

**LFT-G<sup>®</sup>**

**长纤(厦门)新材料科技有限公司**  
Xiamen LFT Composite plastic Co., ltd

**长纤维增强热塑性复合材料**  
Long fiber reinforced thermoplastic composite

## 公司简介

### Company profile



长纤(厦门)新材料科技有限公司成立于2009年,集科研、生产及自有品牌营销一体的长纤维增强热塑性材料全球化供应商之一。产品通过了ISO9001&16949体系认证,并获得了多项国家级商标和专利,涉及汽车、军工部件枪械、航空航天、新能源、医疗设备、电力风能、运动器材等领域。

Xiamen LFT Composite Plastic Co.,LTD was established in 2009, is a brand-name global suppliers of long fiber reinforced thermoplastic materials integrating product research & development (R&D), production and sale marketing. Our LFT products have passed the ISO9001&16949 system certification and have obtained lots of national trademarks and patents, covering the fields of automotive, military parts and firearms, aerospace, new energy, medical equipment, power wind energy, sports equipment, etc.



## 技术指导服务

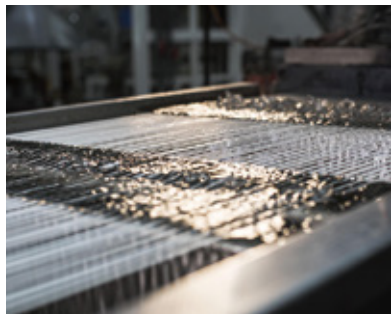
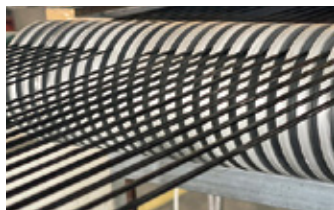
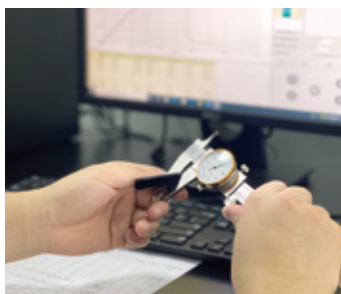
## Technical support services

### 我们为您提供：

- ① 长玻纤与长碳纤复合材料技术参数；
- ② 模具前沿设计及建议；
- ③ 提供注塑、挤出、模压等成型工艺技术支持。

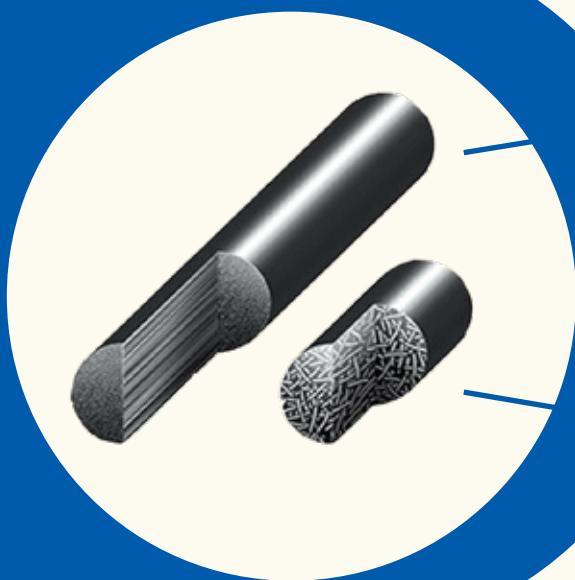
### We can offer you:

- ① Technical parameters of long glass fiber and long carbon fiber composites;
- ② Mold front design and recommendations;
- ③ Provide technical support such as injection, extrusion, molding.



## 行业介绍 Industry introduction

LFT长纤维增强热塑性复合材料，和普通的短纤维增强改性材料相比（纤维长度为1~2毫米），LFT工艺生产的热塑性复合材料长度可达到在5~25毫米以上，可经过专用的模具浸渍工艺得到。采用最多的基体树脂是PP，其次是PA6、PA66、PPA、PA12、MXD6、PBT、PET、TPU、PPS、LCP、PEEK等。常规纤维有玻纤、碳纤，特殊纤维有玄武岩纤维与石英纤维等；根据不同用途，LFT可用于注塑成型、挤出、模压等，机械性能优异，在很多领域可实现以塑代钢或带代替热固性材料。



LFT纤维长度参考：5-25mm



传统纤维长度参考：1-3mm

LFT long fiber reinforced thermoplastic engineering materials, compared to ordinary short fiber reinforced thermoplastic materials (fiber length is less than 1-2 mm), the LFT process produces thermoplastic engineering material's fibers in lengths of 5-25 mm. The long fibers are impregnated with the resin through a special mold system to obtain long strips that are fully impregnated with the resin, and then cut to the length as required. The most used base resin is PP, followed by PA6, PA66, PPA, PA12, MXD6, PBT, PET, TPU, PPS, LCP, PEEK, etc. Conventional fibers include glass fiber, carbon fiber, special fibers include basalt fiber and quartz fiber, etc. Depending on the end use, the finished products can be used for injection molding, extrusion, molding, etc., or directly used for plastic instead of steel and thermoset products.

