

CF-TP-UD-650

650g Unidirectional Carbon Fibre Tape



Key Features

- 50mm and 100mm widths.
- Fibres in one direction.
- 650gsm weight.
- Ideal localised reinforcement.
- Strength down length of tape.

Description

Heavyweight 650gsm unidirectional carbon fibre tape made using unidirectional carbon fibres held together by lightweight glass cross-stitching.

The minimal cross stitch results in negligible crimp of the carbon fibres but does help to facilitate wet-out, particularly in resin infusion processing where the cross stitch assists with resin flow through the tape.

The tape offers excellent conformity and drape but at the same time, the high quality stitching makes the tape perfectly stable and easy-to-handle. The tape is compatible with all standard resin systems including polyester, vinylester and epoxy resin although is ideally matched to epoxy resin owing to its high mechanical performance.

Typical Uses

- Sporting equipment (skis, archery bow limbs etc.)
- Marine (yacht stringer reinforcement)
- Aerospace (wing spars etc.)
- Motorsport (aero wings, structural components)
- Pipe wrapping/reinforcement

Why use Unidirectional Reinforcement?

Working with unidirectional material allows targeted orientation of the fibres in the direction in which the load will be applied allowing composite structures to be manufactured with

maximum strength at the minimum weight because all fibres in the laminate are being utilised as effectively as possible.

The limbs of an archery bow are an excellent example where all of the load is longitudinal, trying the 'bend' the limbs of the bow in just one direction. In this scenario, using a bi-directional material (such as woven carbon fibre cloth) would mean that half of the carbon reinforcement would effectively be useless because the fibres oriented at 90° to the direction of the load (in this case all the weft fibres) would offer no strength in the longitudinal direction at all. By using unidirectional carbon fibre, oriented length-ways down the limb, all of the carbon reinforcement would be contributing to the strength of the limb meaning that limbs using unidirectional reinforcement could be around half the weight as ones of the same strength made using a bi-directional reinforcement.

Specification

Fabric Properties:

Property	Unit	Value
Fibre	-	Toho Tenax HTS40 12K
Colour	-	Black
Aereal Weight	g/m ²	650
Thickness	mm	0.7
Density	g/cm ³	1.77
Tensile Strength	mPa	4300
Tensile Modulus	GPa	240
Elongation at Break	%	1.8

Disclaimer

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