



PIOCREAT
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FGF PELLET 3D PRINTING

ADDITIVE MANUFACTURING INDUSTRY SOLUTIONS 

V1.0

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About Picroat



Shenzhen Picroat 3D Technology Co., Ltd. is a company specializing in the manufacture of 3D printers and consumables.

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FGF Pellet 3D Printing Solution

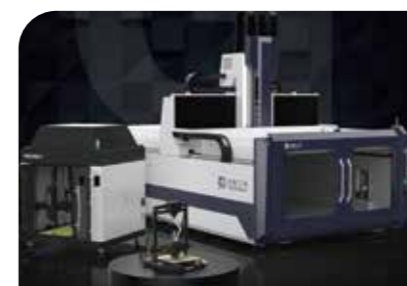


Provides specialized 3D printing solutions, as well as the ability to 3D print with recycled materials.

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FGF Products



G-Series equipment, pelletizing supplies, printer accessories and slicing software.

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Industry Applications



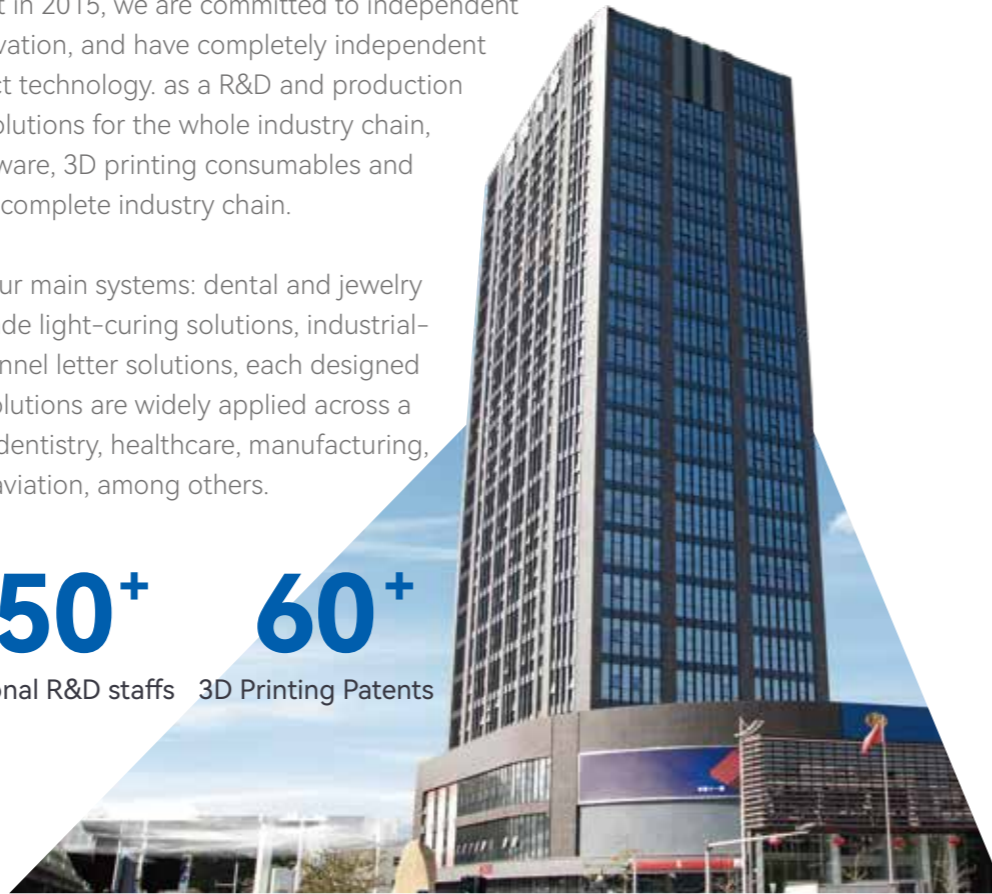
3D printing application case showcase.

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Shenzhen Piocreat 3D Technology Co., Ltd. is a company specializes in the manufacturing of 3D printers and consumables. Since its establishment in 2015, we are committed to independent research and development and innovation, and have completely independent intellectual property rights of product technology. as a R&D and production enterprise providing products and solutions for the whole industry chain, covering 3D printers, 3D design software, 3D printing consumables and 3D printing services, we have built a complete industry chain.