## LFT与短纤对比的优势 Advantages of LFT versus staple fiber

**低翘曲**

Low warpage

**高冲击强度**

High impact strength

**低温下保持高性能**

Low temperature keep high performance

**耐疲劳性优**

Excellent fatigue resistance

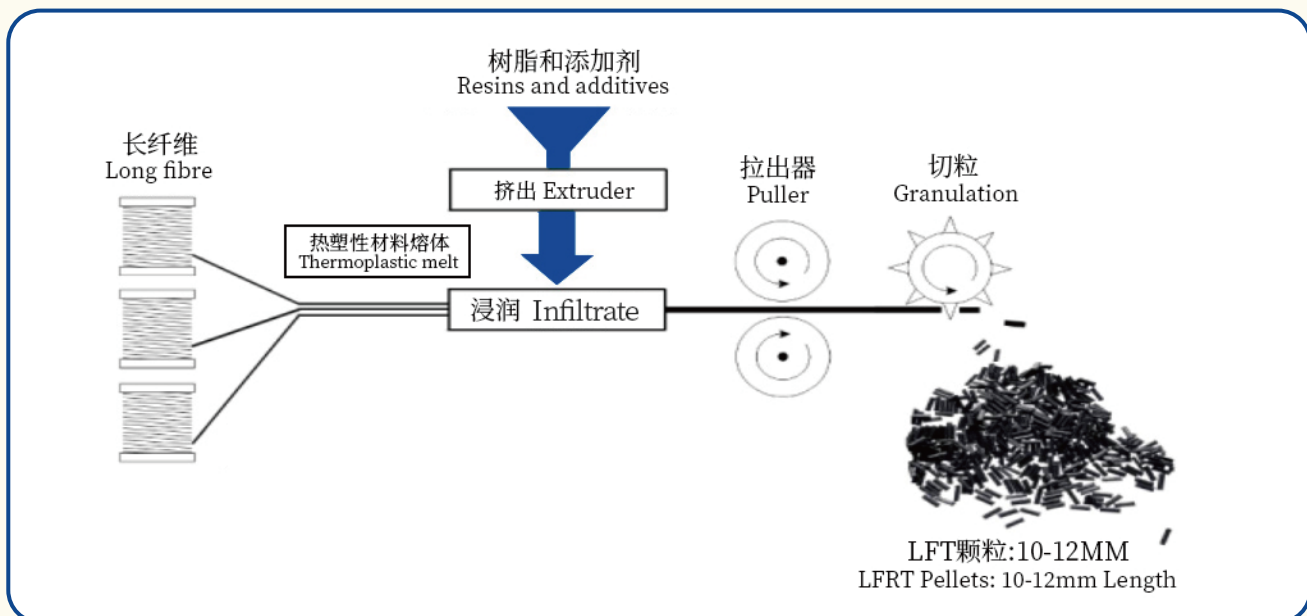
**耐蠕变性优**

Excellent creep resistance

**尺寸稳定性优**

Excellent dimensional stability

### LFT生产流程 LFT production process



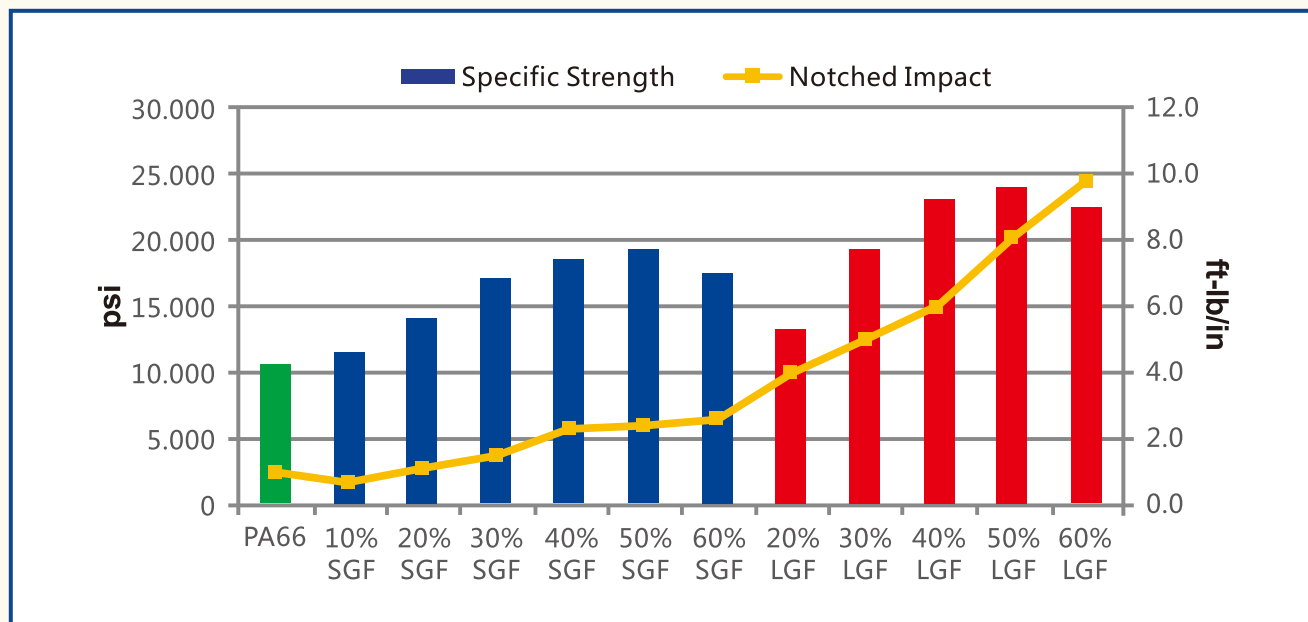
## 长玻纤增强复合材料 About LFT-LGF reinforced composite

当常规改性材料无法达到您所需的机械性能或者您想要实现以塑代钢，长玻璃纤维增强复合材料是一个很好的选择。长玻纤增强复合材料能经济有效的降低商品成本和有效的提高制品的机械性能，其原理是长纤维可均匀分布在制品内部形成网络骨架。

Long glass fiber reinforced composites can solve your problems when other methods of reinforced plastics do not provide the performance you need or if you want to replace metal with plastic. Long glass fiber reinforced composites can cost-effectively reduce the cost of goods and effectively improve the mechanical properties of engineering polymer. Long fibers can be uniformly distributed inside the product to form a network skeleton, thus improving the mechanical properties of the material product.

