

The world's first 10,000-yuan-level printer  
capable of printing PEEK/PEBA materials

# GEN LAB P1 SERIES

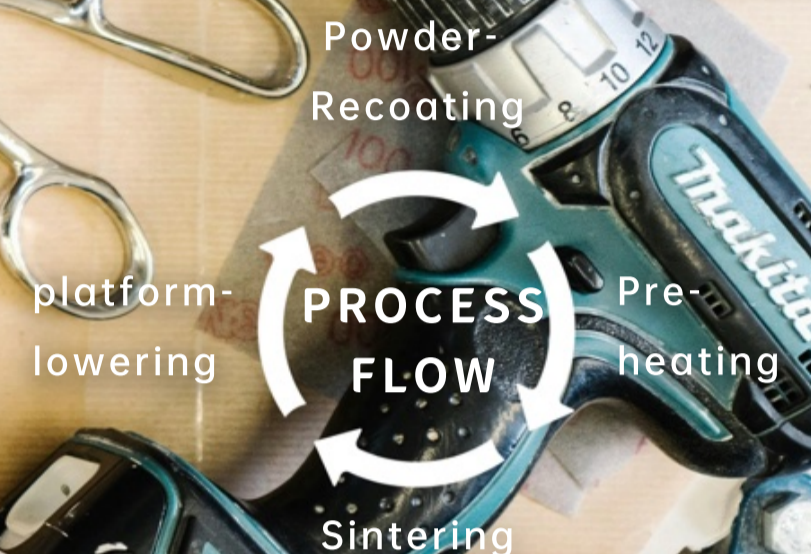
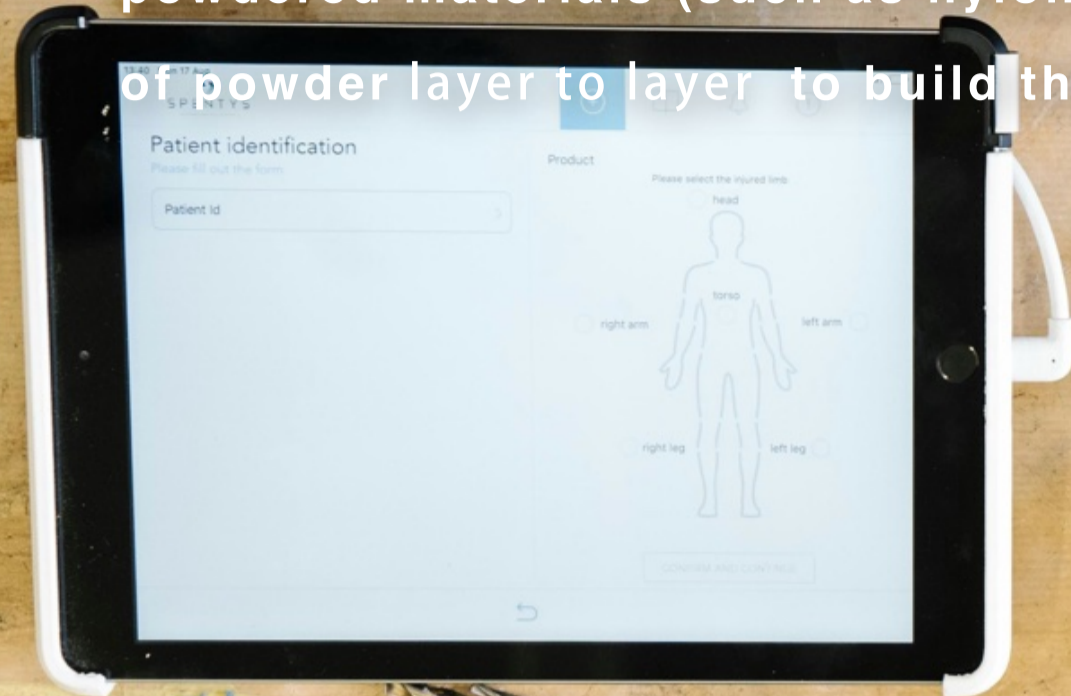


潍坊市泛化智能科技有限公司

WEIFANG GENERALIZED INTELLIGENCE TECHNOLOGY CO., LTD.

# What is SLS 3D Printing Technology? SLS 3D打印技术是什么?

Selective Laser Sintering (SLS) is a 3D printing technology that uses a laser to sinter powdered materials (such as nylon or metals), selectively fusing and solidifying layers of powder layer to layer to build three-dimensional objects.



