



FRP HOME

CARBON & COMPOSITE MATERIALS

TECHNICAL DATA SHEET

300 GSM BIAXIAL CARBON FIBER FABRIC

Non-crimp reinforcement | +45/-45 and 0/90

SUPPLIER / BRAND

ZHEJIANG FRPHOME NEW MATERIAL CO., LTD.

DOCUMENT ID

FRPH-TDS-CBX300-EN-R01

PRODUCT CODES

FRPH-CBX300-X | FRPH-CBX300-B

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300 GSM BIAXIAL CARBON FIBER FABRIC

Product family overview

FRP HOME 300 GSM biaxial fabrics are stitched non-crimp reinforcements made from two balanced layers of continuous 12K carbon fiber. The straight, non-interlaced fiber architecture is designed for efficient load transfer, controlled orientation and good resin impregnation in structural composite processing.

REINFORCEMENT 12K carbon	CARBON WEIGHT 300 g/m2	TOTAL WEIGHT 308 g/m2	ROLL FORMAT 1270 mm x 50 m
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PRODUCT SELECTION

Product code	Fiber orientation	Layer split	Recommended load function
FRPH-CBX300-X	+45 / -45	150 / 150 g/m2	Shear, torsion and off-axis reinforcement
FRPH-CBX300-B	0 / 90	150 / 150 g/m2	Balanced longitudinal and transverse reinforcement

PRODUCT DESCRIPTION

The two carbon layers are held in position by lightweight polyester stitching. This construction minimizes fiber crimp and supports stable handling during cutting, lay-up and molding. The +45/-45 version is intended primarily for in-plane shear and torsional loading. The 0/90 version provides balanced reinforcement along the principal roll and transverse directions.

MATRIX COMPATIBILITY

Typical compatible thermoset matrices include epoxy, vinyl ester, unsaturated polyester, polyurethane and phenolic systems. Compatibility between fiber sizing, stitching yarn and the selected matrix should be validated under the customer's actual processing conditions before serial production.

TYPICAL APPLICATIONS

Market	Representative uses
Mobility	Automotive structures, civil UAV components, lightweight panels
Marine	Hull, deck, stiffener, tube and shell reinforcement
Industrial	Composite molds, machine structures, profiles and enclosures
Sports and leisure	Bicycle, board, paddle, protective and performance components

Orientation convention: 0 degree is parallel to the roll length; 90 degree is transverse to the roll length. Directional labels refer to the nominal fiber placement in the dry fabric.

300 GSM +45 / -45 BIAXIAL

CARBON FIBER NON-CRIMP FABRIC

PRODUCT CODE FRPH-CBX300-X	ORIENTATION +45 / -45	NOMINAL TOTAL 308 g/m2	STANDARD WIDTH 1270 mm
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FRPH-CBX300-X consists of two balanced continuous-carbon layers positioned at +45 degrees and -45 degrees relative to the roll direction. The construction is optimized for drape and off-axis reinforcement while maintaining the fibers in a substantially straight, non-crimp state.

ARTICLE CONSTRUCTION

Layer	Direction	Areal weight	Tolerance	Material
2	-45 degree	150 g/m2	+/- 5%	Continuous carbon fiber
1	+45 degree	150 g/m2	+/- 5%	Continuous carbon fiber
Stitch	Warp-knit	Approx. 8 g/m2	Nominal	Polyester 75D
Total	-	308 g/m2	+/- 5%	Dry reinforcement

PHYSICAL AND CONSTRUCTION DATA

Property	Unit	Nominal value	Tolerance / note
Carbon fiber areal weight	g/m2	300	+/- 5%
Total fabric areal weight	g/m2	308	+/- 5%
Fiber orientation	degree	+45 / -45	+/- 1 degree
Carbon fiber grade	-	SYT45S-12K	Alternate grade by agreement
Tow size	filaments	12,000	12K
Stitch construction	-	Tricot warp-knit	E5 gauge
Nominal stitch length	mm	Approx. 3.0	Production nominal
Standard fabric width	mm	1270	+/- 10 mm
Standard roll length	m	50	+/- 1 m
Approx. net roll weight	kg	19.6	Nominal
Color	-	Black	Visual

FUNCTIONAL GUIDANCE

The +45/-45 architecture is particularly suitable for components governed by in-plane shear, torsion, load transfer around openings and combined loading. Laminate performance depends on resin, fiber volume fraction, cure cycle and manufacturing quality.

Recommended processes: vacuum infusion, VARTM, RTM, wet lay-up, prepreg conversion, compression molding and autoclave processing. Final process parameters must be established for the selected resin system and component design.

Note: Values are nominal product specifications unless a tolerance is explicitly stated. Dry-fabric data must not be interpreted as finished-laminate mechanical performance.

