PIOCREAT

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3D PRINTING SOLUTIONS FOR MEDICAL APPLICATIONS

Shenzhen Piocreat 3D Technology Co., Ltd.

REHABILITATION MEDICAL

Insole customization solution, make your feet healthier.

Designed specifically for foot health

Abnormalities of the feet
Flat feet, High arches Hallux valgus, Calcaneus valgus, Plantar fasciitis, forefoot pain, etc.

Abnormal gait
pigeon toes, knee hyperextension, etc.

Abnormal body posture
Lumbar lordosis, uneven shoulders, O/X legs, hunchback, etc.

Daily health care
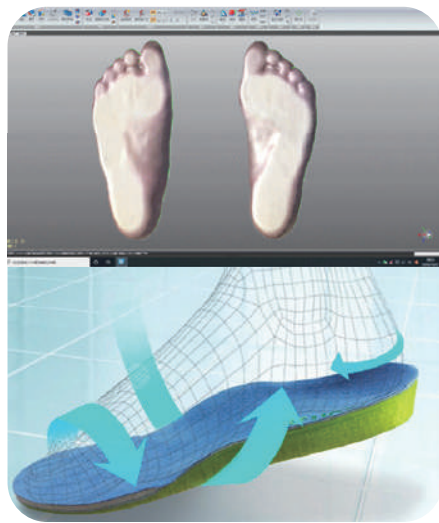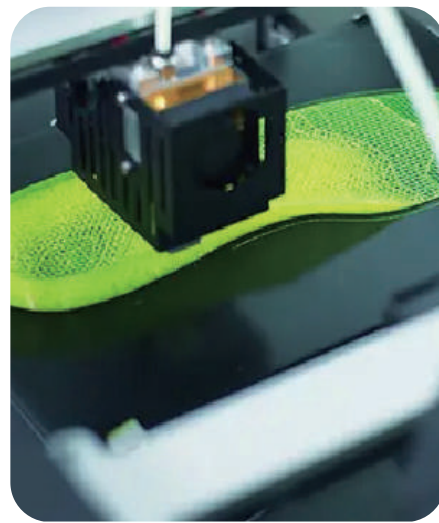Relieve foot fatigue and prevent sports injuries.

Gait analyzer FD 01
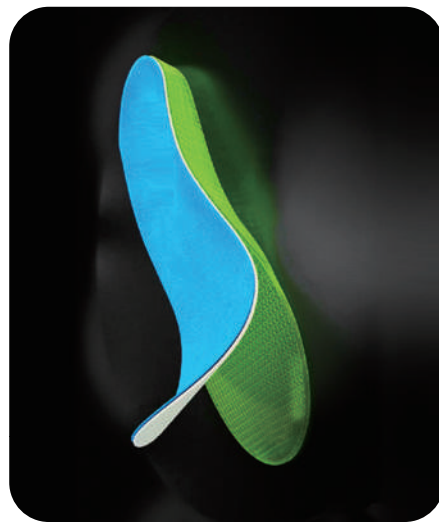
3D smart foot scanner FS B002

Data analysis

Customized design

3D printing insoles TP 450

Insole veneer production

Polished insoles

Gait analyzer
FD 01

3D smart foot scanner
FS B002

Guided testing

Get footprints

system calculations

Solution generation

3D scan digital technology

Data analysis and diagnosis

3D foot model
Foot size measurement
Foot shape detection
Flat foot assessment
Foot eversion assessment
Foot Health Digital Archives
Smart screen interaction
AI foot health solution
Merchant management backend