长玻纤与短玻纤增强尼龙的机械性能对比

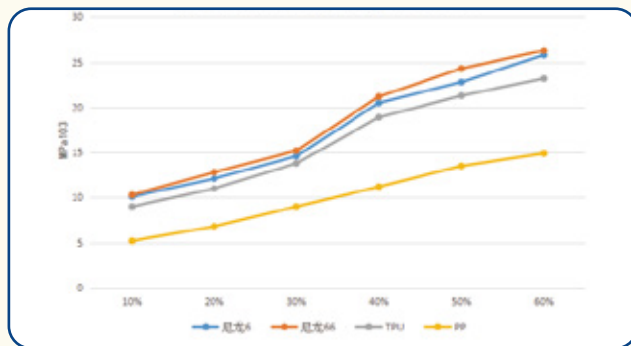
Mechanical properties comparison of long glass fiber reinforced and short glass fiber nylon



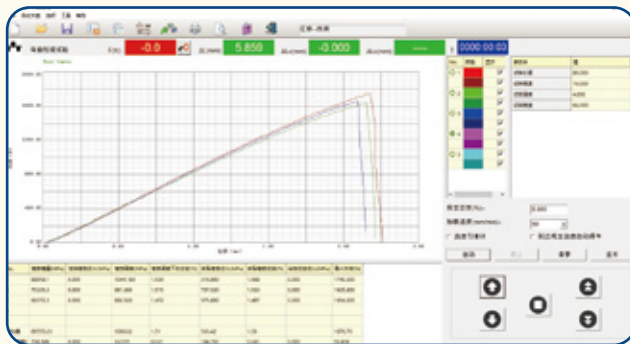
## 典型测试数据 Typical test data



长玻纤增强多种塑料基材冲击性能对比  
Comparison of impact property of various plastic substrates with long glass fiber



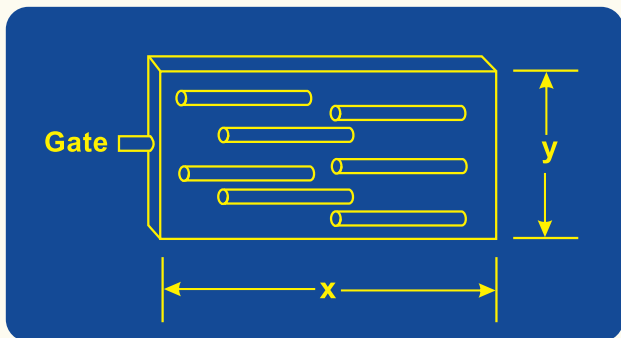
长碳纤增强多种塑料基材弯曲模量对比  
Comparison of flexural modulus of various plastic substrates with long carbon fiber



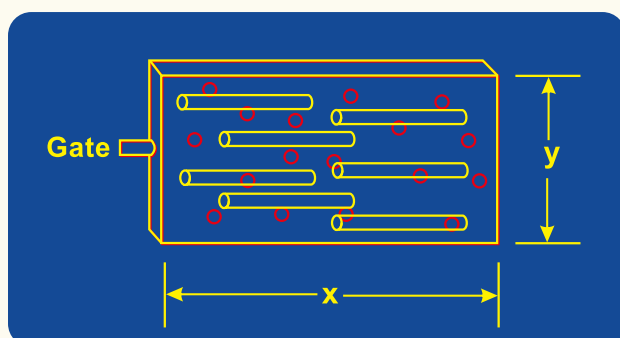
弯曲性能测试  
Bending performance test



拉伸性能测试  
Tensile performance test



翘曲控制  
Warp Control



强度及翘曲控制  
Strength & Warp Control

## PP-LGF



洗衣机滚筒  
Washing machine drum

散热扇叶  
Cooling fan blade

水箱支架  
Water tank bracket

等级 Grade	产品特性 Feature	应用范围 Application range
通用级 General grade	极好的抗蠕变和耐疲劳、低翘曲性、化学偶联、高强度 Excellent resistance to creep and fatigue, low warpage, chemical coupling, high strength	汽车部件、洗衣机部件、水泵部件、水处理部件、家具部件等 Car parts, washing machine parts, water pump parts, water treatment components, furniture parts, etc.
耐热级	高强度、长期耐热耐老化 High strength, long-term heat and aging resistance	汽车前后减模块、水箱框架；蓄电池支架、发动机罩盖、天窗框架等 Car front and back module, water tank frame; battery bracket, engine cover, skylight frame, etc.
耐UV级	高强度、耐UV、长期耐热耐老化、良好等制品外观 High strength, UV resistance, long-term heat aging resistance, good appearance of products	汽车把手、后视镜部件、蓄电池外壳、卡车(SUV)外踏板等 Car handle, car mirror parts, battery case, truck (SUV) outside pedal etc.
增韧级 Toughen resistant grade	超高冲击强度(耐气候耐低温) High impact strength (weather resistant low temperature)	电动工具、泵壳体、管件等 Power tools, pump shell, pipe fittings etc.



