

# 管道成型用玻璃纤维产品

## FIBERGLASS PRODUCTS FOR **PIPES**





## 缠绕成型工艺

缠绕用无碱玻璃纤维合股无捻粗纱  
短切用无碱玻璃纤维合股无捻粗纱  
缠绕用无碱玻璃纤维直接无捻粗纱  
无碱玻璃纤维粉剂短切原丝毡

## 离心浇铸成型工艺

离心浇铸用无碱玻璃纤维合股无捻粗纱

### **Filament Winding Process**

*Assembled Roving for Filament Winding*

*Assembled Rovings for Chopping*

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*Powder Chopped Strand Mat*

### **Centrifugal Casting Process**

*Assembled Roving for Centrifugal Casting*

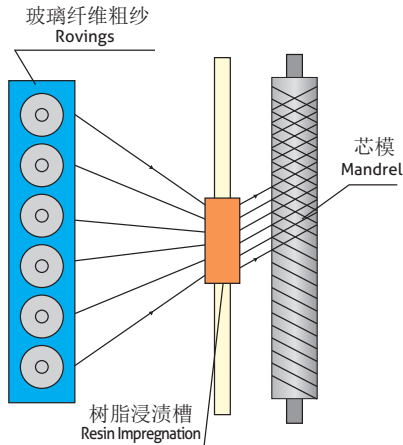
# 缠绕成型工艺

## 传统缠绕成型工艺

将浸渍树脂的玻璃纤维粗纱在一定张力下，按照一定规律缠绕在回转的芯轴上，经固化成制品。

## 连续缠绕成型工艺

由钢带的连续前后循环运转，在向前移动的内芯模上连续完成纤维缠绕、复合、加砂、固化等过程，最后经切割成制品。



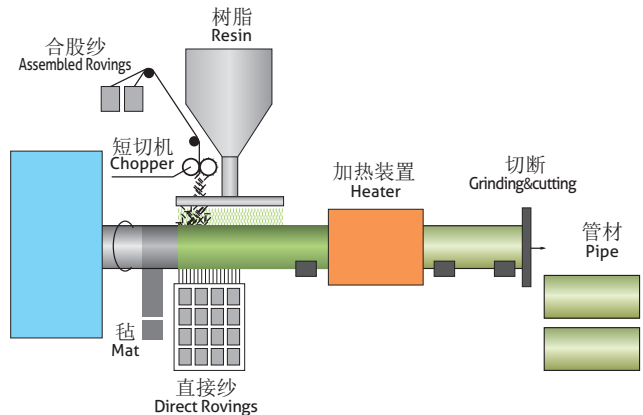
# Filament Winding Process

## Traditional Filament Winding

In the filament winding process, continuous strands of resin-impregnated glass fiber are wound under tension onto a mandrel in precise geometric patterns to build up the part which is then cured to form the finished parts.

## Continuous Filament Winding

Multiple laminate layers, composed of resin, reinforcement glass and other materials are applied to a rotating mandrel, which is formed from a continuous steel band continuously traveling in a cork-screw motion. The composite part is heated and cured in place as the mandrel travels through the line and then cut into a specific length with a traveling cut-off saw.



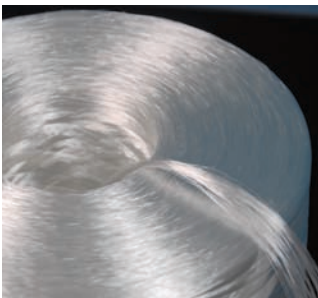
## 缠绕用无碱玻璃纤维合股无捻粗纱

缠绕用无碱玻璃纤维合股无捻粗纱为玻璃钢缠绕成型的专用纱，可与不饱和聚脂相容，制品具有优异的机械性能。

## Assembled Roving for Filament Winding

Assembled Roving for Filament Winding is specially designed for FRP filament winding process and compatible with UP, EP and VE resins. Its final composite product delivers excellent mechanical properties.

