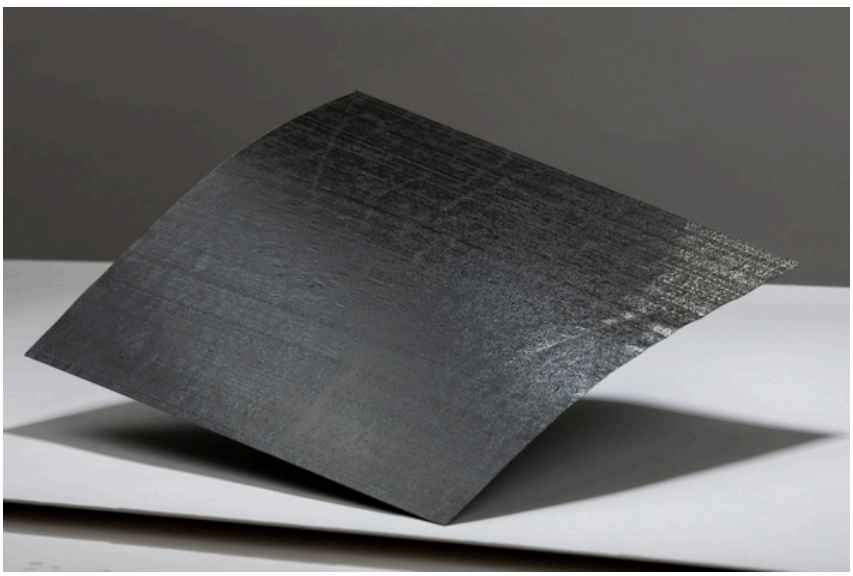
FairPatch & FairStrips Material Data Sheet

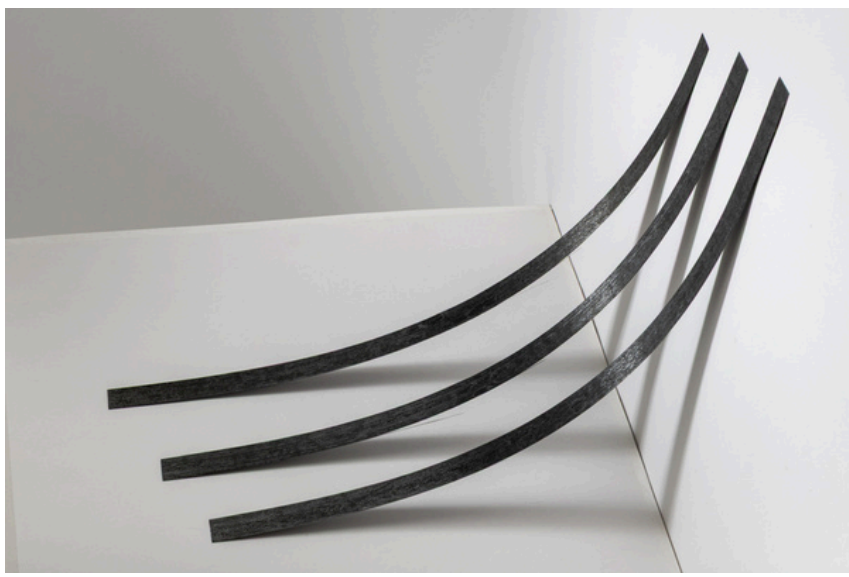
FMT-PDT-EXT-0003

FAIRMAT

Description

FairPatch and FairStrips are cured, single-ply composite elements with fully customizable sizes and shapes, providing a perfect solution for products with specific needs, while being designed for straightforward manual or robotic assembly.





It has several key benefits:

Application-Specific
By allowing you to tailor fiber direction within hard-mold shapes, our material provides localized stiffening with highly aligned fibers that stay in place during molding, maximizing impact durability.

High performance
Built upon the same core technology as our standard chips, these materials guarantee the same material strength & recyclability, delivering trusted high performance for specialized applications.

Certified consistency
Each product's consistency is certified thanks to our embedded traceability & spec control, and is delivered with full documentation.

Integration Flexibility
Designed for manual or robotic integration into molds or components, this material can be used on its own, with other Fairmat materials, or between plies of virgin materials for complete manufacturing flexibility.