## PA6-LGF



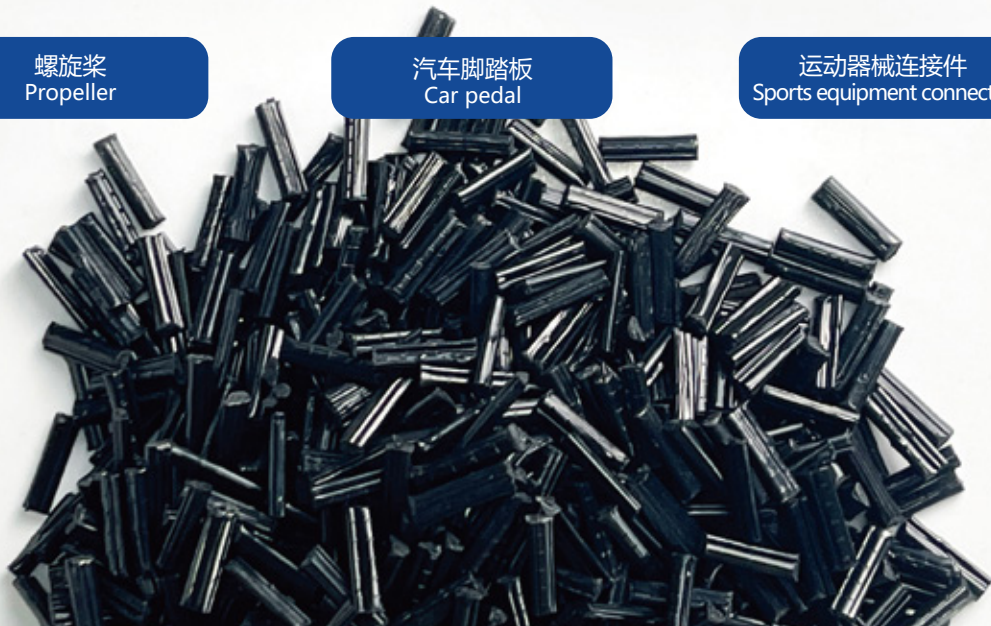
螺旋桨  
Propeller



汽车脚踏板  
Car pedal



运动器械连接件  
Sports equipment connector



等级 Grade	产品特性 Feature	应用范围 Application range
通用级 General grade	高韧性 (尤其在低温下) 极好的抗蠕变和耐疲劳、低翘曲性。 High toughness (especially at low temperatures) excellent anti-creep and fatigue resistance, low warpage	汽车、电子电器、运动器材、电动工具、高铁配件等。 Automotive, electronic appliances, sports equipment, power tools, high-speed rail accessories
增韧级 Toughen resistant grade	超高冲击强度、质地轻。 High impact strength, light texture	适用于汽车、电子电器、运动器材、电动工具、高铁配件、齿轮等。 Suitable for automotive, electronic appliances, sports equipment, power tools, high-speed rail accessories, gears etc.

## PA66-LGF



运动器械  
Sports equipment



新能源电机支架  
Engine bracket



汽车油底壳  
Car oil pan

等级 Grade	产品特性 Feature	应用范围 Application range
通用级 General grade	高韧性、极好等抗蠕变和耐疲劳、低翘曲性。 High toughness excellent anti-creep and fatigue resistance, low warpage	适用于汽车、电子电器、运动器材、电动工具、刀具手柄、高铁配件等。 Suitable for automotive, electronic appliances, sports equipment, power tools, tool handles, high-speed rail accessories etc.
增韧级 Toughen resistant grade	适用于汽车、电子电器、运动器材、电动工具、刀具手柄、高铁配件等。 Suitable for automotive, electronic appliances, sports equipment, power tools, tool handles, high-speed rail accessories etc.	适用于汽车、电子电器、运动器材、电动工具、高铁配件、齿轮等。 Suitable for automotive, electronic appliances, sports equipment, power tools, high-speed rail accessories, gears etc.

## PA12-LGF



自行车手变  
Cyclist change shifter



鞋底碳板  
Sole carbon plate



汽车进气歧管  
Car intake manifold



等级 Grade	产品特性 Feature	应用范围 Application range
通用级 General grade	高强度，高韧性，耐腐蚀，耐氧化和耐用性。 High strength, high toughness and durability	适用于汽车，运动型部件，太阳能，光伏产业等产业领域。 Suitable for automotive, sports parts, solar energy, photovoltaic industry and other industries

## TPU-LGF



安全鞋头、鞋垫碳板  
Safety toe cap、carbon plate



导轨  
Guide



工具外壳  
Tool housing



等级 Grade	产品特性 Feature	应用范围 Application range
通用级 General grade	高韧性、高刚性、低吸水性、高尺寸稳定性、耐化学腐蚀、良好制品外观。 High toughness, high rigidity, low water absorption, high dimensional stability, chemical resistance, good product appearance	汽车门窗框、安全鞋头、机械配件、气钉枪枪盒、电动工具、螺母和螺栓等。 Car doors and windows, safety toe, mechanical parts, pneumatic nail gun boxes, power tools, nuts and bolts, etc.

## PPS-LGF



机械配件  
Mechanical parts



叶轮  
Impeller



汽车节温器  
Car thermostat



等级 Grade	产品特性 Feature	应用范围 Application range
通用级 General grade	<p>94-VO阻燃、高冲击、高韧性、低翘曲、耐疲劳、良好的制品外观。 94-VO Flame retardant, high impact, high toughness, low warpage, fatigue resistance, good appearance of the product.</p>	<p>热水器的叶轮/泵壳/接头/阀门、化工泵叶轮/外壳、冷却水叶轮/外壳、家电零部件等。 Water heater impeller / pump shell / joint / valve, chemical pump impeller / shell, cooling water impeller / shell, home appliances parts</p>

### PPA-LGF

等级 Grade	产品特性 Feature	应用范围 Application range
通用级 General grade	高韧性、低翘曲 High toughness, low warpage	低压开关、断路器、机械配件、自行车配件等 Low voltage switches, circuit breakers, mechanical parts, bicycle accessories etc.

### PBT-LGF

等级 Grade	产品特性 Feature	应用范围 Application range
通用级 General grade	高韧性、低翘曲。 High toughness, low warpage	电子电器、机械配件等。 Electronic appliances, machinery parts etc.

### PEEK-LGF

等级 Grade	产品特性 Feature	应用范围 Application range
通用级 General grade	阻燃、耐热和耐化学品性能，且摩擦系数低、承载啮合性好。 Flame retardant, heat resistance and chemical resistance, and low friction coefficient, good load bearing.	机械、电子、化工、汽车等高科技领域。 Suitable for aviation, machinery, electronics, chemicals, automotive and other high-tech fields.