300 GSM 0 / 90 BIAXIAL

CARBON FIBER NON-CRIMP FABRIC

PRODUCT CODE FRPH-CBX300-B	ORIENTATION 0 / 90	NOMINAL TOTAL 308 g/m2	STANDARD WIDTH 1270 mm
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FRPH-CBX300-B consists of two balanced continuous-carbon layers positioned at 0 degrees and 90 degrees. The 0-degree layer runs parallel to the roll length and the 90-degree layer runs across the roll width, providing balanced reinforcement in the principal directions.

ARTICLE CONSTRUCTION

Layer	Direction	Areal weight	Tolerance	Material
2	0 degree	150 g/m2	+/- 5%	Continuous carbon fiber
1	90 degree	150 g/m2	+/- 5%	Continuous carbon fiber
Stitch	Warp-knit	Approx. 8 g/m2	Nominal	Polyester 75D
Total	-	308 g/m2	+/- 5%	Dry reinforcement

PHYSICAL AND CONSTRUCTION DATA

Property	Unit	Nominal value	Tolerance / note
Carbon fiber areal weight	g/m2	300	+/- 5%
Total fabric areal weight	g/m2	308	+/- 5%
Fiber orientation	degree	0 / 90	+/- 1 degree
Carbon fiber grade	-	SYT45S-12K	Alternate grade by agreement
Tow size	filaments	12,000	12K
Stitch construction	-	Tricot warp-knit	E5 gauge
Nominal stitch length	mm	Approx. 3.0	Production nominal
Standard fabric width	mm	1270	+/- 10 mm
Standard roll length	m	50	+/- 1 m
Approx. net roll weight	kg	19.6	Nominal
Color	-	Black	Visual

FUNCTIONAL GUIDANCE

The 0/90 architecture is particularly suitable for plates, panels, shells, tubes and profiles that require balanced stiffness and strength in the principal longitudinal and transverse directions.

Recommended processes: vacuum infusion, VARTM, RTM, wet lay-up, prepreg conversion, compression molding and autoclave processing. Final process parameters must be established for the selected resin system and component design.

Note: Values are nominal product specifications unless a tolerance is explicitly stated. Dry-fabric data must not be interpreted as finished-laminate mechanical performance.

COMMON TECHNICAL INFORMATION

Fiber data, inspection, packaging and use

TYPICAL CARBON FIBER PROPERTIES

The values below are typical supplier data for SYT45S-12K carbon fiber. They are not mechanical properties of the dry fabric or a finished laminate.

Property	Unit	Typical value	Data basis
Filament count	-	12,000	Fiber designation
Linear density	tex	800	Fiber supplier typical
Tensile strength	MPa	4,500	Fiber supplier typical
Tensile modulus	GPa	230	Fiber supplier typical
Elongation at break	%	1.9	Fiber supplier typical
Fiber density	g/cm3	1.79	Fiber supplier typical
Nominal filament diameter	micrometer	7	Fiber supplier typical

INSPECTION AND REFERENCE METHODS

Inspection item	Reference method / control
Fabric areal weight	ISO 3374 or equivalent controlled internal method
Carbon fiber linear density	ISO 1889 or fiber supplier certificate of analysis
Carbon fiber tensile properties	ISO 10618 or fiber supplier certificate of analysis
Fabric width and roll length	Calibrated internal measurement
Fiber orientation	Controlled optical / template inspection
Surface and stitching quality	Visual inspection against agreed acceptance criteria

PACKAGING, STORAGE AND HANDLING

Each roll is wound on a rigid cardboard core, protected with film or a moisture-resistant bag, and identified with product code, batch number, roll number, width, length, net weight and production date. Store indoors in the original package, dry and away from direct sunlight, heat sources and chemicals. Support rolls to prevent crushing or telescoping. When moved from cold storage, allow the unopened roll to reach workshop temperature before use to reduce moisture condensation and electrostatic handling issues.

QUALITY AND ORDER CONFIRMATION

The fabric is supplied with controlled fiber distribution and stitching, free from severe distortion, abnormal folds and continuous broken-tow defects. Minor cosmetic variations that do not affect processing or structural performance may be accepted under the agreed quality specification. Fiber grade, stitch construction, width, roll length, packaging and any customer-specific tolerances should be confirmed on the purchase order or product specification.

TECHNICAL DISCLAIMER

The information in this Technical Data Sheet is provided in good faith and represents nominal or typical values at the date of issue. It does not constitute a warranty of finished-part performance. Composite properties depend on resin selection, fiber volume fraction, laminate design, processing method, cure cycle, environmental conditioning and manufacturing quality. The customer is responsible for testing and confirming product suitability, safety and regulatory compliance for the intended application. Zhejiang FRPHOME New Material Co., Ltd. may update this document as product specifications develop.

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