

江苏长海复合材料股份有限公司

JIANGSU CHANGHAI COMPOSITE MATERIALS HOLDING CO.,LTD

Add: 江苏省常州市武进区遥观镇礁桥 Tangqiao, Yaoquan Town, Changzhou, Jiangsu, China

Tel: 0086-519-88708812 88708813 Fax: 0086-519-88710135 88708809

Http://www.changhaigfrp.com E-mail: mail@changhaigfrp.com



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Brief Introduction 公司简介

江苏长海复合材料股份有限公司成立于 2000 年，是一家集科研、产品开发、生产、销售、服务于一体的民营科技型上市公司。公司位于长三角极具活力和发展潜力的工业城市——常州市武进区，距常州机场 30 多公里，距常州火车站 16 公里，毗邻沪宁高速、沿江高速与 312 国道，交通极其方便。

通过多年发展与自主创新，长海玻纤在强手如林的市场竞争中脱颖而出，成为行业中的佼佼者。目前，公司已建成年产 5.5 万吨、8.5 万吨和 10 万吨的共三座熔窑，形成了以玻璃纤维短切纱、玻璃纤维短切毡、湿法薄毡、涂层毡为主的四大产品系列，品种覆盖各种无碱玻纤直接纱、喷射纱、SMC 片材用纱、车顶棚用纱、透明板用纱、缠绕挤拉纱、短切毡用纱、聚丙烯复合纤维纱、热塑性短切原丝及无碱玻纤短切毡、薄毡、蓄电池复合隔板、方格布、网格布、复合毡、双轴向织物、多轴向织物与碳纤维、新型墙体保温复合贴面材料系列等。近年来，公司又引进了玻璃纤维连续毡、玻璃纤维复合防火板原纸，连续

层压复合板等生产线。产品应用领域包括汽车制造、游艇、卫浴设施、储罐、管道包裹、冷却塔、透明板材、建筑装饰、风力发电、家用电器、运输、运动器材、橡塑制品等。

一直以来，长海玻纤将“以质量求生存，以品种求发展”的经营理念渗透到生产过程中的每一个环节。公司现有国际先进的多条玻璃纤维制品生产线，拥有拉力、厚度、可燃物含量等一系列高端质量检测设备和全电脑检测分析仪，保证玻纤生产的每一个环节都经过严格的检测。公司通过了 ISO9001:2000 质量管理体系认证，并获全国防水行业建设奖，被江苏省科学技术厅认定为江苏省高新技术企业；新型超细玻璃纤复合隔板被命名为江苏省高新技术产品。2008 年公司通过 ISO14001、ISO9001、TS16946 管理体系。2011 年 3 月 29 日江苏长海复合材料股份有限公司在深圳交易所创业板上市，股票代码 300196。

Jiangsu Changhai Composite Materials Holding Co., Ltd., founded in 2000, is a large listed scientific and technical enterprise focusing on scientific research, product development, production, sales and service in the area of fiberglass products manufacture.

Through years of development and independent innovation, Changhai has been able to compete successfully in the fiberglass market and become the leader in the industry. Now, the company had successfully completed the three furnace with output of 55,000 tons, 85,000 tons and 10,000 tons. The company has formed four main series of products for fiberglass roving, chopped strand mat, fiberglass tissue and coated mat, covering all kinds of E-glass roving for filament winding, spray-up roving, SMC roving, chopping roving for headliner, panel roving, roving for pultrusion, assembled Roving for Chopping, combtex roving (pp+fiberglass), chopped strands for thermoplastics and chopped strand mat, tissue, colored & printed tissue, battery separator, non insulation wall cover material, stitch combo mat, woven roving, stitch mat, biaxial fabric, multiaxial fabric, mesh and so on. In recent years, Changhai introduced the new product lines for continuous filament mat, fibreglass high pressure laminate, continuous laminated. Applications include automobile

manufacturing, yachts, private facilities, storage tank, pipeline coating, cooling towers, architectural decoration, wind power, household appliances, transportation, sports equipment, rubber and plastic products and so on.

All along, Changhai keeps its business philosophy—“survive by quality, development by variety”, to infiltrate into the production process in every link. By now, the company has several advanced glass fiber production lines. With kinds of international advanced quality testing equipments in tensile strength, thickness and binder content and computer analysis instruments, every progress of fiberglass is produced in rigorous testing. On 2008 year, the company obtained the ISO14001, ISO9001, TS16949 management system certification, and it received the awards of Construction of national waterproof industry and was identified as the high-tech enterprises in Jiangsu Province. New ultra-fine glass fiber compound separator was named the high-tech products in Jiangsu Province. On March 29, 2011, Jiangsu Changhai Composite Materials Holding Co., Ltd is listed on the Shenzhen Stock Exchange GEM, the stock code is 300196.



