Non-Crimp Fabrics (NCF) can be used in a variety of applications in the automotive, aerospace, construction, corrosive, industrial and marine industries. NCF is a composite reinforcing fabric in which fibres are organised into layers of plies of variable weight and orientation. The layers are stitched together. The result is a range of engineered fabrics with predictable, repeatable properties for the composite industry.

Longitudinal and Transverse (Biaxial) Non-Crimp Fabrics are often used in the marine industry. They have similar fibre orientations to woven roving and combination woven roving / mat products, but do not have the fibre crimp associated with those woven products. This provides superior mechanical properties, particularly under fatigue loads.

Biaxial (0°/90°) fabrics are available in much heavier weights than woven products. This speeds the cutting and laminating process, which saves significant fabrication costs. These materials are ideal in any application that requires optimum strength in two perpendicular directions.

This product is suitable for hand lay-up, vacuum bagging of relatively flat components, vacuum injection and other RTM-processes.

FABRIC SPECIFICATIONS

CK0400 - 400gm Biaxial E-Glass				
Layer Orientation degrees (°)	0	+45	90	-45
Layer Weight (gm/m²)	236	0	174	0
Material	E-Glass		E-Glass	

Weight, knitting yarn (gm/m²)	8
Material	PES
Total weight (gm/m²)	418±3%
Standard roll width (mm)	1270

CK0600 - 600gm Biaxial E-Glass				
Layer Orientation degrees (°)	0	+45	90	-45
Layer Weight (gm/m²)	295	0	307	0
Material	E-Glass		E-Glass	

Weight, knitting yarn (gm/m²)	12
Material	PES
Total weight (gm/m²)	614±3%
Standard roll width (mm)	1270

CK0800 - 800gm Biaxial E-Glass				
Layer Orientation degrees (°)	0	+45	90	-45
Layer Weight (gm/m²)	404	0	397	0
Material	E-Glass		E-Glass	

Weight, knitting yarn (gm/m²)	15
Material	PES
Total weight (gm/m²)	816±3%
Standard roll width (mm)	1270

Reinforcements

NCF E-Glass / Biaxial 0°/90°

TYPICAL LAMINATE PROPERTIES

Laminate thickness 0.114 per 100gm/m² — Fibre Fraction 50% by weight

	Test Method	0°	+45°	90°	-45°
Tensile Strength	ISO 3268	275 MPa	85* MPa	275 MPa	85* MPa
Tensile Modulus	ISO 3268	17,240 MPa	9,650* MPa	17,240 MPa	9,650* MPa
Compressive Strength	BS 2782	220 MPa	85* MPa	220 MPa	85* MPa
Compressive Modulus	BS 2782	14,400 MPa		14,100 MPa	
Flexural Strength		372 MPa		372 MPa	
Shear Strength, in plane	ASTM 4255-83	42* MPa	165 MPa	66* MPa	165 MPa
Shear Strength, interlamina	BS 2782	34.4 MPa		29,600 MPa	
Elongation at break		2.3 %		1.8%	

* Indicates resin dominated strength

NOTE: This data is provided as an aid to materials selection only. These results are theoretical estimates of average properties, based on limited mechanical test data. They should not be construed as either guaranteed minimum values, or design values. The properties of laminates will vary significantly with the resin system and laminating process used, with many other factors being beyond the control of ATL Composites Pty Ltd.

STANDARD STOCK

Order Code	Description	Roll Width	Roll Length
CK0400	400gm biaxial E-Glass	1.27 m	75.3 Lm
CK0600	600gm biaxial E-Glass	1.27 m	51.3 Lm
CK0800	800gm biaxial E-Glass	1.27 m	38.9 Lm

Biaxial Non-Crimp Fabrics are available with any required weight of "binder-free" and powder bound chopped strand mat. These materials build thickness in fewer plies, and are significantly less expensive.

STORAGE

NCF Reinforcements should be stored on packaging roll, and kept dry and clean.

ATL composites

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