Resign agnostic
Fully compatible with your existing processes, our material can be laminated with any thermoset or thermoplastic resin.

Simple Logistics
Easy to handle. Store at room temperature. No special equipment is needed.

Key Features

FairPatch and FairStrips are specialized, single-ply composite elements, engineered with continuous fibers to create fully customizable shapes ideal for applications with well-defined load paths. These precision components are designed for manual or robotic assembly—either directly into a tool or laminated with other materials—making them the perfect solution for products with complex shapes or very specific load cases across a wide range of industries.

FairPatch and FairStrips are:

User-Friendly
Easy to integrate

Ecological
Crafted from up to 90% recycled CFRP

Flexible and moldable

Simplified logistics
Can be stored at room temperature

Easy to cut and customize

High performance
Continuous and long fibers

Product characteristics

Recycled CFRP FairPatch & FairStrips Characteristics

Woven Material

CARBON FIBER WEAVE	Woven Plain	Woven Twill	Woven Twill	Woven Satin	Woven Satin	Woven Satin
LENGTH (MM)	100 - 1000					
WIDTH (MM)	20 - 600					
CONDENSED THICKNESS[1]	0.210	0.235	0.305	0.260	0.310	0.360
FIBER AREAL WEIGHT (GSM)	195	215	265	245	295	335
TOTAL AREAL WEIGHT[2] (GSM)	350	355	440	410	490	560

For bigger FairPatch & FairStrips dimensions, please contact our sales support.

[1] Condensed Thickness is defined as the effective thickness calculated using the density, mass, and dimensions. This is not a physical thickness.

[2] Total Areal Weight = Carbon Fiber Weight + Cured Resin Weight

UD Material

FIBER ORIENTATION	Unidirectional	Unidirectional	Unidirectional
LENGTH (MM)	100 - 1000		
WIDTH (MM)	20 - 300		
CONDENSED THICKNESS[1]	0.125	0.190	0.250
FIBER AREAL WEIGHT (GSM)	125	185	245
TOTAL AREAL WEIGHT[2] (GSM)	210	305	405

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[1] Condensed Thickness is defined as the effective thickness calculated using the density, mass, and dimensions. This is not a physical thickness.

[2] Total Areal Weight = Carbon Fiber Weight + Cured Resin Weight

Options

1. Support Film Characteristics

The **support film** is sticked to the FairPatch/FairStrips using hot melt adhesive web.
Key benefits include enhancing resin flow for stronger, more consistent parts, handling and cutting stability, enabling cleaner, more precise processing, and protecting material edges during cutting, preventing delamination and preserving structural integrity.

GRADE	Glass Fiber Woven (GFW)	Carbon Fiber Non-woven (CFNW)	Glass Fiber Woven (GFW)
CONDENSED THICKNESS[1]	0.1	0.05	0.11
MEASURED THICKNESS (MM)	0.15	0.05	0.25
TOTAL AREAL WEIGHT[2] (GSM)	40	35	40

[1] Condensed Thickness is defined as the effective thickness calculated using the density, mass, and dimensions. This is not a physical thickness.

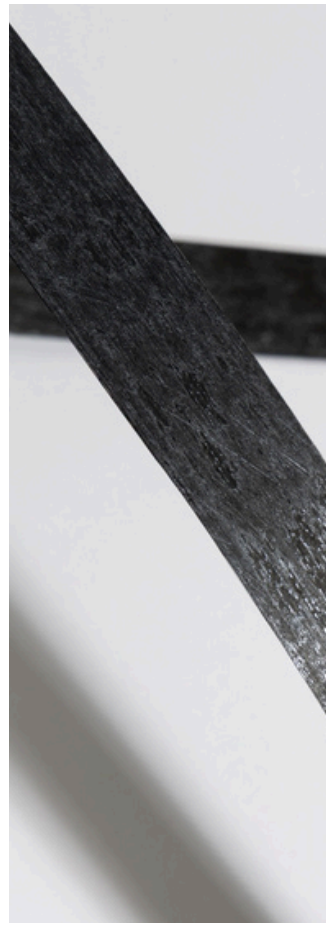
[2] Total Areal Weight = Support film Weight + Hot melt adhesive web Weight

2. Custom cutting

Custom cutting of FairPatch and FairStrips into ready-to-use kits offers several key advantages:

- it streamlines the lamination phase by eliminating the need for manual cutting, thus significantly increasing manufacturing efficiency.
- it optimizes the part's mechanical performance through high-precision cuts that meet exact engineering specifications.
- it improves material draping on molds with complex geometry, enabling to reduce defects and material waste.