## ► What Advantages Does SLS 3D Printing Offer Over FDM Technology?

### Unmatched Design Freedom

SLS utilizes unsintered powder as innate support, enabling direct fabrication of hollow structures, internal channels, and complex assemblies. Integrated with advanced topology optimization tools like GenPack, it achieves extreme lightweighting without compromising strength, reduces material waste, and improves design agility and production efficiency.

### Superior Mechanical Performance

SLS-printed nylon components rival injection-molded parts in tensile strength, stiffness, and isotropy. They perform reliably in rigorous functional tests and end-use environments, making them ideal for prototypes, validation parts, and final products.

### High-Efficiency Production

As a rapid additive solution for robust functional parts, SLS allows batch production of numerous small-to-medium items in a single run with shorter lead times. It is especially suited for mid-low volume manufacturing and fast turnaround from prototyping to scaled output.

### High Accuracy & Fine Details

Compared to FDM, SLS ensures higher dimensional accuracy and refined surface finish. Laser-sintered parts exhibit complex features with smooth surfaces, minimal layer lines, and reduced post-processing, accelerating model delivery.

# Key Metrics of Our Products

## GEN LAB P系列产品参数



### Detailed Parameters

Build Volume (X/Y/Z)	230*230*300mm
Layer Thickness Range	50μm - 200μm(TYPE.110μm)
Optical System	UV-fused F-Theta lens, high-precision industrial isothermal galvanometer
Laser Type	35W NIR fiber laser (75w optional)
Laser Spot Size	45μm
Inert Gas Protection (optional)	Nitrogen
Scanning Speed	16m/s
Thermal Control	Self-developed patented MEMS-integrated micro-heating system with ±0.1°C precision
Maximum Chamber Temperature	300°C
Preheating Time	60s
Recycled Powder Ratio	75%
Compatible Materials	PA12, PA11, PA6, PA66 TPU, ABS, PP, PEBA, PEEK, coated sand, nozzle resin, etc.
Detection System	Self-developed FPGA controller
Connectivity	Wi-Fi/Ethernet/USB
Software Platform	Self-developed slicing software GenPack v1.0
Self-Developed Algorithm	FuseTF-net deep neural network thermal management algorithm

### Outstanding Performance



#### Integrated F-Theta Lens

Ensures consistent printing quality



#### Multi-Material Compatibility

Wide range of official materials available



#### High-Temperature Printing

Supports high-performance materials such as PEEK



#### Rapid Preheating

Achieves ready-to-print temperature in 60 seconds for higher turnover efficiency



#### Large Build Volume

Offers ample production space



#### High-Power Laser

Enables high-quality sintering



#### High-Speed Scanning

Improves printing efficiency



# KEY STRENGTHS

**35** W

High-Power Laser

**1.8**  $\mu\text{m}$

Low Roughness Average(Ra)\*

**16** m/s

High-Speed Scanning

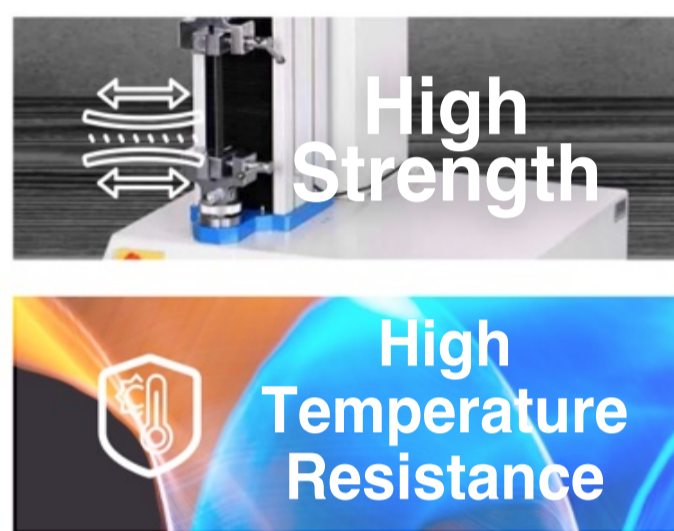
\*It refers to that the average surface roughness (Ra) value of the printed parts from this machine, obtained through multiple experiments, is 1.8  $\mu\text{m}$ . The actual value may vary depending on the material and parameters used.

