



PFG FIBER GLASS

必成玻璃纖維



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# 1. Company Profile



## History

PFG Fiber Glass Corporation of Taiwan was founded on August 1987 and production started in March 1991. PFG Taiwan is a manufacturer of electronic-grade glass yarn and reinforcement-grade glass fiber. Annual production capacity with three furnaces is 90,000 MT, of which 75,000 MT is electronic-grade glass yarn. The information and electronic industries are flourishing globally, and PCB, CCL and Glass Fabric Plants are continuously expanding; so the demand for electronic-grade glass yarn is increasing dramatically. In order to supply Glass Fabric Plants in PRC with sufficient glass yarn, PFG Fiber Glass (Kunshan) Co., Ltd. was founded in May 2001, and production started in September 2003. Additionally, in order to continue growing market share and meeting the needs of the glass fiber cloth factories. In May 2006, May 2008 and Nov. 2012, the second, third and fourth plant expansions were completed. This latest expansion will bring the total annual production capacity to 233,400MT for both electronic-grade glass fiber.

## Research and Development

PFG has been improving and adopting new advance manufacturing technologies on the binder, bushing design, equipment and process improvement, glass component for more than 20 years, and is now a recognized global leader in electronic-grade glass yarn.

## Environmental and Quality Policy

Environmental and quality management are our business enterprise's life., PFG utilizes pure oxygen combustion technology, to offer energy savings and, environmental protection, while still producing improved melting capacity, and liquid glass quality and significantly reducing energy consumption and emissions. This technology embodies the full realization of carbon reduction efforts to achieve the goal of green manufacturing and environmental protection. Continuous quality improvement is PFG's policy. We work tirelessly to provide customer unmatched satisfaction with our products and services., Besides pushing quality improvements with every effort to satisfy our client's increasingly demanding specifications, PFG'S quality and environmental management have each been ISO and CNS certified:

- Our quality management was certified by BSMI in Jan., 1995 (ISO 9001/CNS 12681)
- Our environmental management system was certified by BSMI in Mar., 1998 (ISO 914001/CNS 14001)
- Our occupational health and safety management system was certified by BSMI in April., 2005 (OHSAS 18001 /TOSHMS) ([http://www.pfg.com.tw/pfgfile/j2pfg\\_ftp/OHSAS-18001-2007.pdf](http://www.pfg.com.tw/pfgfile/j2pfg_ftp/OHSAS-18001-2007.pdf))
- Our quality management system was certified by C.Q.C. in Dec., 2010 (ISO 9001/GBT 19001) ([http://www.pfg.com.tw/pfgfile/j2pfg\\_ftp/ISO-9001\\_1050707.pdf](http://www.pfg.com.tw/pfgfile/j2pfg_ftp/ISO-9001_1050707.pdf))
- Our environmental management system was certified by C.Q.C. in Aug., 2011 (ISO 14001/GBT 24001) ([http://www.pfg.com.tw/pfgfile/j2pfg\\_ftp/ISO-14001.pdf](http://www.pfg.com.tw/pfgfile/j2pfg_ftp/ISO-14001.pdf))





## Products & Applications

PFG has two varieties of products: electronic-grade glass yarn and reinforcement-grade glass fiber. The following are brief descriptions of each :

\* Electronic-grade glass yarns are the major products of PFG, including yarn, fine yarn, ultra-fine yarn and industrial yarn. They can be used in many applications :

- Electronic-grade glass fabric for printed circuit boards.
- Braided electrical sleeving products.
- Paper and tape reinforcement.
- Axle material for grinding wheels.
- Material for electrical thermal insulation, etc.
- Tensioned membrane structure and High-temperature filter bags.

\* Reinforcement-grade glass fiber includes chopped strand and roving. The applications for each are as follows:

- Chopped Strand : electronic/electrical components, automobile parts, power tools, etc.
- Roving : materials for construction, automobile and sport materials for general consumer, etc.



