www.piocreat3d.com

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Learn more

PIOCREAT

MEDICAL INDUSTRY APPLICATION OF 3D PRINTING SOLUTION

PRODUCT MANUAL

CONTENTS

Medical Industry Application of
3D Printing Solution

01 About PioCreat 01-03

02 Customized Insole 3D Printing Solution 04-07

03 Scoliosis Brace 3D Printing Solution 08-11

04 Socket & Prosthetic Cover 3D Printing Solution 12-15

05 External Fixation 3D Printing Solution 16-17

06 Custom Pillow & Cushion 3D Printing Solution 18-19

07 Surgical Guide 3D Printing solution 20-23

08 Surgical Model 3D Printing Solution 24-27

ABOUT PIOCREAT

Shenzhen PioCreat 3D Technology Co., Ltd. established in 2015, specializes in manufacturing 3D printers and consumables. With fully independent intellectual property rights, we focus on R&D and innovation. As a comprehensive solutions provider, We rely on our parent company, Creality, for strong R&D and manufacturing capabilities, along with expertise from the medical industry, to deliver products and solutions across the entire medical industry chain.

180+
Global Agents

60000+
Global Users

1800+
Corporate Clients

Our medical solutions encompass professional 3D printers, scanners, design software, and printing services, forming a complete industry chain. These products are widely used in O&P, custom insoles, customized pillows, and surgical applications.

HONORS AND QUALIFICATIONS

50%
Percentage of R&D Personnel

186+
Intellectual Property Certificates

R&D-Driven with Sustained Investment

MEDICAL INDUSTRY
APPLICATIONS

- Custom Insole
- Scoliosis Brace
- Prosthetic Socket
- Prosthetic Cover
- External Fixation
- Pillow
- Cushion
- Surgical Guide
- Surgical Model