玻璃纤维短切毡

Chopped strand mat

玻璃纤维短切毡是由玻璃纤维短切后，无定向均匀沉降，施加粉末或乳液粘结剂制成的玻璃纤维无纺增强材料。主要适用于手糊玻璃钢和机械成型工艺，易于加工处理并有极好的成型性能。

玻璃纤维短切毡树脂渗透快，具有极高的透明度。同时，均匀的纤维分布使产品可模性好，在成型后强度高。玻璃纤维短切毡广泛应用于采光瓦、冷却塔、化粪池玻璃钢、FRP管道、洁具、船体和甲板以及FRP车棚板等等。

同时公司也提供轻重量的玻璃纤维短切毡。

Our Chopped Strand Mat is fine strand reinforcement material made from E-glass out fibers laid in a random pattern and bonded with powder or emulsion binder. It is specially designed for hand lay-up and continuous laminating process. It is easy to handle and has excellent moulding performance.

Also, it has rapid resin penetration together with a fast strand wet out time. The mat also brings a highly translucent finished laminates. Also, the fine strand input makes the fiber prominence at the finished laminates surface extremely low. It is an excellent reinforcement material for translucent roofing panel, chemical storage tanks, FRP pipes, boat hulls and decks, truck body panel and so on. We can also supply light weight chopped strand mat.



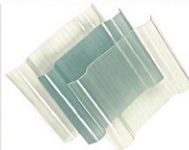
产品特点 Product Features

- 克重分布均匀
- 树脂渗透快，且速度一致
- 容易消除气泡，提高工作效率
- 成品透明度高
- 软硬适中，可模性好
- 与 UP、VE、EP 树脂相容
- 消耗树脂少，降低生产成本
- Excellent weight uniformity
- Fast wet out
- Easy air release
- Excellent transparency of finished products
- Excellent laminate clarity
- Low resin consumption

技术参数 Technical Specification

产品代号 Property	单重(g/m ²) Area Weight	含水率(%) Moisture Content	可塑物含量(%) BINDER Content	拉力强度(N/150mm) Tensile Strength	幅宽(mm) Width
测试方法 Test Method	ISO3374	ISO3344	ISO1887	ISO3342	ISO 5025
EMC85	85	≤0.20	9 ± 5	≥50	±5
EMC100	100	≤0.20	9 ± 5	≥70	±5
EMC120	120	≤0.20	9 ± 5	≥100	±5
EMC225	225	≤0.20	2-8	≥80	±5
EMC300	300	≤0.20	2-8	≥130	±5
EMC450	450	≤0.20	2-8	≥150	±5
EMC600	600	≤0.20	2-8	≥170	±5
EMC900	900	≤0.20	2-8	≥180	±5

备注：常规宽度一般从 200mm 至 3600mm，客户如有其他要求也可定制。
 Note: It is available with a width range from 200mm-3600mm. Other specifications are also available on customer requests.



玻璃纤维连续毡

Continuous Filament Mat

玻璃纤维连续毡是一种新型单丝叠层无纺增强材料，它以连续单丝无定向曲线排布构成多结点交缠结构，不经集束直接通过浸渍剂粘结而成。具有各向同性好，强度高，树脂渗透速率快，制品平整度与表面光洁度高等优点，特别适合于生产拉挤型材和形状复杂的模压成型复合材料制品。

Continuous filament mat is made up of continuous fiberglass strand (its main raw material is continuous fiberglass strand). It is containing an insoluble for unsaturated polyester, epoxy, phenolics and polyurethane resin compatibility in unfilled or filled resin system. It could be used for RTM, infusion, pultrusion process etc., for example automotive inner decorative parts and cable insulation materials.



产品特点 Product Features

- 干态强度高
- 浸渍速度快
- 具有良好的可模性，生产的型材外表光
- High Breaking Strength of dry and wet condition
- Rapid wet-through
- Easily conforms to complex shapes, while providing a smooth finished surface

技术参数 Technical Specification

克重 Density (g/m ²)	含水率 Moisture Content(%)	可塑物含量 BINDER Content(%)	拉伸强度 Tensile strength (N/75 × 200mm)	门幅 width (mm)
300	≤ 0.2	2.1 ~ 6.3	> 200	1040, 1200
450	≤ 0.2	2.1 ~ 6.3	> 300	1040, 1200
600	≤ 0.2	2.1 ~ 6.3	> 350	1040, 1200



无捻粗纺方格布

Woven roving

无捻粗纺方格布是一种由直接纱交织而成的双向织物。

无捻粗纺方格布适用于许多树脂,例如不饱和聚酯树脂、乙烯基树脂和环氧树脂。

无捻粗纺方格布是一种高性能的增强材料,广泛用于手糊和机械成型产品,如船艇、容器、飞机和汽车部件、家具、运动设施和其它应用领域。

Woven roving is a bidirectional fabric made by interweaving direct rovings. Woven roving is compatible with many resins, such as polyester, vinyl ester and epoxy resins.