Insole design

Personalized delivery
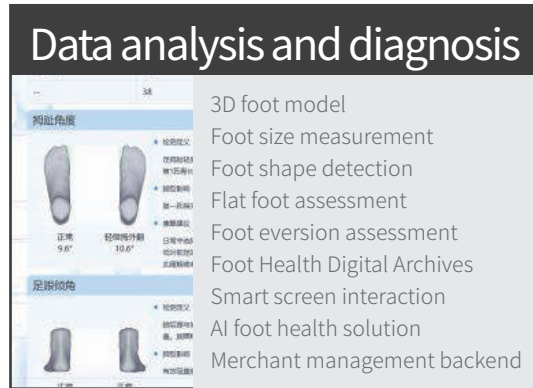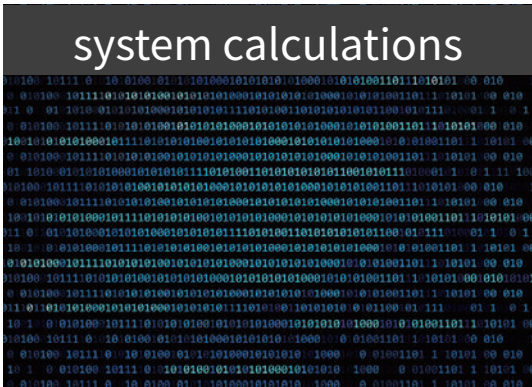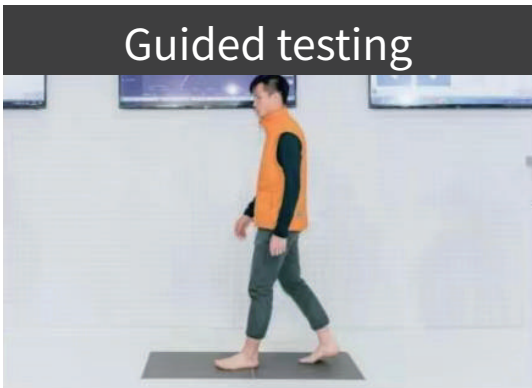
FS B002

3D smart foot scanner

Understand foot health in 1 second

- **Precision -** Millimeter-level precision 3D infrared structured light technology
- **Efficient -** Extremely fast scan in 1 second, report generation in 5 seconds
- **Comprehensive -** 30+ items of foot data, 1:1 real 3D model
- **Safety -** Non-contact scanning, safe, stable and harmless
- **Convenient -** Supports external screen display terminals

| Product:	3D smart foot scanner FS B002
Principle:	Equipped with multiple sets of structured light cameras to collect high-quality depth images within the range, and equipped with independently developed data algorithms to achieve the purpose of scanning analysis.
Diagnostic items:	Foot length, foot width, toe circumference, metatarsal circumference, ankle circumference, heel length, heel width, inner arch height, instep height, toe shape, foot width index, sole analysis, big toe angle, heel inclination angle, shoe size
Accuracy:	±5mm
Scan speed:	1 second
Number of point clouds:	Number of point clouds: about 2 million, point cloud density: about 28 points/cm^2
Measuring range:	400mm (L)×400mm (W)×150mm (H)
Suitable foot length:	5cm-30cm
Equipment size:	700mm((L) × 700mm((W) × 460mm(H) Coverage area: about 0.49m^2
G.W.:	65.3KG (including the weight of armrests and brackets)
Touch monitor(optional):	Size: 21.5", Resolution: 1080*1920, capacitive touch, supports multi-touch
Hardware Configuration:	CPU: AMD5600U six-core/twelve-thread base/maximum frequency: 2.60-4.20 GHz Memory: DDR4 SO-DIMM3200MHz 8G Storage: SATA128GSSD Power supply:AC 100-240V50/60Hz

