BMF
BOSTON MICRO FABRICATION

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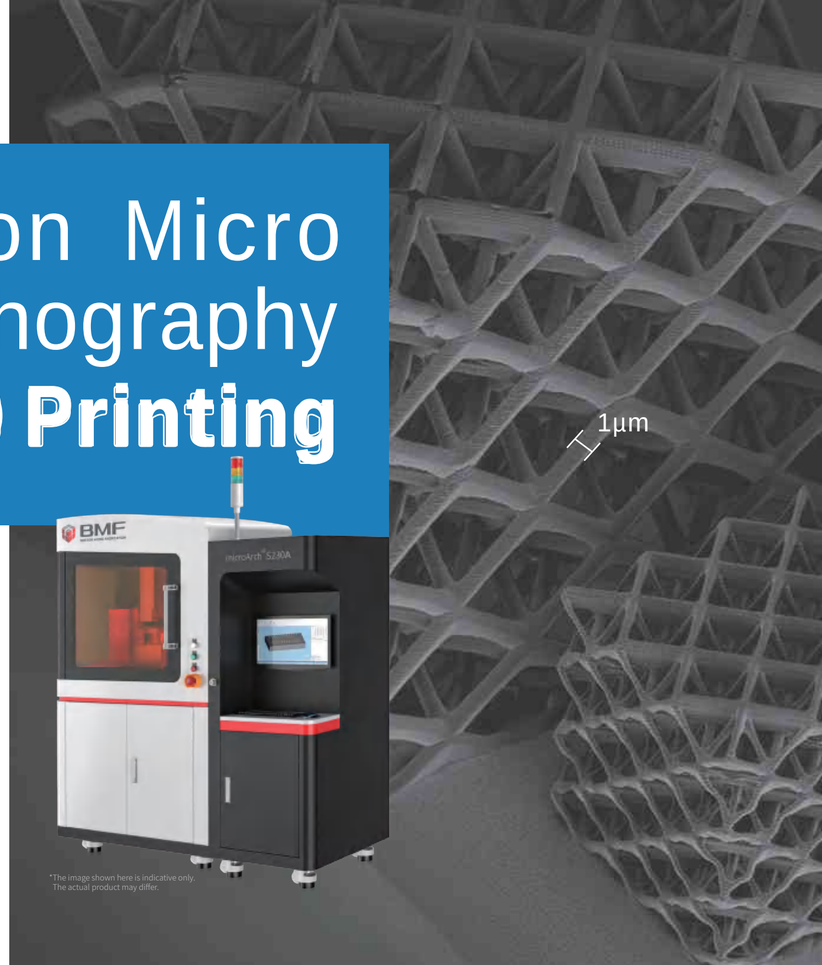
BMF Precision Tech Inc.

BMF
BOSTON MICRO FABRICATION

Projection Micro Stereolithography
Micro 3D Printing

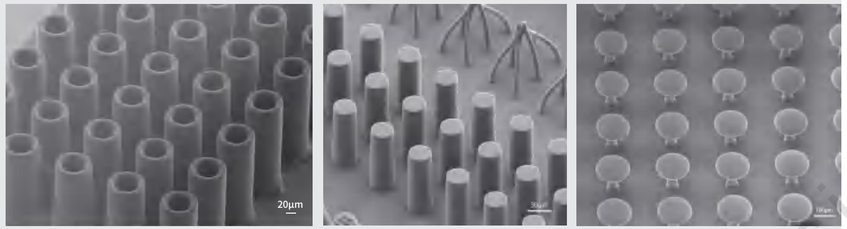


*The image shown here is indicative only.
The actual product may differ.