# High Performance Material PEEK&PEBA

## 高性能材料PEEK与PEBA

### ► What is PEEK&PEBA?

**PEEK** (Polyether Ether Ketone) is a high-performance engineering plastic, featuring excellent high-temperature resistance (able to operate stably for a long time at 260°C), ultra-high strength (tensile strength exceeding 100MPa), outstanding chemical corrosion resistance, and excellent biocompatibility. **PEBA** (Polyether Block Amide) is a high-performance thermoplastic elastomer, with excellent high resilience (elastic recovery rate 73%-75%), ultra-low density (0.07-0.10g/cm<sup>3</sup>), excellent low-temperature resistance, and superior impact resistance.



### ► Commercial Value of PEEK and PEBA

With its outstanding comprehensive performance, PEEK demonstrates irreplaceable value in high-end fields such as medical care, precision aerospace, and has become an innovative material for high-end applications like medical implants and precision aerospace components, pushing the new heights of high-performance high-end manufacturing.

Leveraging its advantages of light weight and high elasticity, PEBA has shown excellent performance in midsole/outsole of sports shoes, insoles and other products with strict requirements for comfort and energy return. Meanwhile, it is widely used in the enhancement and performance upgrade of high-end consumer goods and industrial parts.

PEEK		PEBA	
Density	1.3 g/cm <sup>3</sup> (Lighter than Metal)	Density	0.07–0.08 g/cm <sup>3</sup> (Ultra-Light)
Application	Aviation, Robotics, Medical, etc.	Application	Midsole/Outsole Materials , etc.
Eco Friendliness	Can be reprocessed	Eco Friendliness	Biocompatible Option
Temperature Limit	260°C (Long-term) 300°C (Instantaneous)	Temperature Limit	As low as -60°C

# Comparison with Similar Competitor Products

## 与业界同类产品的关键参数对比



### GEN LAB P

LASER POWER  
**35W**  
(75W optional)

MAX LASER  
SCANNING SPEED  
**16m/s**

SPOT SIZE  
**45 $\mu$ m**

BUILD VOLUME  
**230\*230\*300mm**

BUILD CHAMBER  
TEMPERATURE LIMIT  
**300°C**

COMPATIBLE MATERIALS  
PA6、PA66、PEEK、PEBA  
PA12、PA11、TPU, etc.

PREHEATING TIME  
**60s**



### F-BRAND

LASER POWER  
**10W**  
(30W optional)

MAX LASER  
SCANNING SPEED  
**12.5m/s**

SPOT SIZE  
**200 $\mu$ m**

BUILD VOLUME  
**165\*165\*300mm**

BUILD CHAMBER  
TEMPERATURE LIMIT  
**200°C**

COMPATIBLE MATERIALS  
PA12、PA11、TPU, etc.

