

PROCESSING DATA FOR CFP COMPOSITES BM-5					<i>It is the responsibility of the user to read this guide before using our material</i>		REVISION
							A
Product Info	Machining / Cutting	Bonding by Adhesion	Bonding by Mechanical Fixing	Painting			
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Product Info.	<p>This technical document should be read in conjunction with the current BM-5 material data sheet (MSDS), which is available at www.cfpcomposites.com. It is also advised that users familiarise themselves with the current regulations, Health and Safety policies and operating guidelines for the required machinery and tools to be used.</p> <ul style="list-style-type: none"> • Direct to Component Carbon Fibre Machinable material • Suitable for any flat geometry application such as, platforms, decks – bulkheads – casings – enclosures – cladding – reinforcements - etc • Cost effective alternative to flat sheet aluminium – steel – CFRP laminates • Materials are available in a sheet size of 1.3 m x 0.8 m and a thickness of 5 mm • BM-5 is lightweight, and able to cut using standard metallic cutting tools • Easy to process like metal; machined – screwed – tapped – bonded - fastened - painted, enabling fast component output • No carbon dust, just safe and easy to handle chippings • Available in volume on 7-day lead-times
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Technical Info	Typical Value	Value	Test Method
	Colour Hardness, Shore D Density, g/cm ³ Flexural Strength MPa Flexural Modulus GPa Tensile Strength MPa Compressive Strength MPa Compressive Modulus GPa Coefficient of Thermal Expansion E-06m/m/°C Maximum air temperature stipulated °C / °F The full reports containing these mean test results is available upon request	Black 84 1.29 273 16.6 178 124 13.5 2.85 180°C / 356°F Test data from 2019 / 2020	Visual according to ISO 868: 2003 according to BS EN ISO 1183-1: 2012, Method A according to EN ISO 178: 2003 according to EN ISO 178: 2003 according to ISO 527-4: 1997 according to EN 2850: 1997 according to EN 2850: 1997 according to ASTM 831 (2) using Thermal Mechanical Analysis

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Machining / Cutting	<p><u>Health & Safety</u></p> <p>Care should be taken by the local user to ensure that they conform with any regulatory regulations and Health & Safety precautions prior to processing this material.</p>	<p><u>Speeds, feeds & cutters</u></p> <p>While every care has been taken in the suggested starting point for this information.</p>	<p>The following settings are recommended by CFP Composites after extensive processing.</p> <p><u>CNC Machining guidelines starting point</u></p> <p>Cutting conditions are dry – <u>do not cut using wet Spindle</u> Speed – 4000 Rpm Cutter – Suitable Coated Ball Cutter Feed – 1 Meter Per min Depth – 3mm</p>	
	<p><u>CNC Machining</u></p> <p>Do not use cutting fluids – dry cut only Do not use diamond cutters</p>	<p>Individual users should determine the appropriate speeds, feeds, cutters, and depths for their specific applications.</p>		<p><u>CNC Machining guidelines starting point</u></p> <p>Cutting conditions are dry – <u>do not cut using wet Spindle</u> Speed – 4000 Rpm Cutter – Suitable Coated Ball Cutter Feed – 1 Meter Per min Depth – 3mm</p>
	<p><u>Bench/Table Saw</u></p> <p>Do not use cutting fluids – dry cut only Do not use diamond cutters</p>	<p><u>Equipment CFP have used</u></p> <p>SIP 12" Professional Cast Iron Table Saw or similar</p>		<p><u>Bench/Table Saw Cutting Blade</u></p> <p>Freud LP60M 006 305 X 30 X 96T Pro Industrial Blade with 96 teeth or similar. The more teeth the better the cut.</p>
	<p><u>Handheld Circular Saw</u></p> <p>Do not use cutting fluids – dry cut only Do not use diamond cutters</p>	<p>Makita 5903RK or similar</p>		<p><u>Handheld Circular Saw Blade</u></p> <p>Freud LP40M 023 235X2.8X30MM Blue Line Blade with 48 teeth or similar. The more teeth the better the cut.</p>
	<p><u>Handheld Jig Saw</u></p> <p>Do not use cutting fluids – dry cut only Do not use diamond cutters</p>	<p>Makita 4350FCT 720W or similar With variable speed control</p>		<p><u>Handheld Jig Saw Blade</u></p> <p>For cutting Perspex, nylon, plastic Bosch T101A or similar</p>
<p><u>Bevel Sliding Mitre Saw</u></p> <p>Do not use cutting fluids – dry cut only Do not use diamond cutters</p>	<p>Evolution R255SMS 255mm Electric sliding mitre saw or similar</p>	<p><u>Handheld Jig Saw Blade</u></p> <p>Freud Pro LP60M 001 - 250mm x 30mm x 80T blade with 80 teeth or similar. The more teeth the better the cut.</p>		