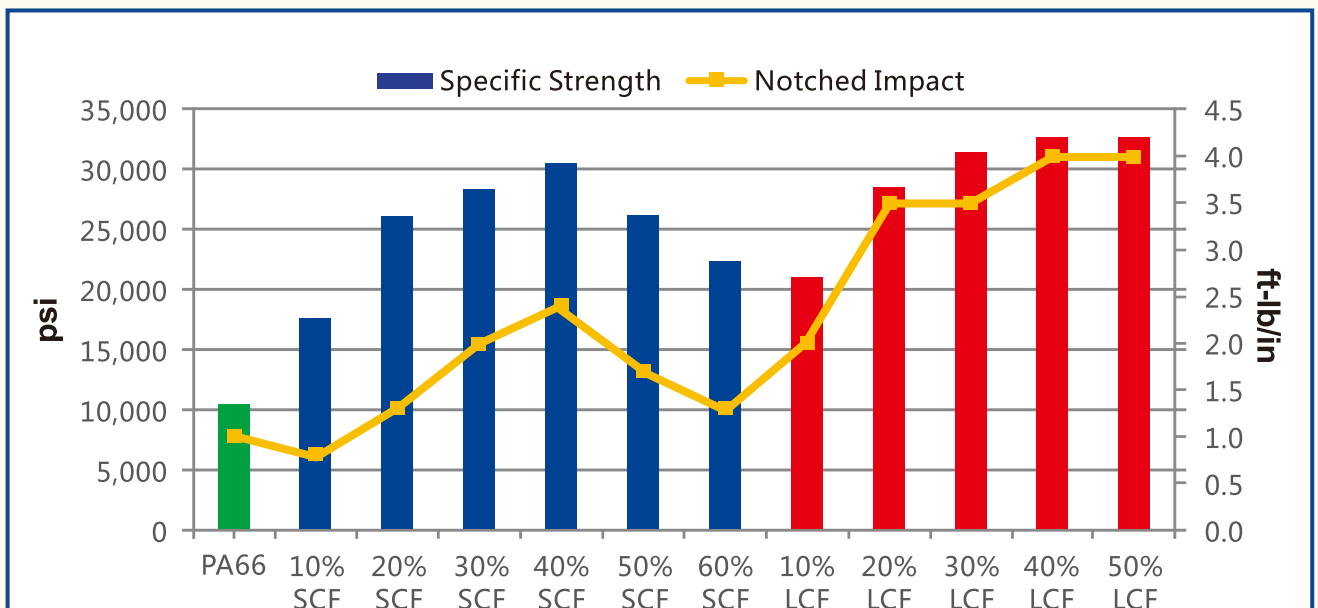
## 长碳纤增强复合材料 About LFT-LCF reinforced composite

长碳纤维增强复合材料可显著减轻重量，并在增强型热塑性塑料中提供最佳的强度和刚度性能。长碳纤维增强复合材料的优异机械性能使其成为金属的理想替代品。结合注塑热塑性塑料的设计和制造优势，长碳纤维复合材料简化了对具有苛刻性能要求的组件和设备的理想材料。其在航空航天和其他先进行业的广泛应用具有消费者的“高科技”感知 - 您可以利用它来推销产品并创造与竞争对手的差异化。

Long carbon fiber reinforced composites offer significant weight savings and provide optimum strength and stiffness properties in reinforced thermoplastics. The excellent mechanical properties of long carbon fiber reinforced composites make it an ideal replacement for metals. Combined with the design and manufacturing advantages of injection molded thermoplastics, long carbon fiber composites simplify the re-imagining of components and equipment with demanding performance requirements. Its widespread use in aerospace and other advanced industries makes it a “high-tech” perception of consumers – you can use it to market products and create differentiation from competitors.

长碳纤与短碳纤增强尼龙的机械性能对比

Mechanical properties comparison of long carbon fiber reinforced and short carbon fiber nylon



## PA12-LCF

等级 Grade	产品特性 Feature	应用范围 Application range
通用级 General grade	高抗冲、耐高温、高耐热、良好的尺寸稳定性及低翘曲性。 High impact resistance, high temperature resistance, high heat resistance, good dimensional stability and low warpage.	适用于适用于汽车, 运动型部件, 太阳能, 高端玩具等产业领域。 Suitable for the automotive, sports parts, solar energy, high-end toys and other industries.

## PA6-LCF

等级 Grade	产品特性 Feature	应用范围 Application range
通用级 General grade	高韧性、密度轻、高强度、耐磨损、耐腐蚀、抗蠕变、导电、传热。 High toughness, light weight, high strength, wear resistance, corrosion resistance, creep resistance, conduction, heat transfer.	适用于制造头盔、汽车防撞杠和机器人手臂等。 Suitable for manufacturing helmets, car bumps and robotic arms etc.

## PA66-LCF

等级 Grade	产品特性 Feature	应用范围 Application range
通用级 General grade	高韧性、密度轻、高强度、耐磨损、耐腐蚀、抗蠕变、导电、传热。 High toughness, light weight, high strength, wear resistance, corrosion resistance, creep resistance, conduction, heat transfer	适用于飞机的主机翼、鸭翼、稳定翼、短舱等航天工具。 Suitable for the main wing of the aircraft, duck wing, stable wing, nacelle and other aerospace fields



## PEI-LCF



等级 Grade	产品特性 Feature	应用范围 Application range
通用级 General grade	<p>阻燃等级UL-94, V0.优良的机械性能、电绝缘性能、耐辐照性能、耐高低温及耐磨性能。</p> <p>Flame retardant grade UL-94, V0. Excellent mechanical properties, electrical insulation properties, radiation resistance, high and low temperature resistance and wear resistance.</p>	<p>适用于飞机、航天工业部、耐高温端子、高强度机械零部件及阻燃等级部件。</p> <p>Suitable for aircraft, aerospace industry, high temperature terminals, high-strength mechanical parts, flame retardant grade parts.</p>