## 2. Electronic Fiber Glass Yarn



### Description

PFG Electronic Fiber Glass Yarns are produced by twisting several hundred filaments of approximately 9.0 microns in diameter

### Product Specifications

ITEM	SPEC	G37	G67	G75	G150
Yarn Count, Tex(g/1000m)		137.4±4.5	74.0±1.5	68.7±1.5	33.7±1.2
Filament Diameter (µm)		9.0	9.0	9.0	9.0
Filament Count		800	400	400	200
Type of Binder		Starch	Starch	Starch	Starch
Loss on Ignition		1.00±0.20	1.15±0.15	1.15±0.15	1.00±0.20
Max, Moisture Content (%)		0.2	0.2	0.2	0.2
Twist(tpm)		40.0±4.0(1.0Z)	28.0±2.8(0.7Z)	28.0±2.8 (0.7Z)	28.0±2.8(0.7Z)
Min. Tensile Strength (g/tex)		50	50	50	52
Weight of Full Bobbin(kg/pc)		8.6	8.3	8.5	3.2
Min. Length of Full Bobbin (m/pc)		62,800	113,200	124,400	95,000
QTY (pc/box)		60	60	60	117

- The products to the RoHS request.
- Additional yarn count, twist, binder spec. or usage are available upon request.

## Characteristic

- Outstanding electric insulation properties, suitable for the base material of information and electronic industries.
- High tensile strength & good dimensional stability.
- High heat, Chemical and flame resistance.

## Application

Electronic-Grade Glass Fabric for PCB :

It's main applications include personal computers and peripheral equipment \ LED-TVs \ telecommunications \ base station servo devices \ digital equipments and automobile panels, etc.



### 3. Electronic Fiber Glass Fine Yarn



#### Description

PFG Electronic Fiber Glass Fine Yarns are produced by twisting several hundred filaments of approximately 5.0~7.0 microns in diameter .

#### Product Specifications

ITEM	SPEC	E110	E225	DE300	D450
Yarn Count, Tex(g/1000m)		44.7±1.4	22.5±1.0	16.9±0.8	11.1±0.5
Filament Diameter (µm)		7.0	7.0	6.0	5.0
Filament Count		400	200	200	200
Type of Binder		Starch	Starch	Starch	Starch
Loss on Ignition		1.05±0.30	1.20±0.30	1.25±0.30	1.30±0.20
Max, Moisture Content (%)		0.2	0.2	0.2	0.2
Twist(tpm)		36.0±4.0(0.9Z)	36.0±4.0(0.9Z)	36.0±4.0(0.9Z)	36.0±4.0(0.9Z)
Min. Tensile Strength (g/tex)		52	52	52	60
Weight of Full Bobbin(kg/pc)		5.3	3.5	2.73	2.04
Min. Length of Full Bobbin (m/pc)		117,000	156,000	162,000	183,000
QTY (pc/box)		60	117	117	112

- The products to the RoHS request.
- Additional yarn count, twist, binder spec. or usage are available upon request.



## Characteristic

- Outstanding electrical insulation properties, suitable for the base material of Information and electronics industries.
- High tensile strength & good dimensional stability.
- High heat, Chemical and flame resistance.

## Application

- Electronic-Grade Glass Fabric for multi-layer PCB, Prepreg :  
It's main applications include notebook computers, mobile phones, TV games, set-top box and digital cameras, etc.





## 4. Electronic Fiber Glass Ultra-Fine Yarn



### Description

PFG Glass Electronic Fiber Glass Ultra-Fine Yarns are produced by twisting one hundred filaments 4.0~5.0 Microns in diameter.

### Product Specifications

ITEM	SPEC	D900	C1200	BC1500
Yarn Count, Tex(g/1000m)		5.6±0.2	4.2±0.2	3.4±0.2
Filament Diameter (µm)		5.0	4.5	4.0
Filament Count		100	100	100
Type of Binder		Starch	Starch	Starch
Loss on Ignition		1.40±0.30	1.60±0.30	1.70±0.30
Max, Moisture Content (%)		0.2	0.2	0.2
Twist(tpm)		36.0±4.0(0.9Z)	36.0±4.0(0.9Z)	36.0±4.0(0.9Z)
Min. Tensile Strength (g/tex)		60	65	70
Weight of Full Bobbin(kg/pc)		1.35	0.84	0.69
Min. Length of Full Bobbin (m/pc)		240,000	200,000	200,000
QTY (pc/box)		112	112	112

- The products to the RoHS request.
- Additional yarn count, twist, binder spec. or usage are available upon request.