Woven roving is a high-performance reinforcement and widely used in processes such as in hand lay-up, molding, and pultrusion for the production of boats, automotive parts, furniture, sport facilities and other fields.



产品特点 Product Features

- 与多种树脂兼容
- 易成型好,强度高,易于操作
- 渗透性好,施工效率高
- 透明性好
- 最佳的机械性
- Multi-resin-compatible
- Easy shape adaptation
- Easy impregnation
- Good transparency
- Excellent mechanical properties

技术参数 Technical Specification

产品代号 Product code	单重(%) Area weight	经纬密度(头/厘米) Density warp × weft (ends/cm)	粗纱线密度 Tex (warp × weft)	可燃物含量 Combustible content (%)
EWR200	200	4.6 × 4.6	200 × 200	0.4-0.8
EWR270	270	4.6 × 4.1	300 × 300	0.4-0.8
EWR300	300	5.0 × 3.0 / 3.2 × 1.8	300 × 300 / 600 × 600	0.4-0.8
EWR360	360	3.2 × 1.8	600 × 900	0.4-0.8
EWR400	400	3.6 × 3.2	600 × 600	0.4-0.8
EWR500	500	2.2 × 2.0	1200 × 1200	0.4-0.8
EWR580	580	2.6 × 2.2	1200 × 1200	0.4-0.8
EWR600	600	2.6 × 2.4	1200 × 1200	0.4-0.8
EWR800	800	2.0 × 1.6	2400 × 2400	0.4-0.8

备注: 幅宽范围从 50mm 至 3300mm, 客户如有其他要求可定制。

Note: 't' is available with a width range from 50mm-3300mm. Other specifications are also available on customer requests.



缝编毡和缝编复合毡

Stitch mat and stitch combo mat

缝编毡是将原纱短切成 5cm 后, 均匀沉降, 然后用热压线缝合而成的一种玻璃纤维织物。

缝编复合毡是由无捻粗纺布复合一层均匀平整的短切原纱, 然后缝编而成的玻璃纤维织物。

该两种产品适用于不饱和聚酯树脂、乙烯基树脂、酚醛树脂和环氧树脂等。广泛应用于玻璃钢挤成型工艺、手糊成型工艺和树脂传递模塑工艺等。缝编毡和缝编复合毡在船舶业和 FRP 管道业应用最广, 主要终端产品有: 玻璃钢船体、管道连接、法兰、板材、冷却器具和型材等。

Stitch mat is a fabric made by chopping continuous strands into chopped strands of certain length and stitching together the chopped strands.

Stitch combo mat is a complex mat made by stitching, together woven roving and a layer of evenly distributed chopped strands.

They are compatible with polyester, vinyl ester, phenolic and epoxy resins. The product is widely used in pultrusion, hand lay-up and RTM processes. The product is used most widely in the boat industry and the typical applications include FRP boat hulls, automotive housings and doors, laminates, cooling apparatus and structural shapes.



产品特点 Product Features

- 厚度均匀
- 渗透速率高
- 尺寸稳定性好, 不易发生位移变形
- 便于树脂的流动和渗透
- Even thickness
- Fast wet out
- Good tensile strength
- Dimensional stability
- Better wet out and resin flow

技术参数 Technical Specification

产品代号 Product code	克重 Tota(g/m ²)	短切纱 Chopped strands(g/m ²)	方格布 Roving(W/R)(g/m ²)	幅宽 Width(mm)	层数 Layers	每卷重量 Unit Roll weight
EMK300	300	300		20-3300	单	
EMK450	450	450		20-3300	单	
EMK600/300	900	300	600	20-3300	双	
EMK600/450	1050	450	600	20-3300	双	
EMK800/300	1100	300	800	20-3300	双	
EMK800/450	1250	450	800	20-3300	双	



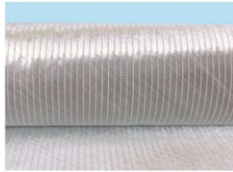
玻璃纤维双向轴布 Biaxial Fabrics

此类产品是一种不卷曲，具有多轴向和多层结构的增强材料。每一层之间通过聚酯纱线加以缝合而成，可通过使用多个方向（0°，90°，+45°，-45°）不同的组合，或者与短切纤维或薄毡等无纺材料缝合而成。

应用于增强不饱和聚酯树脂，乙烯基树脂，环氧树脂，典型制品为风力叶片，船体，容器，运动器材，汽车部件等。

This fabrics is non-crimp, multi-axis and multi-layered reinforcements. The layers are stitched via polyester yarn. Fabrics can be produced using multiple axis (0°, 90°, +45°, -45°), or combined with chopped mat and multiple layers of veil and/or tissue materials.