## PPS-LCF



等级 Grade	产品特性 Feature	应用范围 Application range
通用级 General grade	<p>阻燃等级UL-94, V0.高强度、耐酸碱、抗静电等。</p> <p>Flame retardant grade UL-94, V0. High flame retardant, strength, acid and alkali, anti-static etc.</p>	<p>适用于耐热性好、高强度、耐酸碱、抗静电、阻燃等级部件等。</p> <p>Suitable for heat resistance, high strength, acid and alkali, anti-static, flame retardant grade parts.</p>

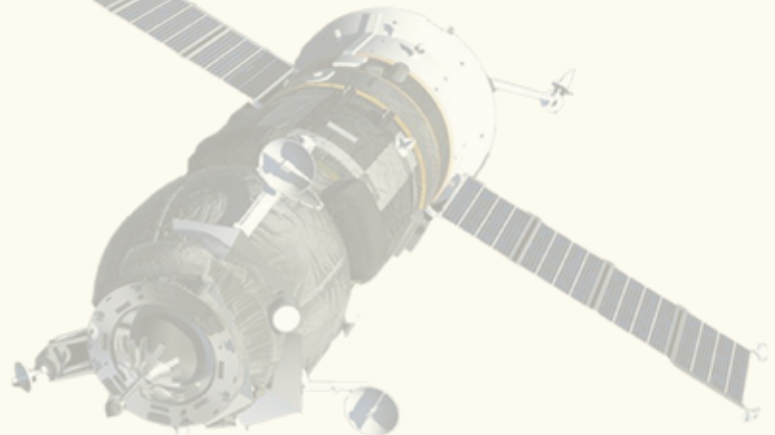
## PPA-LCF



等级 Grade	产品特性 Feature	应用范围 Application range
通用级 General grade	<p>强度高、耐疲劳性、尺寸稳定性、蠕变小。</p> <p>High strength, fatigue resistance, dimensional stability, creep resistance.</p>	<p>适用于耐高温、抗静电、高强度部件等。</p> <p>Suitable for high temperature, anti-static, high-strength components.</p>

## PEEK-LCF

等级 Grade	产品特性 Feature	应用范围 Application range
通用级 General grade	<p>阻燃、耐热和耐化学品性能，且摩擦系数低、承载啮合性好。</p> <p>Flame retardant, heat resistance and chemical resistance, and low friction coefficient, good load bearing.</p>	<p>适用于航空、机械、电子、化工、汽车等高科技领域。</p> <p>Suitable for aviation, machinery, electronics, chemicals, automotive and other high-tech fields.</p>



## MXD6-LCF

等级 Grade	产品特性 Feature	应用范围 Application range
通用级 General grade	<p>优异的机械性能和热性能及高强度、高模量及耐热性，高阻隔性、优良的耐蒸煮性。</p> <p>Excellent mechanical and thermal properties and high strength, high modulus and heat resistance, high barrier properties, excellent steam resistance.</p>	<p>适用于汽车、精密仪器、仪表、医药化工的包装材料，生产防潮、消震的软垫及发泡板材等。</p> <p>It is suitable for packaging materials for automobiles, precision instruments, instruments, pharmaceuticals and chemicals, and produces cushions and foamed sheets for moisture and vibration.</p>



## 常见问题答疑

## Questions and Answers

### 1、长玻纤和长碳纤注塑对注塑机和模具有没有特别的要求？

1. Does long glass fiber and long carbon fiber injection have special requirements for injection molding machines and molds?

答：是肯定有要求的，特别从产品设计结构考虑，还有就是注塑机螺杆射嘴和模具结构注塑成型工艺都要考虑长纤对这些的要求。

A: There are certainly requirements. especially from the product design structure, as well as the injection molding machine screw nozzle and mold structure injection molding process must consider the requirements of long fiber.

### 2、长纤材料与短纤材料的区别和优势在哪里？

2. What are the differences and advantages of long fiber materials and staple fibers?

答：对比短纤展现的是力学性能的优异表现，更适合应用于对强度要求高的制件,比短纤的冲击性能提升1-3倍,拉伸强度提升50%以上,机械性能综合提升50-80%。

A: Long-fiber reinforced composites show excellent mechanical properties compared to short fibers and are more suitable for applications requiring high strength. The impact performance of long fiber composites is 1-3 times higher than that of short fibers, tensile strength is more than 50% higher, and mechanical properties are 50-80% higher.

### 3、产品易脆裂改用长纤维增强热塑性材料能解决这个问题吗？

3. The product is easy to brittle, so changing to use long fiber reinforced thermoplastic materials can solve this problem?

答：整体力学性能肯定有提升，长玻纤和长碳纤的特点就是在力学性能上的优势，比传统的改性材料的冲击性能提升1-3倍，拉伸强度提升0.5-1倍左右。

A: The overall mechanical properties must be improved. The characteristics of long glass fiber and long carbon fiber are the advantages in mechanical properties. It has 1-3 times higher (toughness) than short fiber, and the tensile strength(strength and rigidity) is increased by 0.5-1 times.

### 4、长玻纤和长碳纤产品容易出现浮纤的原因及解决办法？

4. The Causes and solutions for floating fibers for long glass fiber and long carbon fiber products

答：由于溶胶温度过低或者模具温度过低和注塑成型压力低造成玻纤和树脂不能很好地相容和扩散，模具表面温度不均匀都会造成浮纤问题，可通过加高溶胶温度和模具温度，增加注塑压力来解决。

A: Due to the low temperature of the sol or the low temperature of the mold and the low injection molding pressure, the glass fiber and the resin can not be well compatible and diffused. The uneven temperature of the mold surface mold will cause the floating fiber problem, and can be solved by increasing the sol temperature, mold temperature and Injection pressure.