## Characteristic

- Outstanding electrical insulation properties, suitable for the base material of Information and electronics industries.
- High tensile strength & good dimensional stability.
- High heat, Chemical and flame resistance.

## Application

Electronic-Grade Glass Fabric for High Density Interconnection PCB \ prepreg.

It's main applications include tablet PCs, smart phones computers and base station server devices etc.



## 5.Industrial Fiber Glass Yarn(G-type)



### Description

PFG Industrial Fiber Glass Yarns(G-type) are produced by twisting several hundred filaments of approximately 9.0 microns in diameter.

### Product Specifications

ITEM	SPEC	G37	G75	G150
Yarn Count, Tex(g/1000m)		137.1±4.5	68.7±1.7	33.7±1.2
Filament Diameter (µm)		9.0	9.0	9.0
Filament Count		800	400	200
Type of Binder		Starch+Silane	Starch+Silane	Starch+Silane
Loss on Ignition		0.95±0.20	0.95±0.15	1.15±0.30
Max, Moisture Content (%)		0.2	0.2	0.2
Twist(tpm)		28.0±4.0(0.7Z)	28.0±2.8(0.7Z)	20.0±2.8(0.5Z)
Min. Tensile Strength (g/tex)		65	65	65
Weight of Full Bobbin(kg/pc)		8.5	8.6	7.08
Min. Length of Full Bobbin (m/pc)		124,400	62,800	210,000
QTY (pc/box)		60	60	60

- The products to the RoHS request.
- Additional yarn count, twist, binder spec. or usage are available upon request.



## Characteristic

- High tensile strength & good dimensional stability.
- High heat, Chemical and flame resistance.

## Application

Industrial cloth and materials :

Paper taps, Braided sleeve, reinforced cloth for civil/construction and axle material for grinding wheels, cement boards etc.

## 6. Industrial Fiber Glass Yarn(H-type and K-type)



### Description

PFG Industrial Fiber Glass Yarns are produced by twisting several hundred filaments of approximately 11.0~13.0 microns in diameter.

### Product Specifications

ITEM	SPEC				
	K18	H12	H25	H45	H50
Yarn Count, Tex(g/1000m)	272.0±16.0	408.0±20.0	204.0±12.0	112.5±5.0	101.0±5.0
Filament Diameter (µm)	13.0	11.0	11.0	11.0	11.0
Filament Count	800	1600	800	400	400
Type of Binder	Starch +Silane	Starch +Silane	Starch +Silane	Starch	Starch
Loss on Ignition	0.90±0.30	0.90±0.30	0.95±0.30	1.00±0.30	1.00±0.30
Max, Moisture Content (%)	0.5	0.5	0.5	0.2	0.2
Twist(tpm)	28.0±2.8 (0.7Z)	28.0±2.8 (0.7Z)	28.0±2.8 (0.7Z)	28.0±2.8 (0.7Z)	28.0±2.8 (0.7Z)
Min. Tensile Strength (g/tex)	55	50	55	45	45
Weight of Full Bobbin(kg/pc)	8.6	8.6	8.6	8.6	8.6
Min. Length of Full Bobbin (m/pc)	30,000	20,000	40,000	76,000	84,500
QTY (pc/box)	60	60	60	60	60

- The products to the RoHS request.
- Additional yarn count, twist, binder spec. or usage are available upon request.

## Characteristic

- High tensile strength and good dimensional stability.
- High heat, chemical and flame resistance.
- Outstanding electrical insulation properties.

## Application

Industrial cloth and materials :

Braided sleeving, cement boards, axle material for grinding wheels and reinforced clothe for civil.



## 7. Industrial Fiber Glass Fine Yarn(DE-type)



### Description

PFG Industrial Fiber Glass Yarns are produced by twisting several hundred filaments of approximately 6.0 microns in diameter.