PμSL:
Projection Micro Stereolithography

Ultra-high resolution:
2μm/10μm/25μm

MICRO SCALE
3D PRINTING CAPABILITY



CATALOG

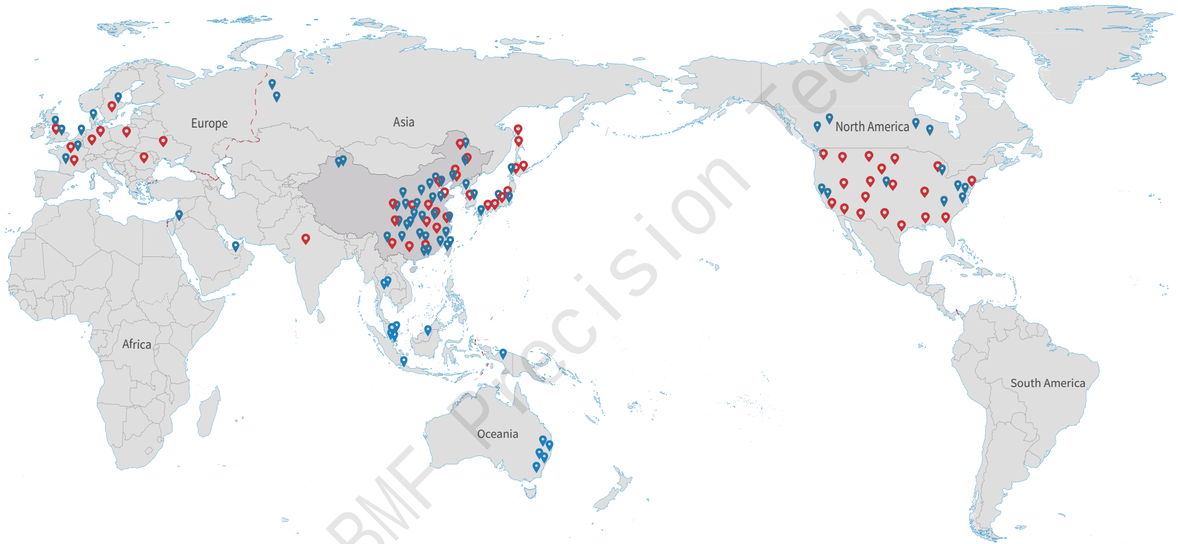
BMF Precision Tech Inc.

ABOUT US

Founded in 2016, Boston Micro Fabrication (BMF) is the world leader in advanced additive manufacturing solutions based on Projection Micro Stereolithography (PμSL) technology. Many leading companies worldwide are adopting PμSL to 3D print true microstructures with ultra-high printing resolution (2μm to 50μm) and printing tolerance (+/- 10μm to +/- 25μm).

Micro-precision 3D printing is the optimal manufacturing process for various use cases across a wide variety of industries. BMF empowers companies with complete design freedom to enable the creation of geometries that can be manufactured no other way. The combination of ultra-high resolution, accuracy, and precision allows for more intricate, exact, and replicable parts, at scale and tolerances that match those of micro injection molded parts.

CUSTOMER MAP



BMF Precision Tech Inc.

THE FIRST MICRO-PRECISION 3D PRINTER WITH 2μm RESOLUTION

2500
Customers From

40
Countries Globally Have Chosen BMF

WELL-KNOWN CUSTOMERS

Massachusetts Institute of Technology
University of Pennsylvania
Johns Hopkins University
Technical University of Munich
KTH Royal Institute of Technology
University of Leeds

The University of Sydney
Deakin University
University of Tasmania
Nanyang Technological University
National University of Singapore

The University of Tokyo
Waseda University
Pohang University of Science And Technology
Sungkyunkwan University
Ulsan National Institute of Science and Technology

Tsinghua University
Peking University
Zhejiang University
The University of Hong Kong
The Chinese University of Hong Kong
The Hong Kong University of Science and Technology

CERTIFICATIONS AND HONORS

ISO9001

CE

reddot award 2019 winner

Reddot Award

2021 SPIE Photonics Prism Awards

TCT Hardware Award Polymer Systems

PμSL 3D PRINTING SOLUTION

TECHNOLOGY

PμSL (Projection Micro Stereolithography), a technique that allows for rapid photopolymerization of an entire layer of liquid polymer using a flash of UV light at micro-scale resolution.