### 5、长玻纤增强以后材料玻纤含量增加树脂溶脂降低流动性能变差，注塑压力比不加玻纤的增大许多，怎么解决注塑成型缺胶和流动性差问题？

## 常见问题答疑

### Questions and Answers

5. After the long glass fiber reinforced, the glass fiber content of the material increases. The resin fat solubility reduces the flow performance, and the injection pressure is much higher than that without the glass fiber. How to solve the problem of poor molding and lack of fluidity in injection molding?

答：前期要先了解客户制品结构大小，穴数和浇口会不会影响制品成型，型号流动性的选择注塑成型温度，注塑压力和模具温度设置是否合理等。

A: In the early stage, we must understand the size of the customer's product structure firstly, whether the number of holes and the gate will affect the molding of the product? whether the material fluidity will affect the injection molding temperature, and whether the setting of injection pressure and mold temperature setting are reasonable etc.

**6、长玻纤增强以后，在注塑过程中，玻纤能进入塑料制品的表面，使得制品表面变得粗糙，浮纤，如何让材料的表面变得光滑？**

6. After long glass fiber reinforced, glass fiber can enter the surface of the plastic product during injection molding process, so that the surface of the product become rough and floating fiber. how to make the surface of the material smoothly?

答：注塑成型的时候要保证塑胶颗粒很好塑化和分散，还要确保塑胶颗粒的干燥有没有把水分去除，把模具温度调整到合适温度，模具表面是否表面抛光到位。

A: During Injection Molding process need to ensure that the plastic particles are well plasticized and dispersed, also ensure that the drying of plastic particles have no moisture removal, mold temperature adjustment to the appropriate temperature, mold surface is polished in place.

**7、长玻纤增强PP会使得材料的韧性降低脆性增加，是否有什么办法可以解决这一问题？**

7. Long glass fiber reinforced PP will reduce the toughness of the material and increase the brittleness. Is there any way to solve this problem?

答：长玻纤和长碳纤增强后会大大提升基材的冲击性和拉伸强度。

A: Long glass fiber and long carbon fiber will greatly enhance the impact and tensile strength of the substrate.

**8、使用较长的长纤维增强热塑性材料，会不会因纤过长把模头模孔堵住？**

8. Using a more long fiber reinforced thermoplastic material, will it block the die hole due to the long length of the fiber or not?

答：对选用长玻纤或者长碳纤的时候要评估制品是不是合适用LFT-G的材料，当然制品太小或者点胶都不合适用长纤材料，长纤本身对模具射嘴都是有要求的。

A: When using long glass fiber or long carbon fiber, it is necessary to evaluate whether the product is suitable for LFT-G. If the product is too small or the dispensing is not suitable for long fiber materials. The long fiber itself has requirements for the mold nozzle.

**9、使用长纤维增强热塑性材料做制品如何选择材料的增强方式及长度？**

9. How to choose the reinforcement method and length of the material when using long fiber reinforced thermoplastic material?

## 常见问题答疑

## Questions and Answers

答：选材问题具体要看制品的要求，具体要评估多少含量的增强和多少长度比较合适取决于制品的性能要求。

A: The selection of materials depend on the requirements of the products. It is necessary to assess how much the content is enhanced and how much length is more appropriate, which are depending on the performance requirements of the products.

### 10、长纤维增强热塑性材料的主要特点及优势是什么？

10. What are the main features and advantages of long fiber reinforced thermoplastics?

答：LFT-G热塑性长玻纤和长碳纤对比于传统短纤材料主要特点展现在力学性能方面，冲击和拉伸弯曲模量高等特点，更适合做一些比较大的制品或者结构承重件，可以注塑，挤出板材，型材管材等。

A: Compared with traditional short fiber materials, the main features of LFT-G thermoplastic long glass fiber and long carbon fiber are mechanical properties, high impact and tensile modulus, which are more suitable for some large products or structural load-bearing parts. It can do Injection molding, extrusion of sheets, profile pipes, etc.

### 11、客户研发新产品，要根据怎样的特性给客户推荐合适的材料？

11. When a customer want to develop a new product, How to recommend customers suitable material and characteristics?

答：需要了解客户对新产品的技术指标要求，用途环境，测试条件等，在结合长纤材料等各种树脂基材特性推荐型号。

A: It is necessary to understand the customer's technical requirements ,use environment, test conditions for the new product, and recommend the model according to various kind of long-fiber resin substrate characteristics.

### 12、长纤对外观有要求的制品能做吗？

12. Can products with appearance requirements be made of long-fiber materials?

答：LFT-G热塑性长玻纤和长碳纤主要特点就是展现在力学性能方面，如果客户对制品外观有光亮或其他要求还是需要结合具体产品进行评估。

A: The main feature of LFT-G thermoplastic long glass fiber and long carbon fiber is to show the mechanical properties. If the customer has bright or other requirements for the appearance of the product, it needs to be evaluated in combination with specific products.

### 13、什么情况下长纤可以替代短纤，常见可替代的材料有哪些？

13. Under what circumstances can long fiber replace short fiber? What are the common alternative materials?

答：传统短纤材料在力学性能无法满足或者希望更高的机械性能替代金属类的情况下可以考虑用长玻纤&长碳纤LFT材料替换，比如PP长玻纤经常运用于尼龙增强玻纤和尼龙长玻纤替代PPS短纤材料等。

A: Traditional staple fiber materials can be replaced with long glass fiber and long carbon fiber LFT materials in the case of customers whose mechanical properties cannot be met or where higher metal substitutes are desired. For example, PP long glass fiber is often replacing nylon reinforced glass fiber , and nylon long glass fiber is replacing PPS staple fiber material, etc.

### 14、长纤维增强复合材料除了注塑还适用于其它工艺吗？

## 常见问题答疑

## Questions and Answers

14. Are long fiber reinforced composites suitable for other processes besides injection molding?

答：LFT长玻纤和长碳纤除了用于注塑,还可以用于挤出板材、型材、管材和模压等各类成型方式，其中注塑成型最为常用。

A: In addition to injection molding, LFT long glass fiber and long carbon fiber can also be used for extrusion of sheets, profiles, pipes and molding, among which injection molding is the most common.