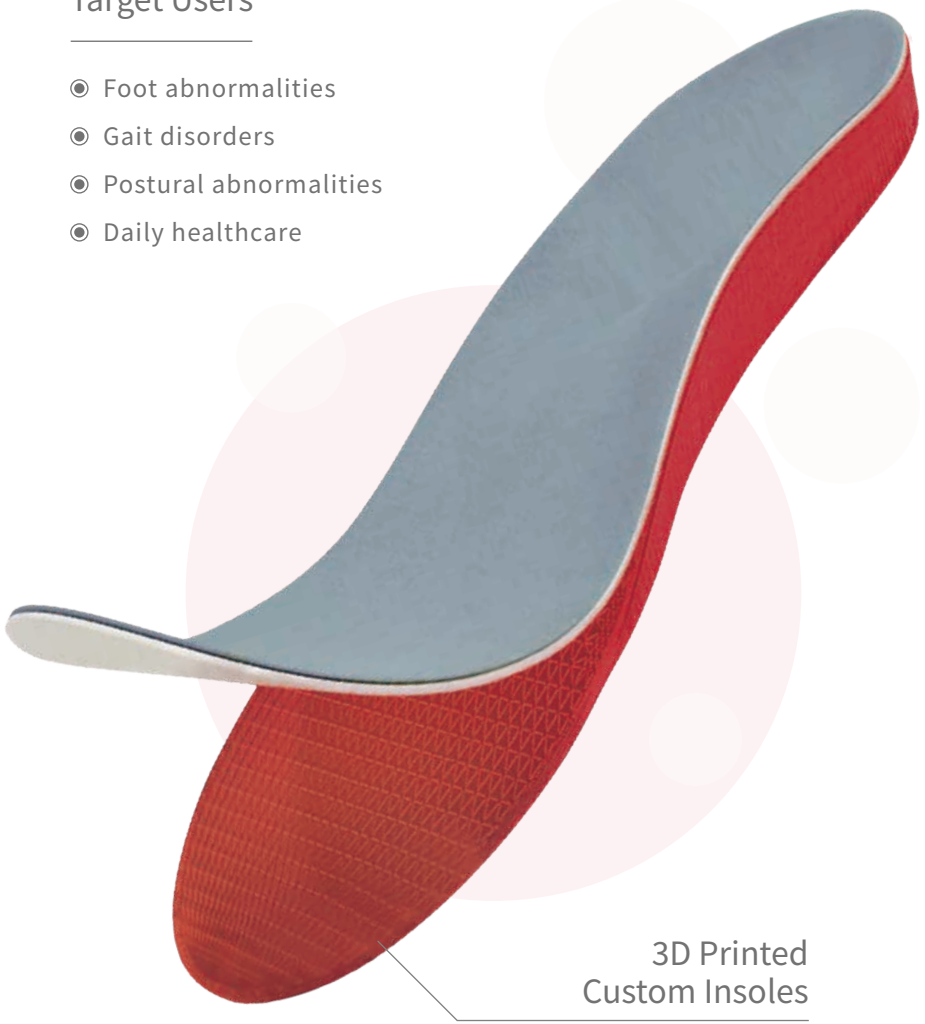
CUSTOMIZED INSOLE

3D PRINTING SOLUTION

PROGRAM
PROCESS

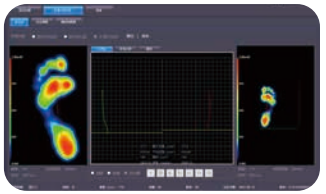
Target Users

- Foot abnormalities
- Gait disorders
- Postural abnormalities
- Daily healthcare



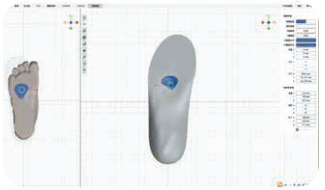
3D Printed
Custom Insoles

01 Foot Gait Analysis

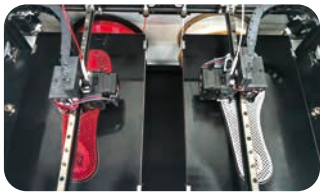


02 Foot Data Collecting

03 Customized Design



04 3D Printing



05 Post-Processing

06 Final Production

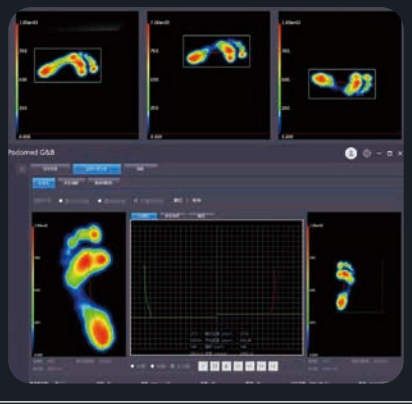
PRODUCT INTRODUCTION

FD 01

Gait Analysis System

Multi-Dimensional Measurement | Precision Data Capture | Professional Analysis Report

Quick foot data acquisition,
instant foot pressure analysis report.



FS A002

Foot Scanner

5s Rapid Scanning | High-Accuracy Measurement | Professional Analysis Report

Model	FS A002
Scanning light source	Laser Class2M
Scan range(x,y,z)	300×170×50mm
Scanning error	┼0.5 mm
Scanning time	5-10s(One foot)
Output information	3D data(STL format)and more than 20 plantar parameters,with analysis of arch,heel,and thumb varus

Support cloud remote management.
Support multi-store management.
Support smart selection of shoes and insoles.

IPX2

Special 3D Printer for Custom Insoles

Double station printing | 180 mm/s Fast Printing | Special Extruder

Molding technology	FDM
Layer thickness	0.2-0.4mm(standard 0.6mm nozzle)
Print size	320×200×200mm
Machine size	730×540×490mm
Print accuracy	±0.1mm/100mm
Number of nozzle	2
Nozzle diameter	Standard 0.4mm(0.6、0.8mm optional)
Nozzle temperature	⩽300°C
Printing method	U disk, WIFI
Printing materials	TPU-95A/90A/85A/80A, TPE-83A

CUSTOMIZED INSOLE APPLICATION

Designed for Foot Health

- Flat Feet
- High Arches
- X/O-shaped Legs
- Foot Inversion & Eversion
- Toeing In & Out

.....

Our data-driven designs precisely balance foot pressure, reduce arch stress, and enhance comfort.