产品牌号 Product Code	适用树脂 Resin Compatibility	产品特点 Product Features	典型应用 Typical Applications
266	不饱和聚脂树脂 UP	浸透快，毛羽少，强度高 Fast wet-out, low fuzz and high strength	管道，贮罐 Pipes and storage tanks



## 短切用无碱玻璃纤维合股无捻粗纱

短切用无碱玻璃纤维合股无捻粗纱涂覆了特殊的硅烷基浸润剂，与不饱和聚脂、乙烯基树脂相容。主要用于制造玻璃钢管道，管道具有良好的耐水性和优异的耐化学腐蚀性。

## Assembled Rovings for Chopping

Assembled Rovings for Chopping are coated with a special silane-based sizing and compatible with UP and VE resins. They are designed for pipe production, offering excellent water resistance and chemical corrosion resistance.

产品牌号 Product Code	适用树脂 Resin Compatibility	产品特点 Product Features	典型应用 Typical Applications
162	不饱和聚脂树脂，乙烯基树脂 UP, VE	浸透性适中 Moderate wet-out	连续缠绕管道 Continuous filament wound pipes
162K	不饱和聚脂树脂，乙烯基树脂 UP, VE	浸透快 Fast wet-out	连续缠绕管道 Continuous filament wound pipes
162E	环氧树脂 EP	与环氧树脂有良好的相容性，制品机械强度高 Compatible with epoxy resin, high mechanical strength of composite products.	连续缠绕管道 Continuous filament wound pipes



## 缠绕用无碱玻璃纤维直接无捻粗纱

缠绕用无碱玻璃纤维直接无捻粗纱主要适用于增强不饱和聚酯树脂、乙烯基树脂、环氧树脂、聚氨酯等，可用于制造各种直径规格的玻璃钢输水及化工防腐管道、耐高压的输油管道，压力容器、贮罐等，以及空心绝缘管等绝缘材料。

### Direct Rovings for Filament Winding

Direct Rovings for Filament Winding are compatible with UP, VE, EP, PU and PF resins. Their main applications include FRP pipes of various diameters for conveying water and corrosive chemicals, high-pressure oil pipes, pressure vessels, storage tanks, and insulation materials such as utility poles and hollow composite insulators.

产品牌号 Product Code	典型线密度 Nominal Linear Density (tex)	产品特点 Product Features	适用树脂 Resin Compatibility	典型应用 Typical Applications
306B	600, 735, 2200, 2400	断裂强度高、毛羽少，具有良好的耐化学腐蚀性 <i>High fiber strength, low fuzz, good acid and chemical resistance</i>	高密度聚乙烯 <i>HDPE</i>	热塑性高压管道 <i>TP high-pressure pipes</i>
308	1200, 2000, 2400	与环氧树脂有很好的相容性，适合高张力缠绕工艺，管道制品爆破强度，疲劳性能优越 <i>Compatible with epoxy resin, designed for filament winding under high tension, excellent bursting and fatigue properties of pipeline products</i>	环氧树脂 <i>EP</i>	石油高压管道和车载CNG气瓶 <i>High-pressure oil pipes and CNG cylinders</i>
308H	600, 1200, 2000,	与环氧树脂相容性好，适合高张力缠绕和胺固化体系，管道制品机械性能、耐腐蚀性能及疲劳性能优异 <i>Compatibility with epoxy resin, suitable for high tension winding and amine curing systems, excellent mechanical properties, corrosion resistance and fatigue properties of pipeline products</i>	环氧树脂 <i>EP</i>	石油高压管道和压力容器 <i>High-pressure oil pipes and pressure vessels</i>
308S	1200, 2000, 2200,	与环氧树脂相容性好，适合酸酐固化体系，浸透速度非常快，缠绕工艺性佳，管道制品机械性能、耐腐蚀性能及疲劳性能优异 <i>Compatibility with epoxy resin, suitable for acid anhydride curing system, very fast penetration speed, good winding processability, excellent mechanical properties, corrosion resistance and fatigue properties of pipeline products</i>	环氧树脂 <i>EP</i>	石油高压管道和压力容器 <i>High-pressure oil pipes and pressure vessels</i>
310S	1200, 2400	优异的电绝缘性能 <i>Excellent electrical property</i>	环氧树脂 <i>EP</i>	空心绝缘管 <i>Hollow composite insulator</i>
318	600, 735, 1200, 2400	与环氧树脂有很好的相容性，低毛羽，适合低张力缠绕工艺 <i>Compatible with epoxy resin, low fuzz, designed for filament winding process under low tension</i>	环氧树脂 酚醛树脂 <i>EP, PF</i>	耐中高压的玻璃钢输水管道和压力容器 <i>Pressure vessel and high- and medium-pressure FRP water pipe</i>
386T	600, 1200, 2400, 4800	与树脂相容性好，低毛羽，使用工艺性能优异，制品机械强度高 <i>Good compatibility with resin, low fuzz, excellent performance and high mechanical strength</i>	聚酯树脂，环氧树脂 乙烯基树脂，酚醛树脂 <i>UP, EP, VE, PF</i>	普通玻璃钢管道及储罐 <i>Ordinary FRP pipes and storage tanks</i>
386H	600, 1200, 2400, 4800	浸透快、超低毛羽，耐老化性能优异，使用工艺性能优异，制品机械强度高 <i>Fast wet-out, ultra-low fuzz, excellent aging resistance, excellent performance and high mechanical strength</i>	聚酯树脂，环氧树脂 乙烯基树脂，酚醛树脂 <i>UP, EP, VE, PF</i>	耐普通压力的玻璃钢输水及化工防腐管道和储罐 <i>Pressure resistant FRP water pipes, chemical resistant pipes and storage tanks</i>