**15、长碳纤注塑成制品有没有特别的工艺要求？**

15. Are there any special process requirements of long carbon fiber injection molding products?

答：注塑机螺杆射嘴和模具结构,注塑成型工艺都要考虑长碳纤对这些要求。长碳纤是比较高成本价位的材料，在选用过程评估性价比的问题。

A: We must consider the requirements of long carbon fiber for the injection molding machine screw nozzle, mold structure and injection molding process. Long carbon fiber is a relatively high cost material, and need to evaluate the cost performance problem in the selection process.

**16、目前长纤有没有客户做过替代合金的产品，有的话具体是什么？**

16. At present, do you have any clients who use LFT products to replace metal alloys? What are the specifics?

答：长玻纤和长碳纤是可以替代金属制品的，但要评估产品的要求，在替代铝制品和铁制品上面成功案例比较多，LFT长玻纤和长碳纤的力学性能拉伸强度超过200MPa的数据就可以很好替代铝制品，在冲击强度也是优于铝制品的。

A: Long glass fiber and long carbon fiber can replace metal products, but need to evaluate the products requirements, there are more successful cases in replacing aluminum and iron products. The tensile strength of mechanical properties of LFT long glass fiber and long carbon fiber exceeds 200MPa, from which it can be a good substitute for aluminum products, and the impact strength is also superior to aluminum products.

**17、长碳纤材料具体有哪些方面的优势？**

17. What are the advantages of long carbon fiber materials?

答：热塑性LFT长碳纤材料具有高刚性，冲击强度高，低翘曲，收缩率低，导电和静电性等特点，力学性能更优于玻纤系列。长碳纤具有替代金属制品的更轻更方便加工等特点。

A: Thermoplastic LFT long carbon fiber material has high rigidity, good impact strength, low warpage, low shrinkage, electrical conductivity and electrostatic properties, and its mechanical properties are better than glass fiber series. Long carbon fiber has the characteristics of lighter and more convenient processing to replace metal products.

**18、长纤产品成本更高，材料回收价值高吗？**

18. The cost of long fiber products is higher. Does it has a high recycling value?

答：热塑性LFT长纤维新材料本身就有很好的回收循环再利用。

A: The thermoplastic LFT long fiber material can be recycled and reused very well.

**19、中国制造的长纤产品和国外的长纤产品，除了价格优势，还有哪些优势呢？**

19. Except for the price advantage, what are the advantages of Chinese-made long-fiber products

## 常见问题答疑

## Questions and Answers

compared with foreign long-fiber products?

答：厦门长纤是专一研发和生产LFT长玻纤&长碳纤的自主品牌，填补国内高端长碳纤LFT材料的空白，对比与国外企业更具有定制化，缩短生产周期，另我司在欧洲/美国/日本和国内浙江/江苏/广东/重庆等都设有销售服务点，能更便捷的了解客户需求，售后更方便。

A: Xiamen LFT Composite Plastic Co.,LTD is a brand-name global suppliers of long glass/carbon fiber reinforced thermoplastic materials integrating product research & development (R&D) and production. It fills the blank of domestic high-end long carbon fiber LFT materials, and is more customized and shortened the production cycle compared with foreign companies. In addition, our company has sales and service offices in Europe/USA/Japan and domestic Zhejiang/Jiangsu/Guangdong/Chongqing, etc. It can more easily understand customer needs and has more convenient after sale.

### 20、容易变形的产品改用长纤维增强热塑性材料可以解决这个问题吗？

20. If a product is easily deformed, can we solve the problem by replacing with a long fiber reinforced thermoplastic ?

答：长玻纤和长碳纤的特点低翘曲和尺寸稳定性，可以改善部分变形问题。

A: Long glass fiber and long carbon fiber features low warpage and dimensional stability, which can improve part of the deformation.

### 21、使用长玻纤和长碳纤工程塑料时，熔胶扭力不足和射胶压力不足的解决方案？

21. When using long glass and long carbon fiber engineering plastics, what is the solution to the lack of torque and insufficient injection pressure?

答：可以把注塑机的型号换大一些，或者把成型温度提升注塑压力加大。

A: You can change the injection molding machine to a larger size, or increase the molding temperature, increase the injection pressure.

### 22、想要增加产品的抗老化性能，是不是在材料当中加入抗UV剂就可以让产品增加这一性能？

22. If want to increase the anti-aging properties of the product, is it possible to add anti-UV agent to the material?

答：可以选用一些本身材料抗老化比较好的基材和在树脂配方里添加一些抗氧化剂和紫外吸收剂UV来提升塑胶制品的抗老化性。

A: You can choose some materials which are better resistant to aging, and then add some antioxidants and UV absorbers to the materials, to improve the aging resistance of the products.

### 23、如何选择产品的含纤量，是不是越大的制品适合含纤量越高的产品？

23. How to choose the fiber content of the product? Is the larger product suitable for higher fiber content material?

答：这个不是绝对的，玻纤的含量并不是越多越好，对每个制品的要求刚好找到比较适合含量的点就可以。

A: This is not absolute. The content of glass fiber is not more is better. The suitable content is just to meet the requirements of each products.

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# 材料的世界

## The world of materials

### Long glass fiber

PP-LGF  
PA6-LGF  
PA66-LGF  
PA12-LGF  
MXD6-LGF  
PPA-LGF  
PBT-LGF  
PLA-LGF  
TPU-LGF  
PPS-LGF  
PC-LGF  
LCP-LGF  
PEEK-LGF

### Long carbon fiber

PP-LCF  
PA6-LCF  
PA66-LCF  
PA12-LCF  
MXD6-LCF  
PPA-LCF  
PPS-LCF  
PBT-LCF  
TPU-LCF  
PEI-LCF  
LCP-LCF  
PEEK-LCF





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