SCOLIOSIS BRACE

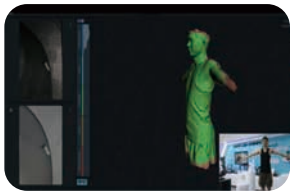
3D PRINTING SOLUTION

PROGRAM
PROCESS

- Custom Fit
- Breathable Comfort
- Reshape Comfort
- Lightweight
- Stylish Design

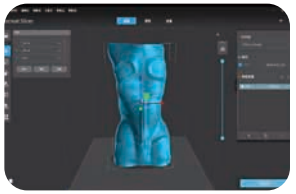
Custom-fit Scoliosis Orthosis

01 3D Scanning



02 Data Analysis

03 Orthosis Design



04 3D Printing

05 Post-processing

06 Wearable Adaptation

PRODUCT INTRODUCTION

*Note: The scanner does not include a handset or smartphone.

CR-Scan Otter

High-Precision Scanner

1min Rapid Scanning

Ultra-High Precision

Wireless Scan

Accuracy	0.02mm @ 60mm
3D resolution	0.05-2mm
Scanning speed	Up to 20fps
Min. scan volume	10mm×10mm×10mm
Single capture rang	Max. 1350×840mm@1000mm
Technology	Infrared structured light
Working distance	110mm-1000mm
Color mapping	YES
Alignment modes	Geometry/Marker/Texture
Output format	OBJ/STL/PLY

Scan Bridge

Portable Scanning Handset

WiFi 6 High-speed Data Transfer

Wireless Mirroring

36000 mWh High-capacity Battery

Frequency band	5G Hz
Transmission rate	Laser mode up to 45fps
Battery type	Lithium battery
Battery capacity	36000mWh
Fast charging power	30W
Charging interface	Type-C
Dimension	194×120×82mm
Weight	474g
Compatible scanner models	CR-Scan Otter CR-Scan Raptor Creality RaptorX

MS01 SE

FGF Scoliosis-Specific 3D Printer

Fully-enclosed Chassis

Comprehensive Orthosis Compatibility

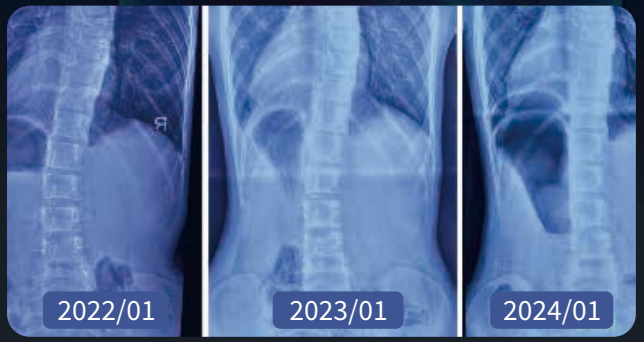
Material Break Detection

Forming technology	FGF
Build volume	500×500×650mm
Heat bed temperature	⩽110°C
Nozzle temperature	⩽400°C
Printing accuracy	±0.1mm/100mm
Nozzle diameter	3.0mm standard (2.0mm optional)
Material Break Detection	Yes
Material Break Continue Printing	Yes
Printing materials	High-Temperature Composite Materials
Printing method	U Disk
Language	English/Chinese

SCOLIOSIS ORTHOSIS APPLICATION

Guarding Your Perfect Physique

Our spinal supports correct posture, control deformities, relieve pain, and aid recovery.



Orthotic Brace Treatment Efficacy

SOCKET & PROSTHETIC COVER

3D PRINTING SOLUTION

PROGRAM
PROCESS

01 3D Scanning

02 Customized Design

03 3D Printing

04 Post-processing

05 Final Production

PRODUCT INTRODUCTION

Sermoon M500

3D Printer for Prosthetic Sockets and Protective Covers

Consistent and Stable

Constant Temperature Printing

Visualized Monitoring

Technology Type	FDM
Build Volume	510×510×610mm
Print Speed	⩽150mm/s
Printing Accuracy	100±0.1mm
Layer Height	0.1-0.4mm
Nozzle Diameter	0.6mm (default)
Nozzle Temperature	⩽300°C
Heatbed Temperature	⩽120°C
Connectivity	USB diver/WIFI/Ethernet/USB-C cable
Language Support	中文/English
Materials	PLA/PETG/PET/TPU/PA66/ABS/ASA/ PLA-CF/PA66-CF/PET-CF