PREHEATING TIME  
**<1h**



### T-BRAND

LASER POWER  
**30W**

MAX LASER  
SCANNING SPEED  
**8m/s**

SPOT SIZE  
**300 $\mu$ m**

BUILD VOLUME  
**260\*260\*450mm**

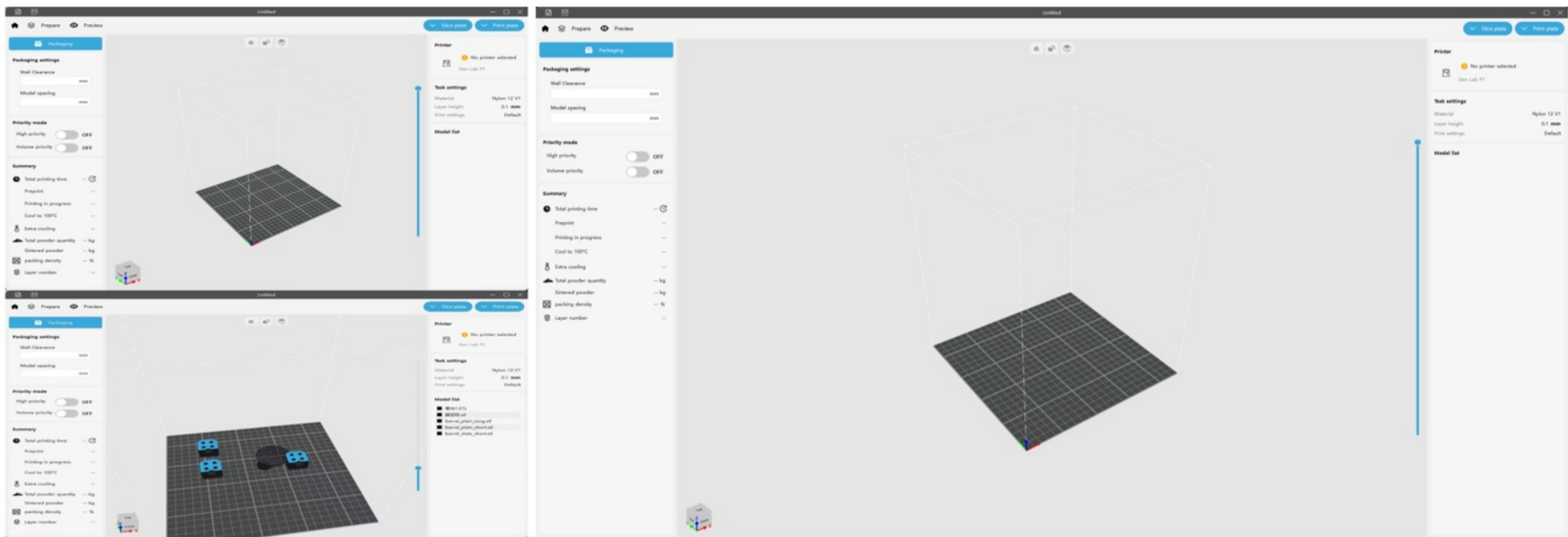
BUILD CHAMBER  
TEMPERATURE LIMIT  
**160°C**

COMPATIBLE MATERIALS  
PA12、PA11、TPU, etc.

PREHEATING TIME  
**1.5~2h**

# Software, Consumables and Post-Processing Equipment

## 免费配套软件、耗材与后处理设备



Packing rate increased by

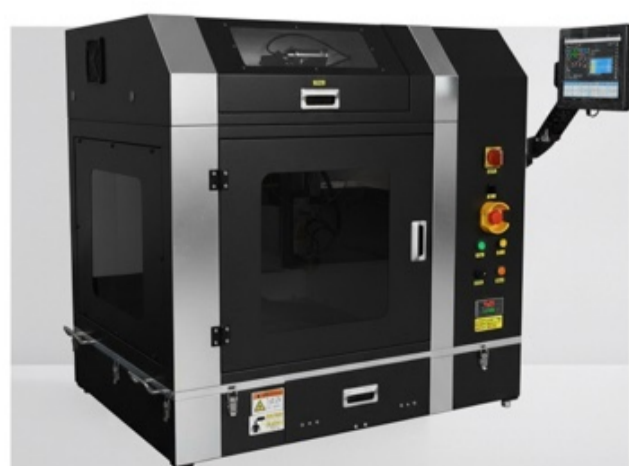
# 20%

compared to the traditional baseline solution

GenPack v1.0 is a dedicated high-performance slicing software for all series of Gen Lab industrial-grade 3D printing equipment, developed with generalized intelligence. Its self-developed intelligent nesting algorithm can significantly improve the packing rate compared with traditional solutions, allowing more parts to be accommodated in the same build space, greatly reducing the unit cost and highlighting the production capacity advantage. The software is completely rewritten from the bottom, with a modern interface and simple operation. It is lightweight and can quickly respond even to large-scale processing tasks. It is also compatible with multiple model file formats such as obj, stl, and step, eliminating redundant format conversion steps. Users who purchase Gen Lab printers can use this software for free permanently. It supports efficient single-machine production and batch management of printed parts, helping to easily realize equipment collaboration and large-scale manufacturing.



### Post-Processing Equipment Concept Art



We provide a full range of high-quality official consumables for SLS 3D printers, covering multiple materials such as PA12, PA12-CF, PA11 (black/white/gray), PA6, TPU, PEBA, PEEK, and PEEK-CF, which can meet various application needs from functional prototypes to high-performance components. Compared with similar machines in the market, we have introduced two high-performance new materials, PEEK and PEBA, in advance, and provide a rich color scheme, bringing more possibilities for designers. With official optimized printing parameters and reasonable prices, it can greatly improve production efficiency and cost efficiency while ensuring stable quality.

The new generation of SLS post-processing system will integrate automatic powder cleaning, intelligent sandblasting and precise automatic dyeing, realizing an unmanned and integrated production process. The equipment adopts a closed structure and intelligent control algorithm to ensure uniform surface treatment, high powder recovery rate, and accurate proportion, significantly improving production consistency and work safety. Whether it is small-batch customization or large-scale manufacturing, it can effectively shorten the delivery cycle. At present, the equipment is in the trial optimization stage and is expected to be officially launched soon, providing a full-process automated solution for SLS production.