Suitable for unsaturated polyester resin, vinyl ester resin, epoxy resin. Main products include wind blade, boats, sports equipment, automobile parts ect.



产品特点 Product Features

- 厚度均匀
- 浸透速度快
- 尺寸稳定性好，不易产生位移变形
- 良好的机械力学性能
- Even thickness
- Fast wet out
- Dimensional stability
- Good mechanical properties

技术参数 Technical Specification

产品代号 Product code	规格（每层单位面积克重） Specification (layer weight g/m ²)						总重量 Total weight(g/m ²)
	0°	90°	+45°	-45°	聚酯纱 Stitch yarn	毡 Mat	
BX600	331	300	-	-	12	-	643
BX800	413	402	-	-	12	-	827
BXM600/450	331	300	-	-	12	450	1093
BX300	-	-	153	153	8	-	314
BX600	-	-	301	301	8	-	609
BX800	-	-	401	401	8	-	810
BXM800/450	-	-	401	401	8	450	1260

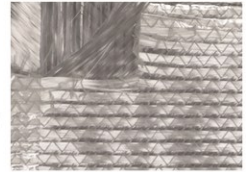


玻璃纤维多轴向织物 Fiberglass Multiaxial Fabric

玻璃纤维多轴向增强织物，是由多层无捻粗纱沿0°、+45°、90°、-45°方向平行排列后，在纱层的下方可添加短切原丝层、聚酯无纺布或玻纤表面毡等设计要求任意组合后经聚酯缝合线一次缝合而成。

产品主要用于航空航天、海洋工程、轨道交通、风力发电、建筑、环保工程、运输、化学工程与防腐等领域。

Fiberglass multi-axial fabric is composed of multiple layers of untwisted roving arranged in parallel along the directions of 0°, +45°, 90° and -45°, and below the roving layer a short cut roving layer, polyester non-woven fabric or glass fiber surface tissue can be arbitrarily combined according to the design requirements and knitted by polyester suture line at one time.



产品特点 Product Features

- 浸透性能优异
- 织物铺成可设计性强
- 制品整体性能好
- 制品强度高、层间性能得到明显提升
- 部分材料可采用有机高性能纤维，实现性能可控
- Excellent soaking performance
- Strong designability
- The overall performance of the product is good
- High intensity
- The performance of controlled

技术参数 Technical Specification

产品代号 Product code	规格（每层单位面积克重） Specification (layer weight g/m ²)						总重量 Total weight(g/m ²)
	0°	+45°	90°	-45°	短切层 Chopped stands(g/m ²)	缝合线 Stitch yarn(g/m ²)	
ETW610	210	200	-	200	-	10	620
ETW1170	570	300	-	300	-	10	1180
EQWF810	210	200	200	200	-	10	820
EQWF1200	283	300	317	300	-	10	1210



玻璃纤维夹芯毡 Fiberglass Core Mat

证书 Certificate

多层织布一次铺层经连续模压而成，适合于多种树脂体系。
主要应用于手糊成型工艺和树脂传递模塑等各种成型工艺。
在汽车及造船业应用最广，增强产品：玻璃钢船体、汽车外壳、板材、冷藏车、车门和型材等。

A multi-layer fabric layer by polyester thread lockstitch, suitable for a variety of resin system.

It can be used in processes like hand lay up, RTM.

Fiberglass sandwich mat is most widely used in wind energy, boat and automobile. The end products include: dorn, blade, boat hull, auto shell, plane, cooling weldites, door and profile, etc.



产品特点 Product Features

- 身流层可提高渗透效率，降低树脂用量
- 不含蜡剂，适合多种树脂体系
- 简化成型工艺
- 提高生产效率，降低成本
- Reduce resin consumption and increase impregnation speed.
- No binder, good compatible with multi-resin
- Simplify the molding process
- Improve the production efficiency and reduce cost

技术参数 Technical Specification

型号 Specifications	门幅/mm Width mm	无蜡粗纱密度/CSM/gm ² Roving Or CSM gm ²	中粗量/gm ² Core gm ²	短切纤维/gm ² CSM gm ²	总重量/gm ² Total weight gm ²
(W)S300-V180-S300	1250-2600	300	180	300	780
(W)S300-V250-S300	1250-2600	300	250	300	850
(W)S450-V180-S450	1250-2600	450	180	450	1080
(W)S450-V250-S450	1250-2600	450	250	450	1150
(W)S600-V180-S600	1250-2600	600	180	600	1380
(W)S600-V250-S600	1250-2600	600	250	600	1450