TP 450

FDM 3D printer

Fast printing with independent dual nozzles

- **Special nozzle**
  The proximal elf extrusion nozzle structure specially developed for flexible material makes the extrusion more stable.
- **Independent dual nozzles**
  The two nozzles are independent. Copy and Mirror printing are available.
- **Hidden industrial electronic control system**
  Improve safety in operation.
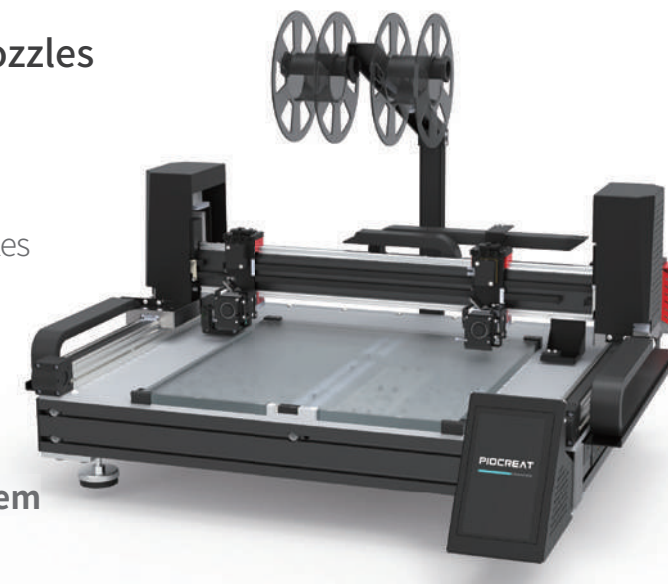
Product model:	TP450	Support material:	TPR/TPU/PLA
Molding technology:	FDM	Number of nozzles:	2
Machine size:	895×835×680mm	Nozzle diameter:	0.4mm(0.2,0.6,0.8mm optional)
Print size:	450×450×45mm	Nozzle temperature:	≤260℃
Package Size:	976×800×568mm	Printing method:	U disk, SD card, USB connection
N.W.:	80KG	Operation interface:	English/Chinese
G.W.:	100KG	Supported formats:	STL, OBJ, Gcode
printing speed:	30-80mm/s(TPR/TPU) | 50-150mm/s(PLA)	Slicing software:	Piocreat_slicer
Printing accuracy:	100±0.1mm	Operating system:	WIN, MAC, Linux
Layer thickness:	0.1-0.4mm	Power supply:	Input AC200-240V and output 24V
Filament diameter:	1.75mm	Rated power:	350W

Scoliosis solutions, build a beautiful body.

Customized spinal orthotics

- Light weight
- Close-fitting plasticity
- Breathable and comfortable
- Personalized appearance
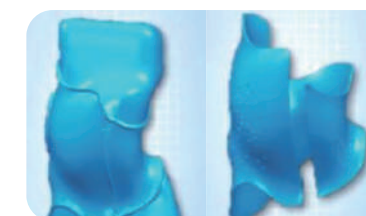
3D printed scoliosis orthotic production process

01
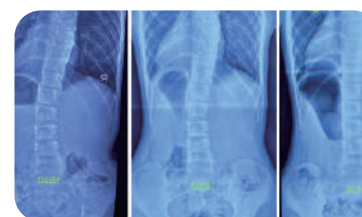High-precision 3D scanning system

02
Body surface three-dimensional data
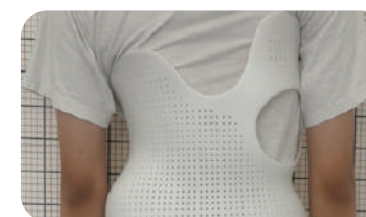

03
Shape shaping and brace design

06
Comparison of before and after orthopedic

05
Patient wears brace

04
Dedicated 3D printing model

Data collection ≫ **Digital design** ≫ **Orthopedic wearing** ≫ **Fit adjustment**

MS 01

FGF fully enclosed 3D printer

High-temperature pellet 3D printing

Fully enclosed chassis
Constant temperature work environment, good molding effect. Available for high temperature material printing.