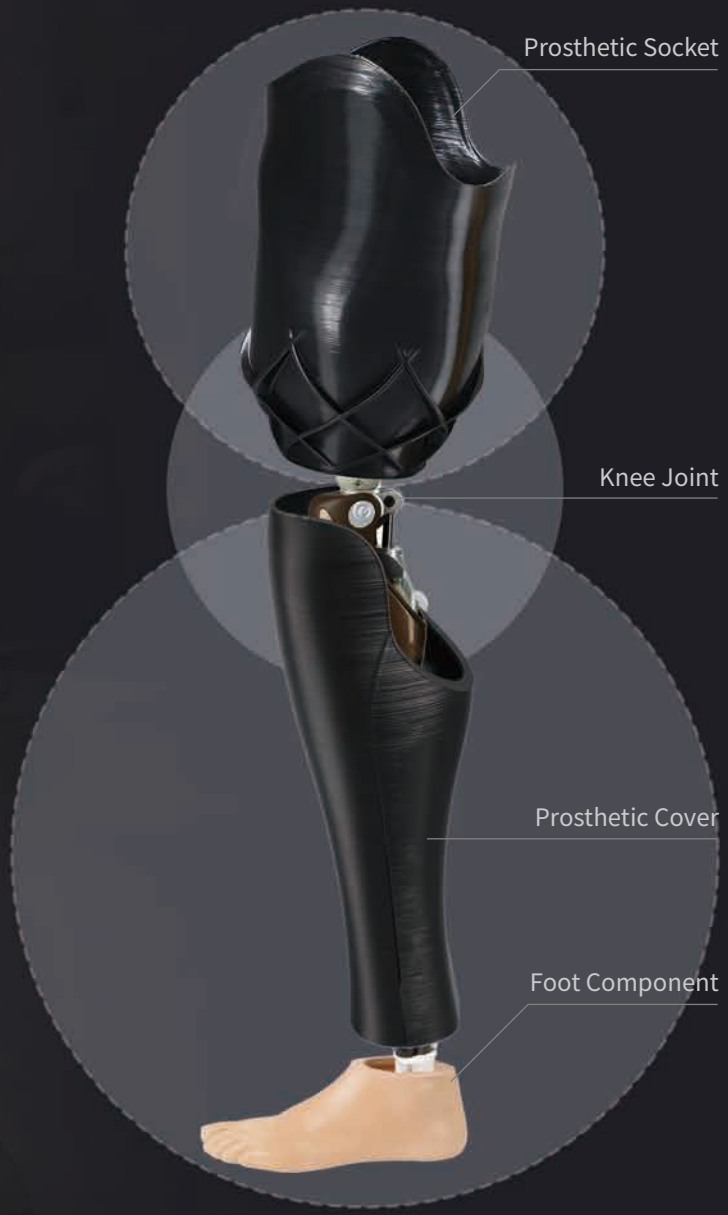
APPLICATION PROFILE

Prosthetic Socket

Customizable in materials and colors, our products ensure comfort, stability, and reduced limb wear.

Prosthetic Cover

Made of durable, impact-resistant materials with various options. Magnetic connections for easy use and damage prevention.



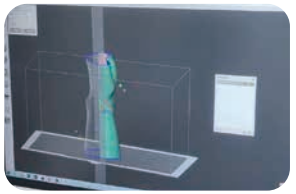
EXTERNAL FIXATION

3D PRINTING SOLUTION

PROGRAM
PROCESS

01 Scanning
Limb Data

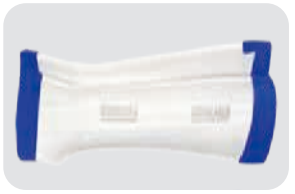
02 Customized
Design



03 3D Printing

04 Post-processing

05 Final Production



Custom 3D-printed fracture braces provide precise, patient-specific immobilization using lightweight, breathable polymers. Their skin-friendly, durable design ensures comfort, prevents skin issues, and allows easy cleaning for improved self-care.

