



## 产品说明 Product Description

312 是直接无捻粗纱，表面涂覆硅烷基浸润剂，适用于增强不饱和聚酯树脂、乙烯基树脂、环氧树脂，可用于缠绕、拉挤、编织等应用工艺。

312 无捻粗纱用于制造玻璃钢管道、压力容器、型材，织物用于制造船舶、风力叶片、化工贮罐、土工格栅等。

312 Direct Roving is coated with a silane-based sizing compatible with unsaturated polyester, vinyl ester and epoxy resins and designed for filament winding, pultrusion and weaving applications.

312 roving is suitable for producing FRP pipes, pressure vessels and profiles, and the woven fabrics converted from 312 roving can be used to make boats, wind blades, chemical tanks and geogrids.



## 产品特点 Product Features

- ◎ 与多种树脂相容
- ◎ 浸透快速而完全
- ◎ 织造性能良好、毛羽少
- ◎ 制品机械性能好

·Multi-resin compatibility

·Fast and full wet-out

·Good weaving performance and low fuzz

·Excellent mechanical properties of parts

## 规格代号 Specification

玻璃类型 Glass type	E			
浸润剂类型 Sizing type	硅烷 Silane			
典型纤维直径 Typical filament diameter (μm)	13	16	24	31
典型线密度 Typical linear density (tex)	100 300	100 200 400	2400 4800	9600
示例 Example	EDR13-300-312			

## 技术指标 Technical Parameters

项目 Item	线密度偏差 Linear density variation (%)	含水率 Moisture content (%)	可燃物含量 Sizing content (%)	断裂强度 Breakage strength (N/tex)
检测方法 Test method	ISO 1889	ISO 3344	ISO 1887	ISO 3341
指标 Standard range	± 5 ( < 600 tex ) ± 4 ( ≥ 600 tex )	≤ 0.07	0.60 ± 0.15	≥ 0.45 ( ≤ 4400 tex ) ≥ 0.30 ( > 4400 tex )

## 机械性能 Mechanical Properties

机械性能 Mechanical properties	单位 Unit	实验值 Value	树脂 Resin	测试方法 Test method
拉伸强度 Tensile strength	MPa	2513	UP	ASTM D2343
拉伸模量 Tensile modulus	GPa	82.0	UP	ASTM D2343
剪切强度 Shear strength	MPa	67	EP	ASTM D2344
强度保留率(72小时水煮) Strength retention(72 hr boiling)	%	> 93	EP	/

以上数据为实验室针对EDR24-2400-312产品的具体实验值，仅供参考。

The above data are actual experimental values for EDR24-2400-312 and to be used for reference only.

## 使用说明 Instructions

◎ 本产品12个月内使用最佳，使用前应保存在原包装内。

◎ 产品使用时注意防护，避免产品擦毛、损伤等情况。

·The product is best used within 12 months after production, and should be kept in the original package before use.

·Care should be taken when using the product to prevent it from being scratched or damaged.



## 使用说明 Instructions

- ◎ 使用前调理纱线的温湿度与环境温湿度平衡，使用时对环境温湿度进行适当控制。
- ◎ 使用时请合理控制张力并保证张力均匀性。

·The temperature and humidity of the product should be conditioned to be close or equal to the ambient temperature and humidity before use, and the ambient temperature and humidity should be properly controlled during the use.

·When using the product, please control the tension properly and ensure the tension uniformity.

## 包装信息 Packaging

项目 Item	单位 unit	指标 Standard			
典型包装方式 Typical packaging method	/	采用托盘包装 Packed on pallets.			
典型纱团高度 Typical package height	mm (in)	260 (10.2)			
纱团内径 Package inner diameter	mm (in)	160 (6.3)			
典型纱团外径 Typical package outer diameter	mm (in)	280 (11.0)		310 (12.2)	
典型纱团重量 Typical package weight	kg (lb)	17 (37.5)		22 (48.5)	
层数 Number of layers	层 (layer)	3	4	3	4
每层纱团个数 Number of packages per layer	个 (pcs)	16		12	
每托纱团个数 Number of packages per pallet	个 (pcs)	48	64	36	48
每托重量 Net weight per pallet	kg (lb)	816 (1799.0)	1088 (2398.6)	792 (1746.1)	1056 (2328.1)
托盘长度 Pallet length	mm (in)	1140 (44.9)		1270 (50.0)	
托盘宽度 Pallet width	mm (in)	1140 (44.9)		960 (37.8)	
托盘高度 Pallet height	mm (in)	940 (37.0)	1200 (47.2)	940 (37.0)	1200 (47.2)

## 贮存 Storage

在没有特殊要求的情况下，玻璃纤维产品应贮存在干燥、阴凉的地方，防止受潮。最佳存储条件为温度  $-10^{\circ}\text{C} \sim 35^{\circ}\text{C}$ ，相对湿度  $\leq 80\%$ 。为确保安全，避免损坏产品，托盘的堆码高度不应超过三层。当堆放两层或三层高时，要求正确地、平稳地移动上面的托盘。

Unless otherwise specified, the fiberglass products should be stored in a dry, cool and moisture proof area. The best temperature and humidity should be maintained at  $-10^{\circ}\text{C} \sim 35^{\circ}\text{C}$  and  $\leq 80\%$  respectively. To ensure safety and avoid damage to the product, the pallets should be stacked not more than three layers high. When the pallets are stacked in two or three layers, special care should be taken to correctly and smoothly move the upper pallet.