Industrial Grade Nozzle Kit
Nozzle temperature≤400℃

Large printing size
500×500×650mm

Material break detection
Add pellets and continue printing

Product model:	MS 01	Print layer thickness:	0.5-1.5mm
Molding technology:	FGF	Printing material:	High temperature composite materials
Print size:	500×500×650mm	Discharging mechanism:	screw extruder
Machine size:	870×970×1521mm	Particle diameter:	2-5mm
Package Size:	1036×990×1670mm	Printing method:	USB disk
N.W.:	274KG	Operation interface:	Chinese/English
G.W.:	324KG	Heating bed temperature:	≤110℃
Number of nozzles:	1	Power requirements:	100-120V~, 200-240V~, 50/60Hz
Nozzle temperature:	≤400℃	Rated power:	4200W
Printing accuracy:	100±0.1mm	Slicing software:	Piocreat_slicer
Nozzle diameter:	1.0mm(2.0,3.0,4.0mm optional)		

Customized spine orthosis

Three-dimensional scanning completely avoids the shape-taking errors caused by traditional plaster negative and positive molds, captures a high-precision three-dimensional data model of the human body, and perfectly matches the X-ray film.

Slim Fit
3D printing integrated molding, high plasticity, providing good correction effect

Super Cool
Full-body breathable design, 50% hole design, Breathable and comfortable

Light Weight
Improved Cheneau brace, with partially unequal thickness design, the thickness is reduced by 20%, and the average weight is only about 530g.

Custom Design
Customized hole patterns
Customized signature

Master Piece
Design - Exclusive cooperation with master orthopedic experts, tailor-made and perfectly presented.
Materials--Imported high-grade raw materials, passed biocompatibility test, skin-friendly.
Technology - high Level 3D printing equipment, high molding strength, improved correction effect.
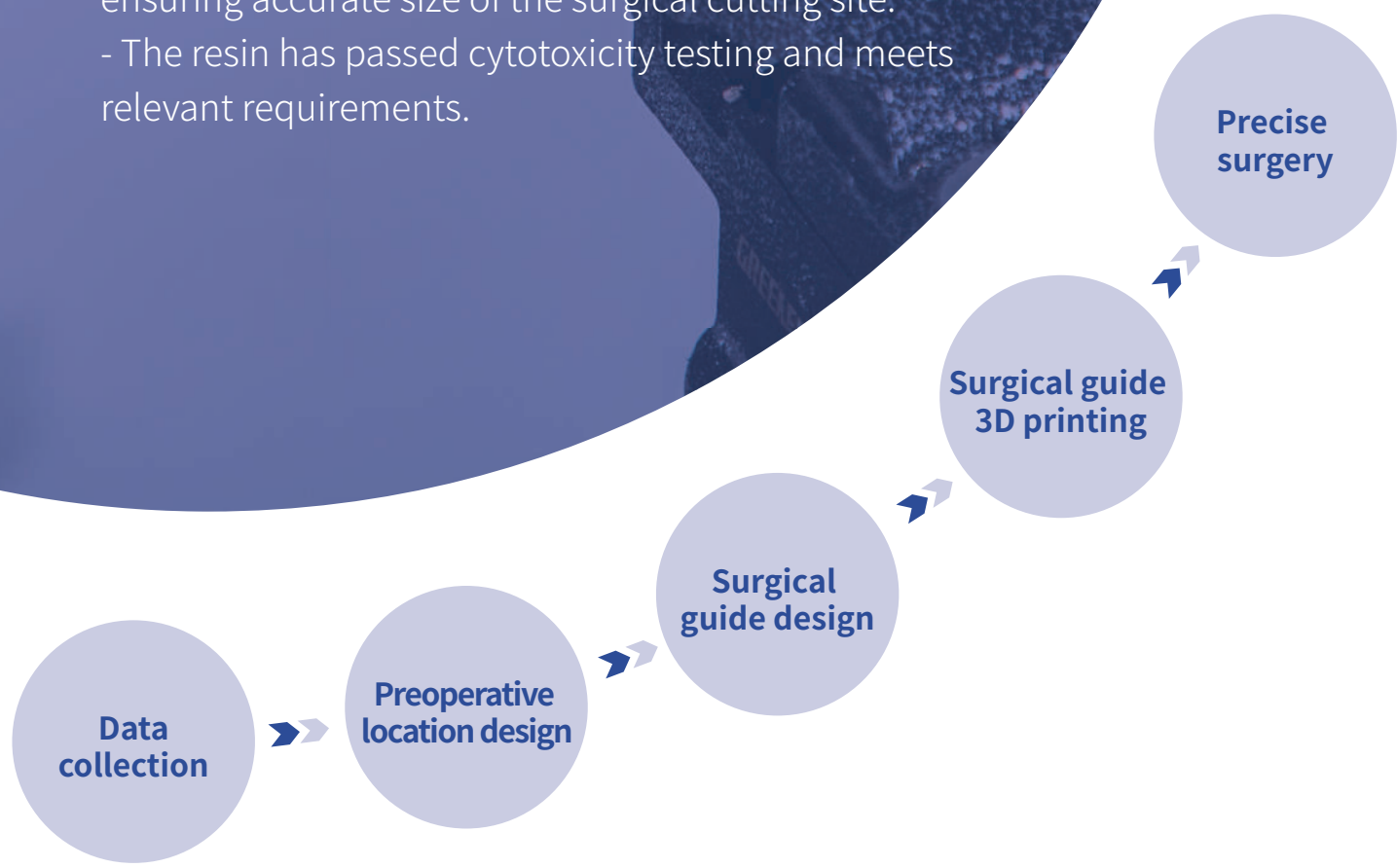
- Hollow design
- High performance special materials
- Not easy to break after long-term use
- Fits the patient's body nearly perfectly
- Easy to wear
- Breathable and comfortable
- Effectively solve the problem of wearing in summer.