The products are categorized into four main systems: dental and jewelry light-curing solutions, consumer-grade light-curing solutions, industrial-grade 3D printing solutions, and channel letter solutions, each designed to meet diverse user needs. These solutions are widely applied across a broad range of industries, including dentistry, healthcare, manufacturing, advertising, education, jewelry, and aviation, among others.

1800⁺ Corporate Customers
150⁺ Professional R&D staffs
60⁺ 3D Printing Patents



ABOUT PIOCREAT

▶ Technical Advantages

PIOCREAT adopts Fused Granular Fabrication (FGF) technology and a new generation of screw extrusion technology to develop industrial-grade, high-performance series of 3D printers: G5Ultra, G12 and G40, all of which are printed with granular, polymer composite materials, with the advantages of low cost of materials, fast speed of print molding, high strength of the product, and outdoor weathering, etc., which are widely used in indoor and outdoor sculpture, shaped curtain wall, furniture, new material research and development, recycled materials, automobiles, yachts, aviation and other application markets.



▶ Honors and Certifications



FGF PELLET 3D PRINTING SOLUTION

Our 3D printing technology has been recognized by major companies across multiple industries, including sculpture, furniture, aerospace, and automotive. FGF granular 3D printers increase print efficiency by 10x and reduce material costs by $\geq 50\%$, while also lowering capital equipment and operating expenses. By using low-cost and widely available granular feedstocks, including high-temperature and fiber-reinforced materials, combined with robust machine performance and stable, reliable systems, we achieve higher part performance. Additionally, we offer 3D printing equipment, material testing services, large-scale additive and subtractive machining center equipment and printing services, as well as consumables and accessories.

Printing Efficiency Improvement

10x

Lower material costs

$\geq 50\%$



Comparison of 3D Printing and Traditional Processes of Making Sculpture Cases

VS	COST	TIME	PERSONNEL
FGF printing PETG material sculpture 5mm thick 1m ² PETG material	Consumes 9kg of consumables. The total cost is about 225 RMB.	About 2 hours	Just need to know how to use a computer. 2-3 days of training to master the basics. One week to be able to operate normally.
Traditional Fiberglass Sculpture 5mm thick 1m ² glass fiber cloth + resin	Simple molds and foam sculpture. The total cost around 800 RMB.	4-6 hours	Skilled workers are needed. Generally, training takes 2-3 months to master the basics. 5-6 months to become proficient.

FGF printing PETG sculpture is a more economical and efficient production process compared with traditional fiberglass material sculpture.

Lower material costs $\geq 50\%$

Increase work efficiency by 2 times

Easy to operate and quick to learn

Pellet Recycling Solutions

This is a green innovation, our equipment supports 3D printing with pellets made from renewable plastics, i.e. printing with recycled pellets, flakes or regrind materials, which is more environmentally friendly and brings us closer to the dream of a circular economy.



▶ Advantages of FGF Technology

Principle of FGF technology: long screw in the extruder rotates to extrude the melt materials to fabricate models layer by layer.

Advantage 1 Self-developed high flow rate screw extrusion design

Strong extrusion force, flexible selection of 0.4-8mm diameter nozzle.
Printing speed up to 25kg/h, under the premise of ensuring the stability and accuracy of the gantry ($\pm 0.1\text{mm}/1000\text{mm}$), the printing speed is 10m/min.

G5Ultra: 0.4-3mm (standard with 0.8mm, 1.0mm, 2.0mm nozzles)
G12: 0.8-4mm (standard with 1.2mm, 1.5mm, 2.0mm, 3.0mm, 4.0mm nozzles)
G40: Equipped with 3-8mm high flow screw extrusion nozzles

Advantage 1 Sectional heating of nozzles

The new generation of screw extruder printheads has a multi-stage split-control heating function, which accurately controls the printing temperatures in the feeding, compression and metering sections respectively;
The maximum heating temperature most of extruder can reach 450°C, which exceeds the melting point of most granular materials, and meets the demand for printing of various materials;
The print head can be retraction, more stable, smooth and non-blocking material discharge, to ensure fast and stable printing.



