcarbon	Textile Stampable Sheet
Back side	 Fiber and resin are flowing together at the rib tip.	 Only the resin flows at the rib tip, and no fiber. Front side There is no rib sink.
Front side	 There is no rib sink.	 There is rib sink.

Comparison table between Flexcarbon and general CF-SMC



By means of the spreading of carbon fiber by unique fiber separation technology, 50μ ultra-thin layer is achieved. The thin and multi-layered void-less tape material, made by impregnation technology, enables the production of molded products with little uneven thickness, complicated boss and rib structures, and with few sink marks on the exterior surface. Highly flexible design and strength design are possible.

F 4 Surface Smoothness

Excellent mold followability, enabling production of molded products with high smoothness.

Flexcarbon: Reflect light source

CF-SMC: Irregular reflection of light source with uneven surface

With spread thin layer tape and thermoplastic epoxy, it is possible to manufacture molded products with excellent mold following properties and high surface smoothness. There is good adhesion to paint, so no need for post-processing polishing.

Making the Impossible, Possible,
the CFRP Revolution.

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