Surgical Guide Solutions, make surgery more precise.

Surgical navigation physical template

- Piocreat patented Surgical Guide Resin Pro,
easy molding, high strength, and good toughness.
- The guide plate is not easy to break during surgical cutting,
ensuring accurate size of the surgical cutting site.
- The resin has passed cytotoxicity testing and meets
relevant requirements.

Data collection → **Preoperative location design** → **Surgical guide design** → **Surgical guide 3D printing** → **Precise surgery**

MG 01
LCD 3D printer

29μm high-precision 3D printer

High uniformity integral light source
High light uniformity, better than parallel light sources

385nm wavelength high-precision molding
10.3" 8K monochrome screen

Highly stable Z-axis
Z-axis dual linear guide + ball screw
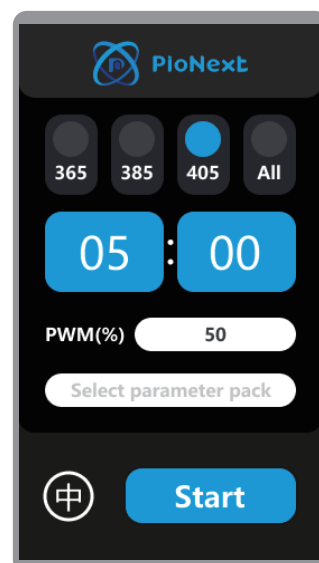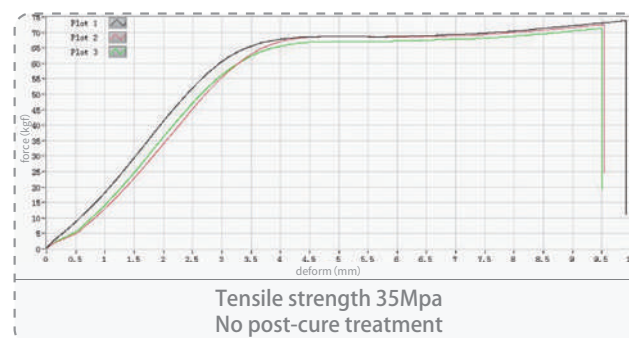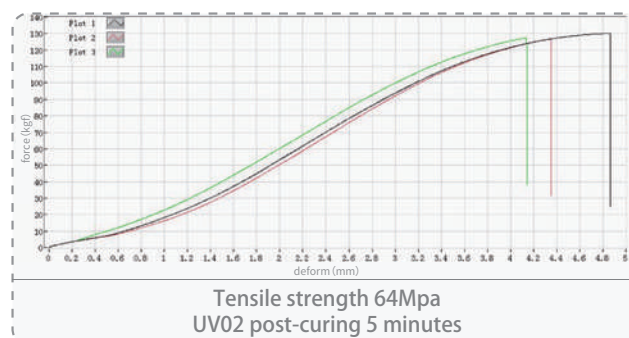dual configuration has higher positioning accuracy