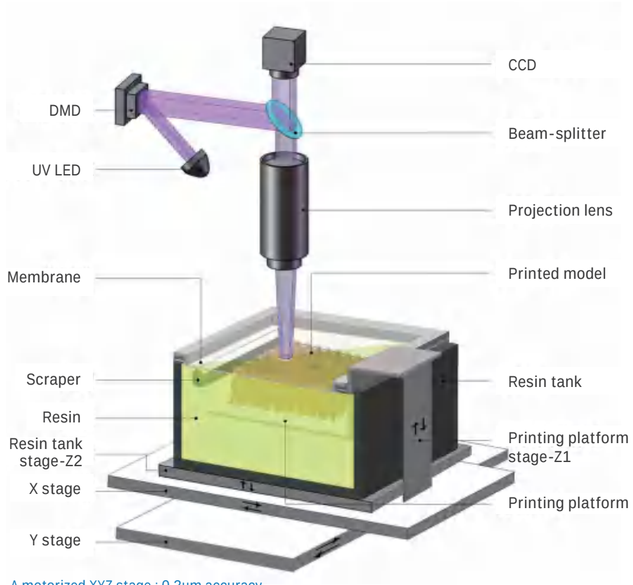
The superior production of intricate, exact, and replicable parts makes PμSL optimal for end-part and prototyping use cases across a wide range of industries, including medical device manufacturing, microfluidics, MEMS, biotech and pharma, electronics, education, and research and development.

INNOVATION

1.Technological innovations: advanced roller system (minimum layer thickness of 5μm), three-dimensional structure stitching technology (cross-scale processing), 2μm ultra-high-precision 3D printing technology; hybrid-precision 3D printing technology (dual-precision automatic switching of intra-layer and inter-layer).

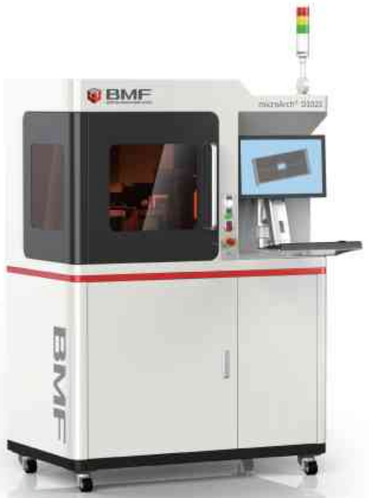
2.Mechanical innovations: ultra-high printing resolution (2μm - 25μm), large printing area, intelligent recognition of structural resolution and automatic switching of printing resolution.

PRINTING SCHEMATIC DIAGRAM



A motorized XYZ stage : 0.2μm accuracy

microArch® D0210



microArch® D1025

HYBRID RESOLUTION 3D PRINTING TECHNOLOGY

Powered by PμSL and based on BMF's new hybrid resolution technology, the dual resolution D0210 and D1025 print in either single resolution (2μm or 10μm for D0210; 10μm or 25μm for D1025), or in hybrid mode with both resolutions in the intra-layer or in the inter-layer. With improved built-in automation, this capability enables greater e□ciency – saving time, resources and cost. Delivering the same ultra-high resolution, accuracy and precision BMF is known for, the new dual-resolution series will revolutionize the prototyping and production of parts requiring micron-level precision and repeatability.

2μm&10μm SERIES

microArch®

D0210

CE

*The image shown here is indicative only. The actual product may differ.