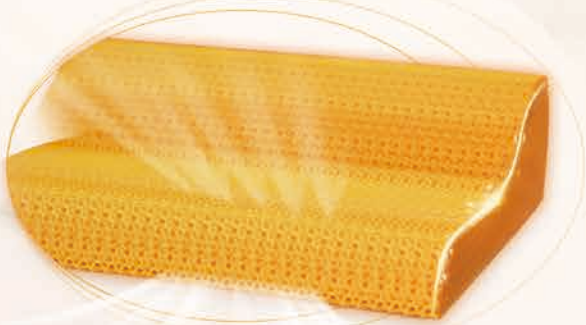
3D Printed Orthoses VS. Traditional Orthoses: A Comparative Analysis

Comparison Dimension	Traditional Plaster Bracing	3D Printing
Manufacturing Process	Manual manufacturing is complex	Digital scanning for immediate molding, precise and efficient
Treatment Application	Unable to perform adaptive treatment	Adjustable structure, supporting dynamic treatment
Post-treatment Care	Difficult to maintain, unable to clean and disinfect	Detachable design, convenient for cleaning and maintenance
Material Characteristics	Heavy and airtight, skin discomfort is common	Environmentally friendly and skin-friendly materials

CUSTOM PILLOW & CUSHION

3D PRINTING SOLUTION

3D PRINTED CUSTOM SLEEP SOLUTION



Dynamic Pressure Relief

Gentle Cervical Support

Breathable Comfort

Machine Washable

Our custom design precisely measures head-neck-shoulder contours for balanced pressure distribution, optimal support, and enhanced sleep comfort.

3D PRINTED CUSTOM SEAT CUSHION

Even Pressure Distribution

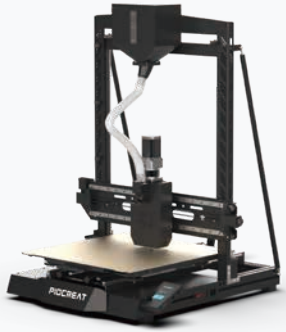
Fatigue Relief

Airflow Comfort

Customized Fit

Precisely conforms to body contours for personalized support, balanced pressure, and fatigue reduction. Its breathable, ergonomic design promotes healthy sitting.

PRODUCT INTRODUCTION



G5 Ultra

FGF Granular Material 3D Printer

220 mm/s
Fast Printing

Lack of Material Alarm

Laser Leveling

Multi-material Support

Technology type	FGF
Build volume	500×500×400mm
Print speed	⩽220mm/s
Layer thickness	0.2-1.0mm
Nozzle diameter	0.4-2.0 (optional 3.0)mm,Standard: 0.8 / 1.0 / 2.0mm
Upper nozzle temperature	⩽360°C
Lower nozzle temperature	⩽420°C
Heated bed temperature	⩽120°C
Connectivity	U Disk/WIFI
Language support	13 languages
Materials	PLA\PC\ABS\PETG\PETG-GF/PP/TPU/PA-CF/PC-CF/ ABS-CF and some modified and composite materials

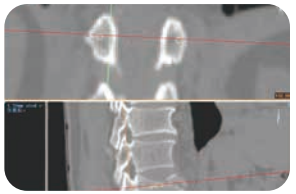
SURGICAL GUIDE

3D PRINTING SOLUTION

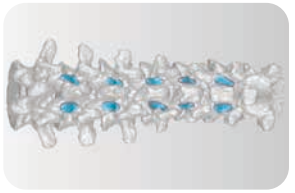
PROGRAM
PROCESS

Spinal Surgical Guide

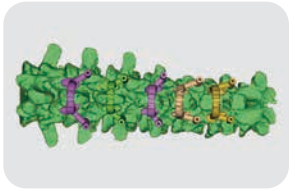
01 Data Acquisition



02 Bone Model Reconstruction



03 Surgical Guide Design



04 3D Printing

05 Post-processing

06 Final Production

PRODUCT INTRODUCTION

MG 01

3D Printer for Surgical Guides

Integral Light Source | 8K 7680*4320px | Stable Z-axis Structure

Forming technology	LCD
Build volume	228×128×200mm
Print speed	70mm/h（0.05mm）
LED wavelength	385nm
Layer thickness	0.01-0.1mm
XY-axis accuracy	29μm
Connectivity	U disk/WIFI
Device language	13 language