For specific cutting requirements, please reach out to your Fairmat representative.

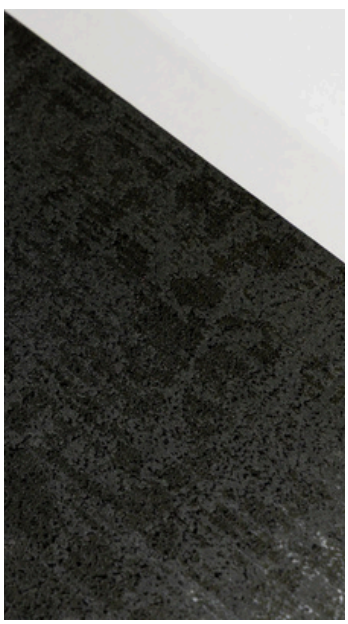


3. Punching

Punching (or perforating) of FairPatch and FairStrips improves adhesion by optimizing resin flow during the curing process, without degrading the material's mechanical properties.

The micro-perforations act as escape channels, allowing trapped air and excess resin to be removed under heat and pressure. This leads to better layer compaction and more intimate contact, resulting in a stronger, more uniform bond with fewer defects.

For specific punching requirements, please reach out to your Fairmat representative.



RECOMMENDATIONS
FOR PROCESSING

- FairPatch & FairStrips are dry products that need to be used with resin,
- They are compatible with all kinds of epoxy resins and polyurethane resins,
- They can be mixed with other virgin materials: dry glass fiber, dry carbon fiber, prepregs, foam, honeycomb,
- Different impregnation methods can be used:
  - Resin films
  - Liquid resin application
  - Impregnation with resin rich prepregs or standard prepreg, depending on the FairPatch & FairStrips characteristics
- A minimum of 100 gsm of resin is suitable for a good impregnation of FairPatch & FairStrips
- Molding temperature is recommended to be between 20°C and 200°C
- FairPatch & FairStrips products can be cut at shape before molding
- Recommended cutting method is using an oscillation cutting machine with following parameters:
  - Line speed: 20mm/s
  - Curves speed: 10mm/s
  - Carbon material blade

Mechanical properties

[0/0/0/0/0] Woven laminates

Made with Woven materials, 1.4g/cc, 65% FairPatch/FairStrips by vol

	Grade A (Tensile 0°)	**Grade B** (Tensile 0°)
MODULUS (GPA)	36	40
ULTIMATE STRENGTH (MPA)	420	609
STANDARDS	ISO 527	

Other grades are available, please contact us for more information.

[0/0/0/0/0] UD laminates

Made with UD materials, 1.4g/cc, 65% FairPatch/FairStrips by vol

	Grade A (Tensile 0°)	**Grade B** (Tensile 0°)
MODULUS (GPA)	83	109
ULTIMATE STRENGTH (MPA)	1463	2061
STANDARDS	ISO 527	

Other grades are available, please contact us for more information.

STORAGE & HANDLING

Fairmat products should be stored in dry conditions (with air humidity below 70%) and at ambient temperatures between 0°C and 40°C, avoiding any direct exposure to sunlight.

When handling these materials, follow the standard safety precautions applicable to cured carbon fiber-reinforced composites and fibrous materials.

HEALTH & SAFETY

Refer to Material Safety Data Sheet

Fairmat certifies that our products are compliant with the European Union Regulation (EC) 1907/2006 governing the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) and do not contain substances above 0.1% weight of a Substance of Very High Concern (SVHC) listed in Annex XIV. Advised precautions for safe handling are general PPE (gloves, safety goggles, mask and protective clothing).