### Product Specifications

ITEM	SPEC	DE37	DE75	DE150
Yarn Count, Tex(g/1000m)		137.4±4.5	67.0±1.7	33.7±1.2
Filament Diameter (µm)		6.0	6.0	6.0
Filament Count		1560	780	390
Type of Binder		Starch	Starch	Starch
Loss on Ignition		0.95±0.30	1.15±0.30	1.00±0.30
Weight of Full Bobbin(kg/pc)		4.0	4.04	3.4
Min. Length of Full Bobbin (m/pc)		29,000	60,000	100,000
QTY (pc/box)		117	117	117

- The products to the RoHS request.
- Additional yarn count, twist, binder spec. or usage are available upon request.

## Characteristic

- High tensile strength and good dimensional stability.
- High heat, chemical and flame resistance.
- Outstanding electrical insulation properties.

## Application

- Industrial cloth and materials :  
Main applications include power plants, steel plants, incinerators, and cement factories, etc.
- Aerospace composites, medical, green building cloth and materials for tensioned membrane structure.



## 8. Chopped Strand



### Description

PFG's Chopper Strand is produced by cutting continuous filament strand into 3.2mm or 4.5mm segments by advanced process of wet-cutting .It is compatible to compound with thermoplastic and/or thermosetting resins.

### Product Specifications

SPEC		HP3540	HP3550	HP3610	HP3660	HP3786
<b>ITEM</b>						
Nominal Fiber Diameter (µm)		10.0±0.6	10.0±0.6	10.0±0.6	10.0±0.6	10.0±0.6
Type of Binder		Silane	Silane	Silane	Silane	Silane
Loss on Ignition		0.70±0.15	0.70±0.15	0.60±0.15	0.70±0.15	0.70±0.15
Max, Moisture Content		0.1 Max	0.1 Max	0.1 Max	0.1 Max	0.1 Max
Standard Fiber Length		3.2	3.2	3.2	4.5	3.2
Compatible With Resins		Nylon 6, Nylon 66, PC,PPS	Nylon 6, Nylon 66	Nylon 6, Nylon 66, PC,PPA	Nylon 6, Nylon 66, PPA	PBT,ABS,PET,POM,PPS,PS
Packing (kg per bag)	Paper Bag	25	25	25	25	25
Packing (kg per bag)	Big Bag	1000	1000	1000	1000	1000
Appication		Electronic/ electrical components, automobile parts, sporting goods and power tools	Electronic/ electrical components, automobile parts, sporting goods and power tools	Electronic/ electrical components, sporting goods and power tools, radiator tanks of automobiles	Electronic/ electrical components, automobile parts	Transportation, electrical and electronic appliance and computer, cameras housings and components

- The products to the RoHS request.



## Characteristic

- Excellent electric characteristics; suitable for electronic/electrical component.
- Superior feeding flow ability and high compounding rates.

## Application

- Electrical and electronic components
- Automotive parts
- Sports equipment
- Power tools



# 9. Multi-end Roving



## Description

PFG's Roving is made of continuous filament strand, which is designed for inside smooth payout. PFG Roving is treated with multi-type silane to provide an exceptionally high interfacial bond with the resin matrix. It offers high composite properties to the end product and low resin content during subsequent processing.

## Product Specifications

ITEM	SPEC	1062	1712	5588
Nominal Fiber Diameter (µm)		13.3±0.6	13.3±0.6	16.0±0.6
Type of Binder		Silane	Silane	Silane
Loss on Ignition (%)		0.65±0.10	0.70±0.15	1.10±0.10
Yarn Count Tex (g/1000m)		1071±33	8860±476	4800±144
Max, Moisture Content (%)		0.1 Max	0.1 Max	0.06Max
Bulk Density		1.55±0.15	1.55±0.15	1.22±0.12
Process		Filament Winding	Pultrusion	Sheet Molding Compound
Compatible With Resins		Epoxy (EP)	Polyester, Vinyl ester & Epoxy	Polyester and Vinyl-ester(VE)
Roll Weight (kg)		7.7±0.50	21.8±1.0	17.5±1.0
Packing(kg per bag)				
	Rolls/Pallet (pc)	108	48	48
	Pallet Net Weight	830±10	1046±80	875±60
Appication		Tennis racket, safety cap, transformer insulated material, plat computer components, fishing rod, Golf clubs and corrosion resistance products.	High voltage insulator, Electrical insulatoin bar, Acid resistant insulation rod, Pultrusion process products.	Automobile, aeronautics and construction products.