Printing materials: High-toughness Surgical Guide Resin, Rigid Resin, PLA-based Biopolymer Resin, Flexible Resin, ABS-like Resin, High-transparency Resin, and Third-party Resin Compatibility

UV 02

High Speed Curing Machine Adjustable Light Intensity

Fast Curing | Adjustable Light Power | Adjustable Wave Length

Machine properties	High speed UV curing
Curing dimensions	D180×H120mm
Device dimensions	366×300×250mm
Color	White
Light intensity ratio adjustable	5-100%
Curing time adjustable	00:01-30:00 (Max.30min)
UV lamp wavelength	365nm/385nm/405nm customizable
Rated voltage	100-120V~/200-240V~,50-60Hz
Rated power	360W
Language	中文/English

SG Pro

High-strength Surgical Guide Resin

High toughness | Biocompatibility | High-temperature sterilization support

Before curing		
Viscosity(@25°C)	ASTM D 2196	700-900
Density(@25°C)	ASTMD 792	1.05-1.10
After curing		
Hardness, shore D	ASTM D 2240	75-80
Flexural modulus,Mpa	ASTM D 790	1000-1200
Flexural strength,Mpa	ASTMD 790	>40
Tensile modulus,Mpa	ASTM D 638	230-270
Tensile strength,Mpa	ASTM D 638	>30
Elongation at break,%	ASTM D 638	110-140
Notched impact strength,J/m	ASTM D 256	240-300
Impact strength,notched Izod,°C	ASTM D648 @66PSI	60-70

Maintains structural integrity during 135°C autoclave sterilization

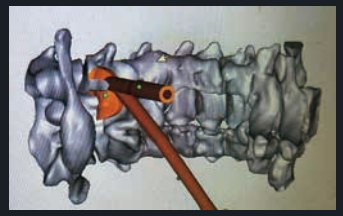
SURGICAL GUIDE APPLICATION

Achieving Precision in Surgery

The application of surgical guides enhances medical precision, effectively reduces patient trauma, and improves surgical accuracy.

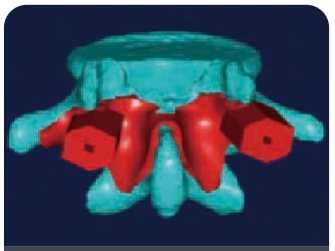
Example 1 : Pedicle Screw Fixation Surgery

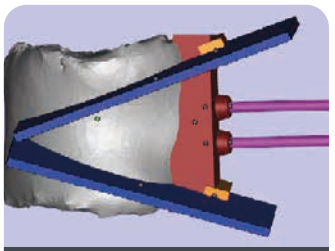
Utilizing patient-specific 3D imaging data, the system pre-plans screw trajectories and customizes guide fit, enhancing placement accuracy.

Example 2 : Total Knee Arthroplasty (TKA)

Improves knee alignment, reduces surgery time and complications.