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<p>Bonding by Adhesion</p>	<p>This BM-5 product contains Carbon Fibres in the form of a special chopped configuration, which is infused with a Polyamide 6.6 binder to form a solid sheet.</p> <p>Use any main market structural adhesive which is suitable for our BM-5 and the material you are bonding to. You also must ensure it is suitable for your application in strength – cure time – temperature rating, etc.</p> <p><u>Prior to Bonding</u></p> <p>As a precautionary measure, it is recommended that the surfaces of BM-5 that are to be bonded are checked for flatness and skimmed flat if necessary, to achieve a constant bond line thickness.</p> <p>Precautions should be taken to ensure all local health and safety guidelines have been met. Personal Protective Equipment (PPE) should consist of a minimum of P3 rated breathing apparatus, safety overalls or disposable overalls, suitable gloves and safety glasses/goggles to meet the requirements of the materials/chemicals you will be using.</p> <p>Each mating surface to be bonded should be abraded using a very coarse sanding paper (i.e. 60 Grit) this is to ensure that the surface is suitably keyed.</p> <p>Prior to adhesive application, all surfaces to be bonded must be grease and contaminant free using IPA and lint free cloths.</p>	<p><u>Bonding</u></p> <p>When selecting an adhesive, it should be taken into consideration the gel time needed to completely cover all areas, ensuring enough time is left to clamp up.</p> <p>Both surfaces should be wet out with the adhesive and placed loosely in position.</p> <p>Once all required blocks have been positioned lightly tighten the clamps. Ensuring that equal pressure is applied to all the boards. Overtightening will cause the adhesive to spread unevenly, this may lead to stress build up in the boards and cause micro cracking and/or warping.</p>	<p><u>Care Notes</u></p> <p>Use any main market structural adhesive which is suitable for your application in strength – cure time – temperature rating.</p> <p>If there is a bond gap required, the use of solid microspheres or bond wire can be used. The users own preferred method &/or specification can also be used.</p> <p>You must conduct your own trials, as no responsibility will be accepted by CFP Composites if reactions or failures occur.</p> <p>It is advised that the adhesive manufactures “air” cure times are met.</p> <p>Force curing the adhesive is not recommended and may cause the adhesive to flow out of the bond joints.</p> <p>CFP Composites only recommend using Isopropyl alcohol (IPA) and lint free cloths to wipe clean our BM-5 product. If you choose to use alternatives, you must conduct your own trials and no responsibility will be accepted by CFP Composites if reactions, bonding issues, or deformation in the to be bonded surfaces occur.</p>
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Bonding by Mechanical Fixing	<p><u>Prior to Mechanical Fixing</u></p> <p><u>Health & Safety</u></p> <p>Every care should be taken by the local user to ensure that they conform with any regulatory regulations and Health & Safety precautions prior to processing this material.</p>	<p><u>Mechanical Fixing</u></p> <p>While every care has been taken in the suggested starting point for this information.</p> <p>Individual users should determine the appropriate drills, taps, fasteners for their specific applications.</p>	<p><u>Care Notes</u></p> <p>CFP Composites only recommend using Isopropyl alcohol (IPA) and lint free cloths to wipe clean our BM-5 product. If you choose to use alternatives, you must conduct your own trials and no responsibility will be accepted by CFP Composites if reactions occur.</p> <p>Using alternative products may cause deformation of the surfaces.</p>
	<p><u>Drill / Tap / Screw / Fasten</u></p> <p>Do not use cutting fluids – dry cut only Do not use diamond cutters</p>		

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Painting	<p><u>Prior to Painting</u></p> <p>Precautions should be taken to ensure all local health and safety guidelines have been met. Personal Protective Equipment (PPE) should meet the requirements of the materials/chemicals you will be using.</p>	<p><u>Painting</u></p> <p>While every care has been taken in the suggested starting point for this information.</p> <p>Individual users should determine the appropriate paints for their specific applications.</p> <p><u>Materials CFP have used</u></p> <p>Spectral Under 385 Epoxy Primer with Spectral H 6985 Hardener</p> <p>Spraywell Paints 2K Acrylic Paint with 2K Universal Fast Hardener</p> <p>Devilbiss Pri Pro Lite Spray Gun</p>	<p><u>Care Notes</u></p> <p>CFP Composites only recommend using Isopropyl alcohol (IPA) and lint free cloths to wipe clean our BM-5 product. If you choose to use alternatives, you must conduct your own trials and no responsibility will be accepted by CFP Composites if reactions occur.</p> <p>Using alternative products may cause deformation of the surfaces.</p> <p>Follow the manufactures instructions and recommendations.</p>
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