G5Ultra
Schematic diagram of segmented heating effect

▶ Slicing Software

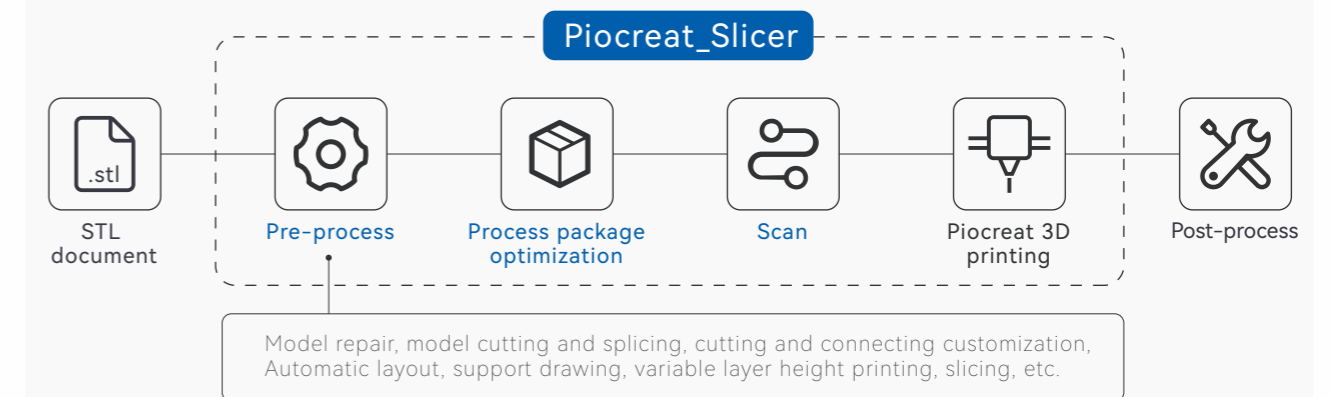


Piocreat_Slicer



Piocreat_Slicer is an all-in-one additive manufacturing collaboration platform for automated 3D model slicing, online control, monitoring and print optimization. Piocreat_Slicer provides the best slicing experience for end customers of the Piocreat G series printers. piocreat_slicer has a simple, comprehensive and easy-to-use interface, so customers only need to prepare the print file before printing, and even novice users can have a good user experience to ensure that what you see is what you get.

3D Printing Process Solutions



G5Ultra

GREEN INNOVATION SMART FUTURE

The G5Ultra can print models with maximum dimensions of 500×500×400mm, meeting a variety of printing needs. It can be used for materials testing, mold manufacturing, industrial parts, furniture and daily necessities, crafts, and the footwear industry. It is compatible with a range of materials to meet the printing requirements of different industries.



G12

INNOVATION-DRIVEN ERA QUALITY IN COMMAND

The G12 can print large models with dimensions up to 1200×1000×1000 mm, expanding the range of its printable applications. It covers various fields such as household items, mold manufacturing, industrial parts, lighting manufacturing, sculptures, and the automotive industry. Its focus on professional, production-grade print quality to meet the needs of industrial production.



New generation of screw extruder printheads

Maximum temperature of the nozzle is 420°C, strong extrusion strength, flexible selection of 0.4-3.0mm diameter nozzle for fast and stable printing.



Lack of material alarm and material cut-off, continue printing

The display of the lack of material pop-up window reminder; broken material automatic storage printing records, replenishment can continue to print, print success rate of more than 95%.



Intelligent laser ranging 64-point leveling system

Significantly shortens the leveling time and improves the leveling accuracy; ensures real-time and high safety when leveling the high-temperature platform; and avoids interfering with the model in the printing process.



Max 220mm/s print speed

Max extruder output 0.8kg/h, greatly improve work efficiency.



Screw nozzle + sectional heating

Self-developed new generation screw extruding design, highest extruder heating 450°C, long screw and powerful extruder, good retraction, material extruding is more stable and smoother, do not clog in order to fast and stable printing.



Quick release platform design

Twist and pull for quick platform removal, bend quickly to remove the mold or remove the mold directly with a scraper.



Intelligent Laser Ranging 120 Point Leveling System

Significantly shorten the leveling time and improve the leveling accuracy; when leveling operation is performed on the high temperature platform, it ensures the real-time and high security of the leveling operation; at the same time, it avoids interfering with the model in the printing process. Ensure that the printing is not warped and the printing molding rate is 99%.