## 无碱玻璃纤维粉剂短切原丝毡

无碱玻璃纤维粉剂短切原丝毡是由玻璃纤维原丝经短切后，随机无定向均匀平铺，然后用粉剂粘结剂粘结制成的片状毡片。适用于增强不饱和聚酯树脂、乙烯基树脂和环氧树脂等。产品幅宽范围200mm~3120mm。

## Powder Chopped Strand Mat

*Powder Chopped Strand Mat is made of randomly distributed chopped strands held together by a powder binder. It is compatible with UP, VE, and EP resins. The roll width ranges from 200 mm to 3,120 mm.*

产品牌号 Product Code	单位面积克重 Area Weight (g/m <sup>2</sup> )	典型幅宽 Typical Width (mm)	适用树脂 Resin Compatibility	产品特点 Product Features
P02	225, 300, 450	1040, 1270	不饱和聚酯树脂 乙烯基树脂 环氧树脂 UP, VE, EP	短切毡拉伸强度高，适用于手糊成型工艺生产面积较大的制品，树脂浸穿性好，浸透速度快，气泡容易排除，制品机械强度高，具备优异的耐酸腐蚀性能 <i>High tensile strength, suitable for use in hand lay-up process to produce large-area parts, good wet-through and fast wet-out in resins, rapid air release, high mechanical strength of composite products, superior acid corrosion resistance</i>

### 缠绕成型工艺与连续缠绕成型工艺的终端应用市场

(化学化工 / 基础设施 / 船舶 / 石油化工 / 建筑)

### End-Use Markets

(Chemistry and Chemical / Infrastructure / Marine / Petrochemical / Building and Construction)

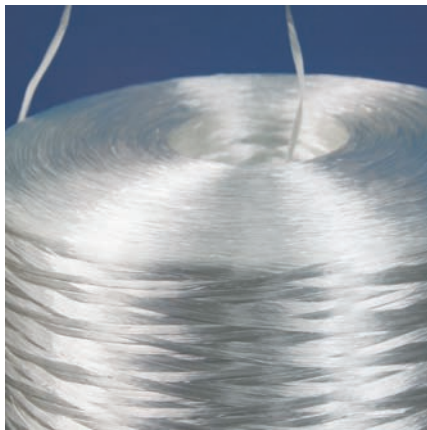
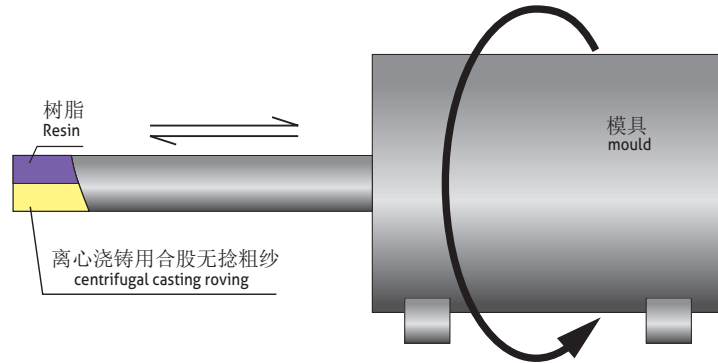