Product model:	MG 01	Print size:	228×128×200mm
Molding technology:	LCD	Resolution:	7680*4320
Printing speed:	70mm/h (0.05mm)	Wavelength:	385nm
Layer thickness:	0.01-0.1mm	File format:	cxdlpv4
XY axis accuracy:	29μm	Connection method:	USB disk, WIFI
Print screen:	10.3" 8K monochrome screen	Package Size:	480×425×720mm
Rated voltage:	100-120V~/200-240V~, 50/60Hz	Machine size:	340×292×552mm
Rated power:	300W	N.W.:	15.77KG
Operating system:	Piocreat BOX (Win7 or above X64, Mac)	G.W.:	20.55KG
Device language:	13 languages		
Printing material:	Surgical guide resin pro, High fidelity model resin, rigid resin, water-washable resin, PLA bio-based resin, flexible resin, ABS-like resin, highly transparent resin, compatible with third-party resin		

UV02

High-speed curing machine

Adjustable light intensity

- **Fast cure**
  Normally 1-5 minutes

- **Light intensity adjustable**
  Adjustable light intensity: 5%-100%

- **Preset and customizable cure settings**
  8 sets of regular curing data

Tensile strength 64Mpa
UV02 post-curing 5 minutes

Tensile strength 35Mpa
No post-cure treatment

Product model:	UV02
Machine color:	White
Cured size:	D180×H120mm
Machine size:	366×300×250mm
Package Size:	464×386×334mm
Rated power:	360W
Input voltage:	100-120V~/200-240V~,50-60Hz
Adjustable light intensity:	5-100%
Adjustable curing time:	00:01 - 30:00(Max.30min)
Machine net weight:	11KG
Machine gross weight:	14KG

SG Pro

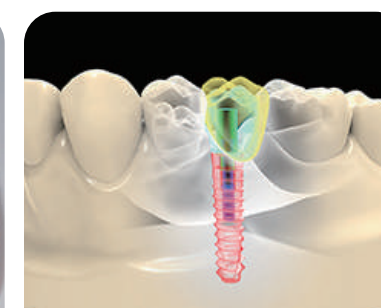## Surgical guide resin pro(Dental/Medical)

High transparency, high elongation at break and high impact strength

- **High transparency**
  Improve the accuracy and safety of surgery.

- **High strength and toughness**
  It deforms without breaking when subjected to external force.

- **High impact strength**
  Able to withstand greater force and pressure.

Measurement	Test method	Value
Viscosity, cps (@25℃)	ASTM D 2196	700-900
Density, g/cm³ (@25℃)	ASTM D 792	1.05-1.10
Hardness, Shore D	ASTM D 2240	75-80
Flexural modulus, Mpa	ASTM D 790	1000-1200
Flexural strength, Mpa	ASTM D 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**
Impact strength,notched Izod, J/m	ASTM D 256	**240-300**
Heat deflection temperature, ℃	ASTM D648 @66PSI	60-70

Preoperative tooth position design

Design of the ideal three-dimensional position of implants

Dental surgery guide plate production completed

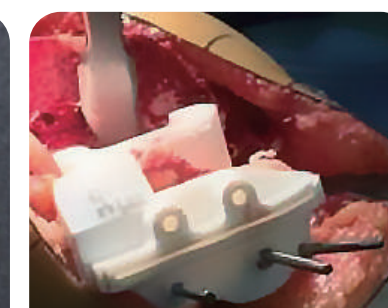Precision minimally invasive implant surgery

Surgical guide resin toughness test

Medical surgical guide

Preoperative location design

Precise surgery

Surgical model solution, medical information visualization.