Zone heating hot bed

Automatic zoned heating according to model size maximizes energy savings and extends machine life; it takes less than 3 minutes to preheat the hot bed to 80°C.

Technical Parameters		G5Ultra	
Molding tech	FGF	Nozzle diameter	0.4-2.0mm (optional 3.0mm) Standard: 0.8/1.0/2.0mm
Printing size	500×500×400mm	Layer thickness	0.2-1.0mm
Machine size	765×890×1040mm	Maximum speed	220mm/s
Package size	845×990×510mm	Slicing software	Piocrat_Slicer/Cura/Linux_x64
Heating bed temperature	≤120°C	File transfer	USB disk / WIFI
Upper nozzle temperature	≤360°C	N.W.	43KG
Lower nozzle temperature	≤420°C	G.W	70KG
Languages	English/Chinese/German/Spanish/French/Italian/Japanese/Portugal/Russian/Turkish		
Printing materials	PLA/PC/ABS/PETG/PETG-GF/PP/TPU/PA-CF/ABS-CF/PC-CF and other composite materials		

Technical Parameters		G12	
Molding tech	FGF	Nozzle diameter	0.8-4.0mm, Standard (1.2/1.5/2.0/3.0/4.0mm)
Printing size	1200×1000×1000mm	Layer thickness	0.2-2.0mm
Machine size	2135×1775×2305mm	Maximum speed	90mm/s
Package size	1960×1760×2140mm	Slicing software	Piocrat_Slicer/Cura/Simplify3D
Heating bed temperature	≤130°C	File transfer	USB disk / WIFI
Upper nozzle temperature	≤440°C	N.W.	750KG
Lower nozzle temperature	≤450°C	G.W	1000KG
Languages	English/Simplified Chinese/German/Spanish/French/Italian/Japanese/Portuguese		
Printing materials	PLA/PC/ABS/PETG/PA-CF/PETG-GF/PP/TPU/ABS-CF/PC-CF/some modified and composite materials		

G40

LARGE GANTRY PROCESSING CENTER

The G40 is an integrated manufacturing center for additive and subtractive processes, combining FGF 3D printing and five-axis CNC machining. After 3D printing the model's dimensions and contours, it continues with milling to shape the final product, achieving faster speeds, lower costs, and higher material utilization. It's used to print large to ultra-large parts, molds, models, etc., from reinforced thermoplastic materials. It finds wide application in fields like aerospace, automotive manufacturing, wind power, yacht, home living, and urban landscapes for composite materials.



Additive and subtractive manufacturing

Integration of screw extrusion 3D printing and CNC five-axis machining



Large working space

Print size: 3725×2500×1330mm
Processing size: 3400×2500×1330mm



6-partition workbench

Six zones of independent control of the heating table, according to the printed model, select the area to control the heating, effectively avoiding the waste of electricity, and at the same time improve the stability of the printing base layer.



Large flow screw extrusion

Equipped with 3-8mm high flow rate screw extrusion nozzle, the maximum extrusion volume can reach 25kg/h.



High-speed and high-precision machining

Equipped with 8.5KW, 24000r/min high speed spindle. Adopting imported precision five-axis head, A-axis ±120°C, C-axis ±320°C, can process plastic carbon fiber and non-ferrous metal.



High Performance Pressure Wheel

Self-developed high-performance pressure wheel, according to the print route control, effectively improve the denseness of the printing material, so that the printing of interlayer bonding more firmly.

Technical Parameters

G40

Three-axis positioning accuracy: ±0.1mm/m

Machine size: 5962×4220×4800mm

Three-axis repeat positioning accuracy: 0.018mm/m

N.W.: 15000KG

Processing materials: Plastic carbon fiber and non-ferrous metals

G.W.: 16000KG

Printing materials: PLA/PETG/PVC/ABS/PC/PA/HDPE/TPU/EVA/PC+ABS/PETG+GF/PP+GF/PA+GF/ABS+GF/PC+CF

Print Mode

Processing mode

Nozzle diameter: 3~8mm

Spindle power: 8.5KW

Maximum heating: 200°C

Rotation angle: ±120° ASSE A, ±320° ASSE C

Extrusion volume: Max.25kg/h

Spindle speed: 24000r/min

Print speed: Max.10m/min

Processing speed: Max.10m/min

▶ Pellets

ABS



Material Properties

It has excellent mechanical properties and dimensional stability and can be used to make molds. Printing temperature: 190-220°C



