

AmpliTex flax unidirectional fabric 300 gsm

1. Product description

Non-crimp unidirectional fabric with fibers oriented at 0°, suitable for manufacturing fiber reinforced composite products with high performance and low environmental impact.

2. Specifications

Fabric construction

Fibre type:	Flax (EU)
Construction:	0°
Fibre tex :	106 TEX
Fabric weight :	300 gsm +/- 5%
Stitching thread:	textured polyester, 1/cm

Standard width: 345 mm

Standard roll length*: 50 m

* other length on request

3. Mechanical properties

Composite properties

Properties measured on samples with 6 layers aligned at 0°, manufactured in a press with 5 bars pressure (57% fiber weight), with Epoxy resin R&G typ L, cured at 80°C. Fibers dried 30min at 100C° before process.

Flexural Modulus parallel to fibers	26	GPa
Flexural Modulus perpendicular to fibers	3.7	GPa
Flexural Strength parallel to fibers	330	MPa
Flexural Strength perpendicular to fibers	42	MPa
Flexural Yield Strength parallel to fibers	209	MPa
Tensile Modulus parallel to fibers	32	GPa
Tensile Modulus perpendicular to fibers	3.2	GPa
Tensile Strength parallel to fibers	383	MPa
Tensile Strength perpendicular to fibers	22	MPa
Tensile Strain to failure parallel to fibers	1.7	%
Tensile Strain to failure perpendicular to fibers	0.6	%

Fiber properties

Properties of fibers used in the fabric are:

Tensile modulus of fibers	58.5	GPa
Tensile strength fibers	700	MPa
Density of fiber	1.35	

Considering that glass fibers have a density of 2.6 and a tensile modulus of 70GPa, the flax ampliTex UD 300 g/m² can replace a 480 g/m² glass fiber UD fabric to have the same stiffness in tension. In compression, the performance of flax is a bit lower, so that the flax ampliTex UD 300 g/m² can replace a 350 g/m² glass fiber UD fabric to have the same stiffness.

4. Processing guidelines

- Good compatibility with epoxy and polyester
- Near-zero CTE, hence good processing compatibility with carbon fibres
- Compatible with infusion-based processes (vacuum infusion, RTM), wet layup, bladder inflation moulding (BIM), compression moulding
- Sensitive to humidity : dry fabric before use at 110°C for 15 minutes in ventilated oven
- Fiber weight fraction of 60% can be reached with process pressure >5 bars. However, the fibers absorb a lot of resin when laminating the fabric and it tends to look “dry” (unless too much resin is used) before pressure is applied. We recommend controlling amount of adhesive used for laminating and to impregnate with 50-60% resin in weight. Excess resin comes then out while pressing the fabric.