Using digital technology to assist clinical care

- It can visualize the tissue structure of complex patient parts and optimize the design of surgical plans.
- Facilitates preoperative communication of surgical plans and surgical rehearsals
- Reduce surgical risks, shorten surgical time, reduce blood loss, and improve surgical treatment effects

Precision medicine

Surgical planning, pre-surgery

3D printing molding

3D digital model rebuilding

Data collection

MGS01

Special for surgical model applications

12x faster, more efficient

- **12x faster, more efficient**
  The printing speed is up to 600mm/s and the acceleration is up to 20000mm/s^2.

- **32mm³/shigh flow hot nozzle**
  Heating to 200°C in 40s ensures that the consumables are fully melted during high-speed and high-temperature printing.

- **Vibration/Layer optimization**
  Built-in vibration sensor which can control resonance and optimize layer texture.

Product model:	MGS01	Filament diameter:	1.75mm
Molding technology:	FDM	Nozzle diameter:	0.4mm (optional 0.6/0.8mm)
Print size:	300×300×300mm	Nozzle temperature:	≤320°C
Machine size:	435×462×526mm	Heating bed temperature:	≤120°C
Package Size:	545×545×665mm	Printing platform:	Flexible print platform
N.W.:	18KG	Printing method:	USB disk printing/Ethernet/Cloud printing /LAN printing
G.W.:	23KG	Rated voltage:	100-240V ~, 50/60Hz
Printing speed:	≤600mm/s	Rated power:	1000W
Acceleration:	≤20000mm/s²	Support material:	ABS/PLA/PETG/PET/TPU/PA/ABS/ASA/PC/ PLA-CF/PA-CF/PET-CF
Printing accuracy:	100+0.1mm	Print file:	G-Code
Print layer thickness:	0.1-0.35mm	Slicing software:	Piocreat_slicer
Extruder type:	Dual gear proximal extruder	Slice file format:	STL/OBJ/AMF
Supported functions:	AI camera/AI lidar/resuming operation after power outage/material break detection/air purification /vibration pattern optimization/lighting/automatic sleep		

Surgical model

It can be used for preoperative surgical planning or surgical rehearsal, as well as preoperative matching of individualized implants.
Surgical training models for various disease states can be designed and printed according to the doctor's requirements.
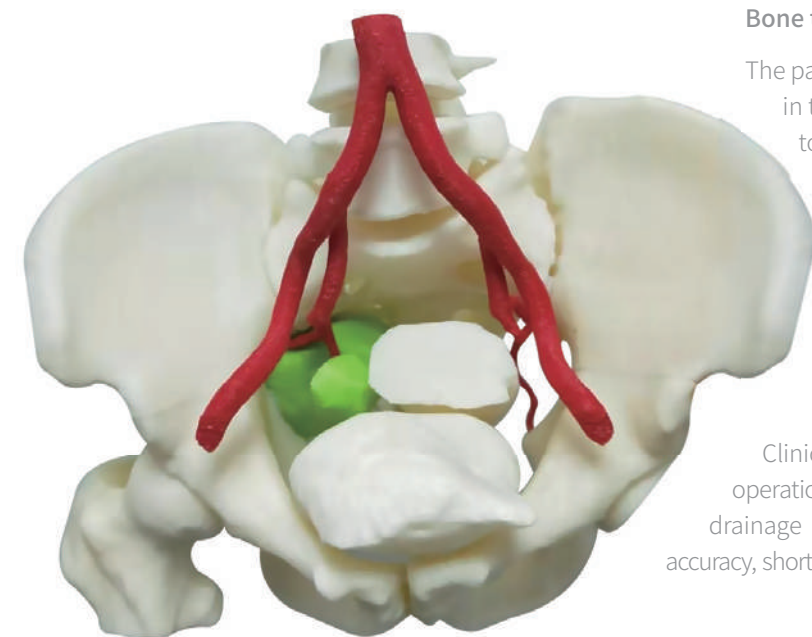
Bone tumor resection surgery

The patient's MR examination revealed a huge bone tumor in the pelvis, and he was subsequently scheduled to be hospitalized for surgical removal.