# 离心浇铸成型工艺

将树脂、玻璃纤维、填料按一定的比例加入到旋转的模具中，依靠高速旋转产生的离心力，使物料压实并固化成型的一种工艺。

# Centrifugal Casting Process

The raw materials, including resin, chopped reinforcement (fiberglass), and filler, are fed into the interior of a rotating mould according to a specific proportion. Due to centrifugal force the materials are pressed against the wall of the mould under pressure, and the compound materials are compacted and deaired. After curing the composite part is removed from the mould.



## 离心浇铸用无碱玻璃纤维合股无捻粗纱

离心浇铸用无碱玻璃纤维合股无捻粗纱经涂覆硅烷基浸润剂，可与不饱和聚酯树脂相容，具有良好的切割性和分散性，抗静电性能好，浸透速度快，制品具有良好的机械性能。

## Assembled Roving for Centrifugal Casting

Assembled Roving for Centrifugal Casting is coated with a silane-based sizing, compatible with UP resin and delivers excellent choppability and dispersion, low static, fast wet-out and good mechanical properties of composite products

产品牌号 Product Code	典型线密度 Nominal Linear Density (tex)	产品特点 Product Features	适用树脂 Resin Compatibility
622	2400	适合欧洲离心浇注管道生产需求 浸透极快，吸树脂量非常低，制品机械强度高， Fast wet-out, extremely low resin absorbability, high strength of composite products, designed for the European market	不饱和聚酯树脂 up

## 离心浇铸成型工艺的终端应用市场

(基础设施)

## End-Use Markets

(Infrastructure)



开模成型用玻璃纤维产品 Fiberglass Products for Open Molding	喷射成型工艺 Spray-up Process
	手糊成型工艺 Hand Lay-up Process
管道成型用玻璃纤维产品 Fiberglass Products for Pipes	缠绕成型工艺 Filament Winding Process
	离心浇铸成型工艺 Centrifugal Casting Process
模压成型用玻璃纤维产品 Fiberglass Products for Compression Molding	SMC成型工艺 SMC Process
	BMC成型工艺 BMC Process
	LFI工艺 LFI Process
连续型材用玻璃纤维产品 Fiberglass Products for Continuous Profiles	拉挤成型工艺 Pultrusion Process
	连续板材成型工艺 Continuous Panel Molding Process
热塑性塑料用玻璃纤维产品 Fiberglass Products for Thermoplastics	挤出与注塑工艺 Extrusion and Injection Processes
	LFT成型工艺 LFT Process
	GMT成型工艺 GMT Process
	CFRT成型工艺 CFRT Process
其它玻璃纤维产品 Fiberglass Products for Other Processes	膨化工艺 Texturizing Process
	增强石膏工艺 Reinforcements for Gypsum
	汽车顶棚成型工艺 Automotive Headliner Molding Process
布毡用玻璃纤维产品 Fiberglass Products for Fabrics and Mats	编织工艺 Weaving Process
	制毡工艺 Mat Production Process
玻璃纤维制品 Fiberglass Mats and Woven Rovings	制毡工艺 Mat Production Process
	编织工艺 Weaving Process
高性能复合纤维 High Performance Hybrid Fibers	模压成型 Mold Pressing
	层压板材成型 Laminate Molding
	缠绕成型 Filament Winding
	拉挤成型 Pultrusion
	真空辅助成型 Vacuum-Assisted Molding
连续型玻璃纤维布/纱 Continuous Electronic Glass Fiber Fabric and Yarn	连续型玻璃纤维布 Continuous Electronic Glass Fiber Fabric
	连续型玻璃纤维纱 Continuous Glass Fiber Yarn



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