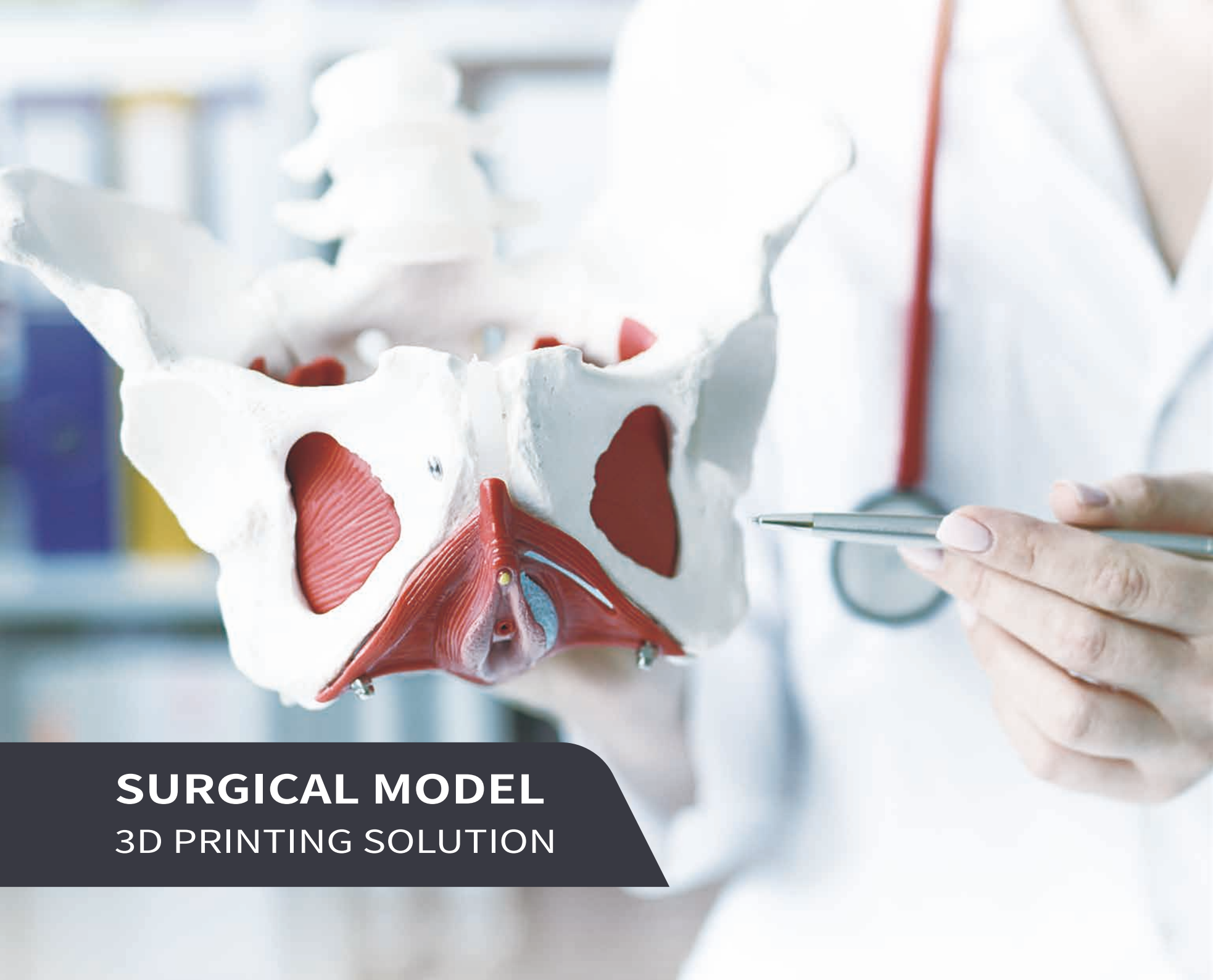


Pedicle Screw Guide


Spinal Osteotomy Guide


Nerve Sheath Tumor Guide


Positioning Template


Dental Cutting Guide



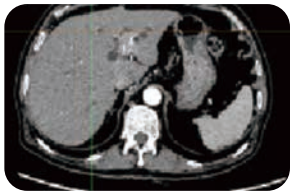
SURGICAL MODEL

3D PRINTING SOLUTION

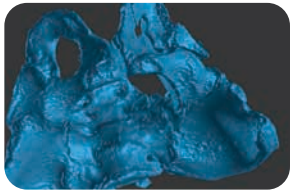
PROGRAM
PROCESS

Pelvic Surgical Model

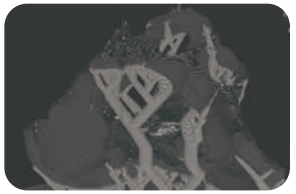
01 Data Acquisition



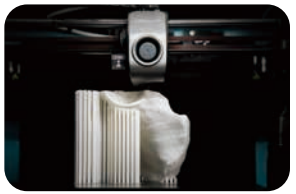
02 3D Model Reconstruction



03 Surgical Model Design



04 3D Printing



05 Final Production

06 Preoperative Planning

PRODUCT INTRODUCTION

GS-01

FDM 3D Printer for Surgical Models

600 mm/s — High-speed Printing

32 mm^3/s — High-flow Hotend

Vibration/Layer Pattern Optimization

Forming technology	FDM
Build volume	300×300×300mm
Print speed	600mm/s
Acceleration	<20000mm/s²
Printing accuracy	100+0.1mm
Layer thickness	0.1-0.35mm
Nozzle diameter	0.4mm(optional 0.6/0.8mm)
Nozzle temperature	<320°C
Heated bed temperature	120°C
Printing method	USB/Ethernet/Cloud Printing/LAN
Materials	ABS/PLA/PETG/PET/TPU/PA/ABS/ASA/PC/ PLA-CF/PA-CF/PET-CF

PS-600D

SLA 3D Printer for Surgical Models

High-precision Printing

High Success Rate

Low Printing Cost

24h — Continuous Printing

Technology type	SLA Stereolithography Technology
Build volume	600mm(X)×600mm(Y)×400mm
Device dimensions	1160×1300×1950mm
Printing accuracy	±0.1mm (L≤100mm) or ±0.1%×L (L>100mm)
Resin wavelength	355nm
Optical scanning system	High-precision Galvanometer Scanning System (Max. 18m/s)
Device weight	900kg (Includes Full Resin Tank)
