

# Carbon Fibre Sheet



## Product Description

Premium quality carbon fibre sheet manufactured using 100% high-strength carbon fibre reinforcement and epoxy resin, cured under pressure and temperature to produce a high-performance sheet with a smooth, glossy, cosmetic quality carbon fibre finish on one side and a textured 'peel-ply' finish on the reverse.

Suitable for a huge range of structural and cosmetic applications within motorsport, marine, shopfitting, exhibitions, automation, medical, scientific and many more.

The visible surface of the sheet uses a 'visual quality' 2/2 twill, 3k woven carbon fibre fabric and has a high-gloss finish. The reverse side of the sheet is finished with a flat but textured 'peel-ply' finish suitable for secondary bonding.

Our High Strength Carbon Fibre Sheets are manufactured in-house by Easy Composites Ltd in the UK using a strictly controlled process to produce the highest standard of carbon fibre sheet available.

Immediately after curing and before cutting or stocking the sheets are coated in a high-quality protective film on their cosmetic side to ensure they remain in pristine condition.

## Typical Uses

- Motorsport / marine / light aircraft
- Engineering / automation
- Displays / exhibitions / shop-fitting
- Cabinets / enclosures / high-end audio
- Further processing into sandwich panels

## Specification

### Quasi-Isotropic Layup

To create a more uniform distribution of strength, all our sheets are manufactured using both layers of 0°/90° and 45°/-45° oriented reinforcement in what is known as quasi-isotropic fibre orientation. Carbon fibre sheets using this layup technique offer improved stiffness across their diagonal axis and significantly improved torsional stiffness.

### Laminate Composition and Tolerances

The matrix used is a high performance epoxy resin which offers excellent mechanicals, clarity and improved UV stability. The high temperature cure maximises the mechanical strength properties and results in a Tg (glass transition) of 80°C.

To achieve maximum stability and flatness in the sheets, we used 'balanced' laminates for all sheet thicknesses. This means that the fibre type, weight and weave is symmetrical from the front to the back ply.

## Key Features

- 100% high strength carbon fibre
- Pin-hole free high-gloss cosmetic surface
- Flat, textured bonding surface on reverse

The Layup Schedule of the sheets and the thickness and its tolerance can be seen in the following table:

Sheet Thickness	Layup Schedule	Thickness and Tolerance
1.0mm	210g 22 twill 300g +/-45 biax 210g 22 twill	0.9mm +/-0.2mm
2.0mm	210g 22 twill 300g +/-45 biax 650g 22 twill 300g +/-45 biax 210g 22 twill	1.7mm +/-0.2mm
3.0mm	210g 22 twill 300g +/-45 biax 650g 22 twill 210g 22 twill 650g 22 twill 300g +/-45 biax 210g 22 twill	2.8mm +/-0.2mm

## Mechanical Properties

The Following Data was measured from our typical production sheet.

Property	Units	Value		
Sheet Thickness	mm	1.0	2.0	3.0
Weight	kg/m <sup>2</sup>	1.28	2.40	4.08
Density	g/cm <sup>3</sup>	1.15	1.02	1.27
Tensile Strength 0/90°	MPa	503	558	644
Tensile Strength 45°	MPa	557	622	443
Tensile Modulus 0/90°	GPa	37.2	43.9	47.4
Tensile Modulus 45°	GPa	32.3	34.5	27.1
Youngs Modulus 0/90° Gloss Side Compression	GPa	32.4	35.1	10.5
Youngs Modulus 0/90° Gloss Side Tension	GPa	31.8	35.3	10.5
Elongation at Break at 0/90°	%	2.27	0.029	0.039
Elongation at Break at 45°	%	3.13	0.041	0.041

## Disclaimer

This data is not to be used for specifications. Values listed are for typical properties and should not be considered minimum or maximum.

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