In order to have a reference to the actual size of the tumor during surgery, doctors recommend that 3D printing be used to create a model including the tumor, aorta, and adjacent parts in vitro before surgery for intraoperative reference.

Clinical results show that the 3D model group has shorter operation time, less intraoperative bleeding and postoperative drainage than the non-3D model group, improves surgical accuracy, shortens operation time, and achieves better surgical results.

Other surgeries

Medical information visualization, using digital technology to help individualize, precise, and minimally invasive clinical care.
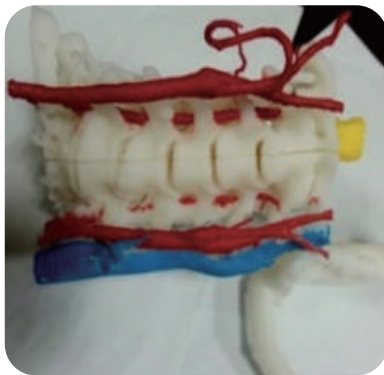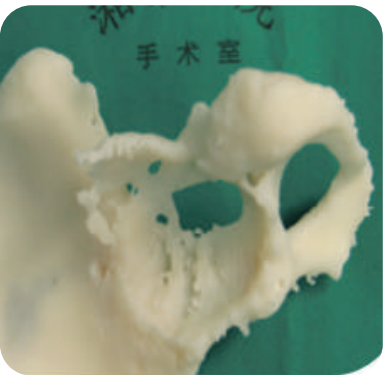

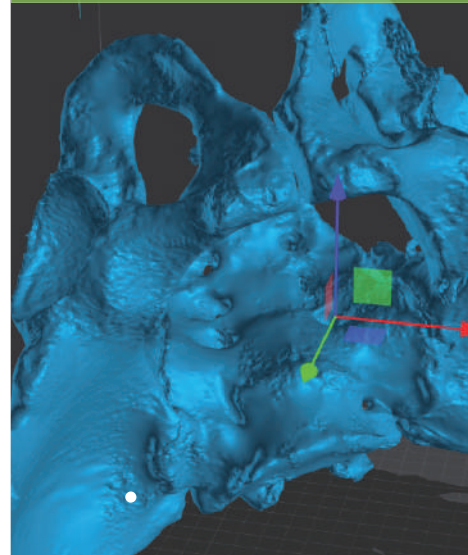| Clubfoot | Jaw reconstruction | Kidney tumor | Spinal tumors |

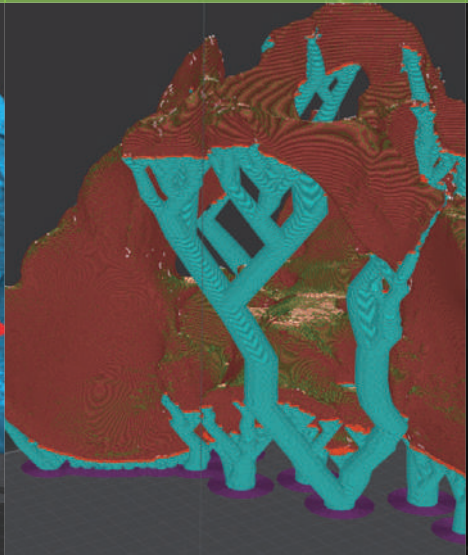| Nerve sheath tumors | Acetabular revision | Scoliosis | Breast tumors |

| Model design | Model slices | 3D printing model | Model design | 3D printing model |