

产品说明 Product Description

448 是一种高性能结构级 SMC 用合股无捻粗纱，适用于增强不饱和聚酯树脂和乙烯基树脂。

448 在苯乙烯中浸透速度快、树脂吸附量低，在高玻纤含量情况下也能完全浸透，在树脂中有非常优异的流动性，主要用于生产卡车部件、汽车底盘、引擎盖等。

448 is a high performance assembled roving for SMC. It is suitable for reinforcing unsaturated polyester and vinyl ester resins.

448 has a very fast wet-out in styrene, and can enable full wet-out even in the case of high fiber content. It also offers low resin absorption and excellent flowability in resin. The key applications include truck parts, and automobile chassis and bonnets.



产品特点 Product Features

- ◎ 良好的抗静电性
- ◎ 毛羽少
- ◎ 良好的短切性和分散性
- Good anti-static property
- Low fuzz
- Good choppability and dispersion

- ◎ 突出的模压流动性
- ◎ 优异的机械性能
- Outstanding flowability in compression molding
- 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		
典型线密度 Typical linear density (tex)	2400		4400
示例 Example	ER13-4400-448		

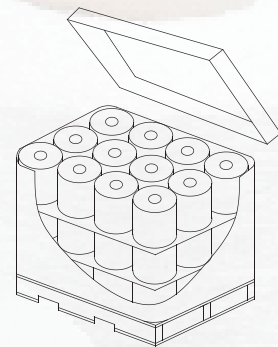
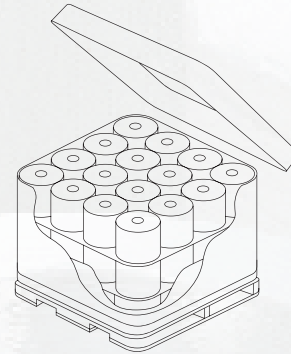
技术指标 Technical Parameters

项目 Item	线密度偏差 Linear density variation (%)	含水率 Moisture content (%)	可燃物含量 Sizing content (%)	硬挺度 Stiffness (mm)
检测方法 Test method	ISO 1889	ISO 3344	ISO 1887	ISO 3375
巨石标准 Jushi standard	± 4	≤ 0.07	1.90 ± 0.20	160 ± 15
行业要求或国标 Industry requirement or NS	± 5	≤ 0.15	± 0.38	± 15

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)	100 (3.9)		
典型纱团外径 Typical package outer diameter	mm (in)	280 (11.0)		340 (13.4)
典型纱团重量 Typical package weight	kg (lb)	17.0 (37.5)		28.5 (62.8)
层数 Number of layers	层 (layer)	3	4	3
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
每托重量 Net weight per pallet	kg (lb)	816 (1799.0)	1088 (2398.6)	1026 (2261.9)
托盘长度 Pallet length	mm (in)	1140 (44.9)		1380 (54.3)
托盘宽度 Pallet width	mm (in)	1140 (44.9)		1050 (41.3)
托盘高度 Pallet height	mm (in)	940 (37.0)	1200 (47.2)	940 (37.0)

包装图片 Package picture



巨石使命 Corporate Mission

材料创新为全球可持续发展作贡献  
Make Innovative Materials to Contribute to the World's Sustainable

巨石愿景 Corporate Vision

保持全球玻璃纤维工业的领导者  
Maintain the Leadership in the World Fiberglass Industry

巨石核心价值观 Core Values

品行 创新 责任 学习 激情  
Conduct Innovation Responsibility Learning Passion

产品使用建议 *Tips for product usage*

- 本产品在 18 个月内使用最佳，使用前应保存在原包装内。建议使用时遵循先到先用原则，避免产品存放时间过长，出现分散不良、结块、毛羽增多等现象。
- 避免不同牌号的产品混合使用，如需混用，请寻求技术支持。
- 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。建议使用温度控制在 15℃ ~ 30℃、湿度 60%±15% 最佳。
- *The product is best used within 18 months after production and should be stored in its original packaging before use. Customers are advised to follow the “first-in, first-out” method in warehousing to avoid long-term storage of a certain product, which may otherwise lead to poor dispersion, caking or fuzz.*
- *Please avoid mixing products of different specifications in usage. In case of such mixing, please turn to our technical staff for help.*
- *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, where it is recommended to keep the temperature at 15°C-30°C and humidity at 60% ± 15%.*

产品防护建议 *Tips for product protection*

- 产品使用时注意防护，避免产品擦毛、变形、损伤等情况。
- 产品拆开后建议尽快使用，未使用完的产品建议内衬袋重新扎紧并做好防护，降低污染风险。
- *Care should be taken when using the product to prevent it from scratch, deformation or damage.*
- *The product should be used as soon as possible after having been unpackaged. For the unused part of the product, the inner lining should be installed back and tightened again and protective measures should be taken to avoid the risk of contamination.*

工装维护建议 *Tips for maintaining accessories*

- 刀辊、皮辊、张力棒、瓷眼、螺杆等相关工艺附件作好定期保养、更换，及时清理毛羽及黏结物，使用时请合理控制张力并保证张力均匀性。
- *The process accessories such as blade rollers, rubber rollers, tension bars, ceramic guide rings and screws should be maintained and/or replaced regularly, and the fuzz and agglomerations should be cleared in due time. When using the product, please ensure that the tension is reasonably controlled and uniform.*

生产安全建议 *Tips for safety production*

- 接触玻璃纤维产品时，对玻璃纤维敏感者建议穿戴 PVC 或橡胶类手套，防止出现皮肤过敏。
- 搬运玻璃纤维产品时，建议穿戴劳保鞋，防止产品掉落砸伤脚面。
- *People who are allergic to glass fiber product are advised to wear PVC or rubber gloves when handling the product to prevent harm to skin.*
- *When carrying the glass fiber product, it is recommended to wear protective shoes to prevent the product from falling and injuring the foot.*

装卸贮存建议 *Tips for product handling and 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℃ ~ 35℃，相对湿度≤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。
- 液压车和叉车在装卸铲运过程中，叉齿之间的距离应尽量放宽至托盘的进叉口外缘，进叉深度应大于整个托盘深度的 2/3 以上，进叉深度不要超出托盘深度，防止叉车叉角破坏前面的托盘包装及包装里面的货物。
- 在场地允许的情况下，不同货物其规格或尺寸不相同，应根据不同品种、等级、批次等因素多货物分开堆码，以便收发、保管。货垛的高度要适度，不能压坏底层货物和地坪，并与屋顶、照明灯保持一定距离为宜。
- *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℃ ~ 35℃ and ≤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.*
- *During the loading and unloading operations, the distance between the forks should be widened to match the outer edges of the pallet's entry slots. The insertion depth should exceed two-thirds of the entire pallet depth but must not extend beyond the pallet's full depth. This prevents the fork tips from damaging the adjacent pallet and its contained products.*
- *Categorized Stacking Requirements: Where space permits, separate products by specifications, categories, grades, or batches for efficient storage and retrieval; stack heights must not compromise the integrity of bottom-layer goods or the floor surface; maintain adequate clearance from ceilings and lighting fixtures.*



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