ABS+CF



Material Properties

Easy to print, excellent strength, outstanding dimensional stability and amazing surface finish. Printing temperature: 220-250°C



PLA

High carbon content



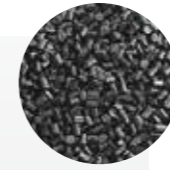
Material Properties

It has good biodegradability and is suitable for indoor decoration, furniture and other scenes. Printing temperature: 190-210°C



▶ Pellets

PEEK



Material Properties

It is mainly used in the fields of automobile, electronic information, medical equipment, aerospace, etc. Printing temperature: 450-520°C



PLA White



Material Properties

It has good biodegradability and is suitable for indoor decoration, furniture and other scenes. Printing temperature: 190-210°C



PET+CC Calcium carbonate

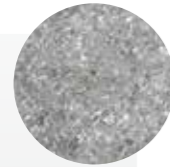


Material Properties

It is widely used in packaging, electronics, medical care, construction, automobile and other fields. Printing temperature: 280°C



PETG



Material Properties

High transparency, easy to print and environmentally friendly. Can be used to make furniture, decorations, and various prototypes. Printing temperature: 230-250°C



PETG+10%GF



Material Properties

It has enhanced strength but is more brittle than PETG. It can be used to make furniture, decoration, and various prototypes. Printing temperature: 230-250°C



PC+CF



Material Properties

It can be used to manufacture molds and functional parts with an operating temperature not exceeding 110 degrees. Printing temperature: 270-280°C



TPU

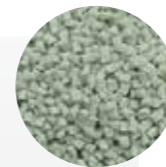


Material Properties

It is flexible and elastic, and is suitable for rehabilitation aids and rubber-like products. Printing temperature: 180-195°C



PP



Material Properties

Glass fiber reinforced PP, excellent mechanical properties, suitable for all walks of life. Printing temperature: 270-280°C



PAHT+CF



Material Properties

Up to 150 °C high temperature resistance, suitable for industrial metallurgical tools, jigs and fixtures for automotive parts and so on. Printing temperature: 265-290°C



▶ Accessories



Platform glue

Anti-Warpage 3D Platform Glue Shake well before use!!!



PEI magnetic platform

Heating up quickly, reducing waiting time for printing. The platform is easy to put and take, can be bent, easy to take off the models.



Nozzles of various types

Various types of nozzles 0.4, 0.8, 1.0, 1.5, 2.0, 3.0, 4.0, etc.



Insulation cover

3D printer insulation cover Thermal insulation, constant temperature printing.

Suction and drying machine

It integrates material suction and drying in one unit, dries materials more efficiently and quickly, and improves printing quality.



INDUSTRY APPLICATIONS

Industrial Production



Mold Manufacturing



Medical Protective Gear/Shoes



Sculpture Art



Furniture Art



Living Bathroom



Art & Design



Landscape Design



Education and Research



Printed by G40



Printed by G12



Printed by G40



Printed by G40

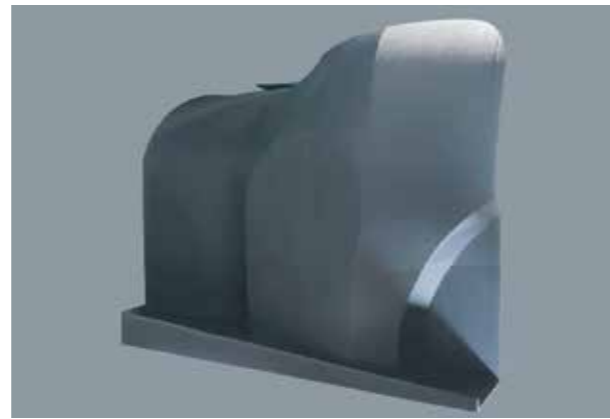


Printed by G40

Industrial
Production



Mold Manufacturing



Medical Protective Gear/Shoes



Sculpture Art





Furniture Art



Living Bathroom

Art & Design



Image source: @trashaus



Industrial ⌂ Production



Education ⌂ and Research