- The products to the RoHS request.

## Characteristic

- Excellent adhesion with resin matrix, wet out is speedy.
- High wet and dry abrasion resistance and processing characteristics.
- Excellent chopping property and fiber distribution.
- High tensile strength & good dimensional stability.

## Application

- Tennis racket, helmets, electrical insulation materials, fishing rods, bat.
- Automotive industry, aerospace industry, building materials and other composite materials.



# 10.Long Fiber reinforced Thermoplastics



## Description

Providing the use of the tex yarn thread density, such as 1200,2400 and 4400TEX, single fiber diameter of 17 ~ 24μm

## Product Specifications

ITEM	SPEC	LFT 4588 (1200 TEX)	LFT 4588 (2400 TEX)	LFT 4588 (4400 TEX)
Nominal Fiber Diameter (μm)		17.0±0.6	17.0±0.6	24.0±0.6
Type of Binder		Silane	Silane	Silane
Loss on Ignition (%)		0.40±0.15	0.40±0.15	0.40±0.15
Max, Moisture Content (%)		0.07 Max.	0.07 Max.	0.07 Max.
Yarn Count, Tex (g/1000m)		1200 ± 84	2400 ± 168	4400 ± 308
packages/pallet		48	48	48
Package WT. (kg/pc)	A1	20.0 ± 1.0	20.0 ± 1.0	20.0 ± 1.0
	A2	6.80 Min.	6.80 Min.	6.80 Min.
Compatible With Resins		PP、Nylon 6、Nylon 66、PET、PE、PBT、PPS、PEI		
Appication		Electronic / electrical components、sporting goods、power tools and automobiles parts、		

- The products to the RoHS request.



## Characteristic

- Direct twistless filament tow has excellent dispersing performance.
- Polyamide 6 (Nylon 6), polyamide 66 (Nylon 66), polyethylene terephthalate (PET), polyethylene (PE), polybutylene terephthalate (PBT), polypropylene (PP) and high-temperature resins such as polyphenylene sulfide (PPS) and polyetherimide (PEI), etc. have excellent penetration and compatibility.
- Excellent processability in all LFT processes.

## Application

- Long fiber engineering plastic particles: injection molding processing.
- End products: automotive (front-end module, tank frame interiors, dashboard skeleton, air conditioning fan, etc.) components, home appliances parts, building materials electrical socket, public places seats, power tools, pump housing, pipe fittings.



# 11. DDZS



## Description

Providing the use of the tex yarn thread density, such as 1200,2400 and 4400tex, single fiber diameter of 17 ~ 24 $\mu$ m.

## Product Specifications

ITEM	SPEC	HYBON 2002 (1200 TEX)	HYBON 2002 (2400 TEX)	HYBON 2002 (4400 TEX)
Nominal Fiber Diameter ( $\mu$ m)		17.0 $\pm$ 0.6	17.0 $\pm$ 0.6	24.0 $\pm$ 0.6
Type of Binder		Silane	Silane	Silane
Loss on Ignition (%)		0.55 $\pm$ 0.15	0.55 $\pm$ 0.15	0.55 $\pm$ 0.15
Max, Moisture Content (%)		0.07 Max.	0.07 Max.	0.07 Max.
Yarn Count, Tex (g/1000m)		1200 $\pm$ 84	2400 $\pm$ 120	4400 $\pm$ 308
packages/pallet		48	48	48
Package WT. (kg/pc)	A1	20.0 $\pm$ 1.0	20.0 $\pm$ 1.0	20.0 $\pm$ 1.0
	A2	6.80 Min.	6.80 Min.	6.80 Min.
Compatible With Resins		Polyester \ Vinyl ester \ Epoxy		
Application		Wind blades, electrical insulation materials.		

- The products to the RoHS request.

## Characteristic

- Excellent processing characteristics, processing is not easy to fluff and broken wire.
- Compatible with polyester resin, vinyl resin, phenolic resin and epoxy resin substrate.
- Rapid impregnation in thermosetting resins.

## Application

Winding processing, pultrusion processing and multi-axial weaving, such as the use of wind blades, electrical insulation materials and sports equipment.