Power requirements	2KW AC220V, Power:5000mW;
Material package	White Photosensitive Resin: 240kg (Initial 230kg + 10kg Refill)

Z-axis: Ball screw and linear guide system, servo motor with brake
XY-axis: Dual-drive frame system, granite platform, closed-loop motor control

SURGICAL MODEL APPLICATION

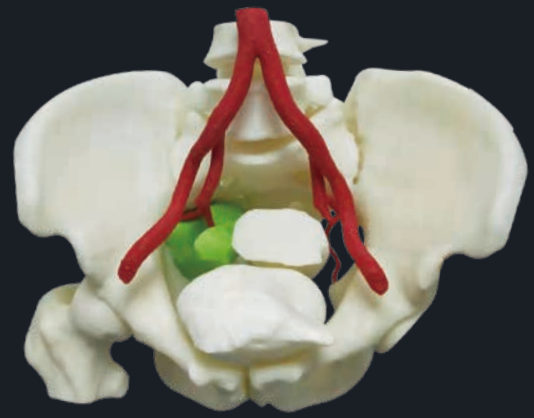
Visualize Medical Information

Designs and prints surgical models with various pathologies for preoperative planning and simulation.

Example: Bone Tumor Resection Surgery

MRI detected a large pelvic bone tumor, requiring surgical removal.

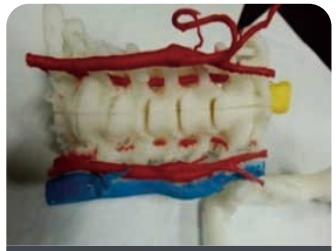
Preoperative recommendation: Create a 3D-printed model of the tumor, aorta, and adjacent structures for intraoperative reference.



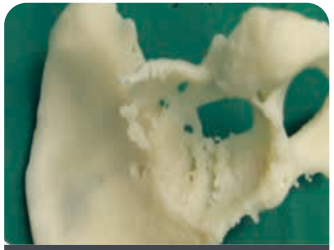
Clinical results demonstrate that the 3D models reduced surgery time, bleeding, drainage, and improved precision and outcomes.

Clubfoot

Jaw Reconstruction



Nerve Sheath Tumor



Acetabular Revision

Renal Tumor

Spinal Tumor

Scoliosis

Breast Tumor

WORRY-FREE SERVICE SYSTEM

COMPREHENSIVE SERVICE AND TECHNICAL SUPPORT

3D printer operation

Slicing software operation

3D printing technology training

Provide 7*12 hours online technical support service

Free upgrade and inspection of product software failures

Product failure free detection

The product provides a one year warranty from the date of arrival

24-hour after-sales service mailbox after@piocreat3d.com

Professional after sales expert to follow up

Technical support
after@piocreat3d.com