SYSTEM SPECIFICATIONS

Specifications	microArch D0210
Light Source	UV LED(405nm)
Printing Material	Photosensitive resin/ceramic slurry
Optical Resolution	2μm and 10μm
Layer Thickness	5-40μm
Build Size	Mode 1: Single exposure - 2μm: 5.42 mm(L)×3.2 mm(W)×50 mm(H) ; 10μm: 27.16 mm(L)×16 mm(W)×50 mm(H) Mode 2: Stitching exposure - 100mm(L)×100 mm(W)×50 mm(H) Mode 3: Micro array - 100mm(L)×100mm(W)×50 mm(H)
Input Data File Format	STL
External Dimensions	1560mm(L)×1240mm(W)×1940mm(H)
Total Weight	900kg
Power Supply	220~240V AC, 50/60Hz, 2kW

HIGHLIGHTS

- **2μm and 10μm automatic switching:** Intelligently identify the fine features of complex structures, and realize automatic precision switching within and between layers to ensure accurate production of every single detail.
- **Improved DLP projection:** Two di□erent resolutions with larger projection zones resulting in faster print times while still producing high-precision parts.
- **Automatic calibration system:** Quickly and automatically calibrate the level of the platform, membrane, and roller, decreasing printer turnover time.
- **Automatic printing parameters:** Print settings for roller frequency and resin leveling delay times are automatically set according to the printing area and material viscosity when using automatic mode. Users still have full manual control if desired.
- **Scraper and roller:** Eliminate air bubbles and reduce leveling time.
- **Resin vat heating system:** Suitable for more complex environments and diverse materials.

Precision Tech Inc.

10μm&25μm SERIES

microArch®

D1025

*The image shown here is indicative only. The actual product may differ.

SYSTEM SPECIFICATIONS

Specifications	microArch D1025
Light Source	UV LED(405nm)
Printing Material	Photosensitive resin/ceramic slurry
Optical Resolution	10μm and 25μm
Layer Thickness	10-50μm
Build Size	Mode 1: Single exposure - 10μm: 27.16 mm(L)×16 mm(W)×75 mm(H); 25μm: 67.9 mm(L)×40 mm(W)×75 mm(H) Mode 2: Stitching exposure - 100mm(L)×100 mm(W)×75 mm(H) Mode 3: Micro array - 100mm(L)×100mm(W)×75 mm(H)
Input Data File Format	STL
External Dimensions	1350mm(L)× 900mm(W)×1950mm(H)
Total Weight	500kg
Power Supply	220~240V AC, 50/60Hz, 1.4kW

HIGHLIGHTS

- **10μm and 25μm automatic switching:** Intelligently identify the fine features of complex structures, and realize automatic precision switching within and between layers to ensure accurate production of every single detail.
- **Improved DLP projection:** Two different resolutions with larger projection zones resulting in faster print times while still producing high-precision parts.
- **Automatic calibration system:** Quickly and automatically calibrate the level of the platform, membrane, and roller, decreasing printer turnover time.
- **Automatic printing parameters:** Print settings for roller frequency and resin leveling delay times are automatically set according to the printing area and material viscosity when using automatic mode. Users still have full manual control if desired.
- **Automatic resin adjustment:** Automatically and accurately adjust resin (viscosity＜500 cPs) amount in vat to achieve a suitable resin level height.
- **Magnetic platform:** Easy to install and remove printing platform for quicker production turnaround time.
- **Side-shifting membrane:** No need to remove or reinstall the membrane in between builds, which increases uptime.
- **Scraper and roller:** Eliminate air bubbles and reduce leveling time.
- **Resin vat heating system:** Suitable for more complex environments and diverse materials.

APPLICATIONS

BMF Precision Tech Inc.

01

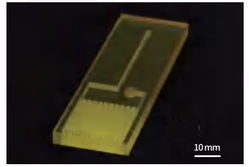
Demo Parts

Features:
Sample size: 85 x 60 x 17 mm³

10μm and 25μm automatic switching: Bucky balls and lattices (10μm resolution), base plate (25μm resolution)

Diameter of rods: Bucky ball 150μm, mechanical lattice 200μm

02



Microfluidics Chip

Application fields:
Microfluidics, Drug Screening, Biological Detection

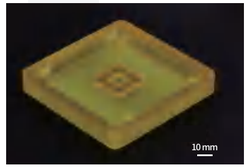
Features:
Sample size: 25 × 82 × 4.5 mm³

5 layers of porous microchannels, each layer is arranged in circles and rectangles at intervals.

Circular diameter: 500μm; Rectangle diameter: 200μm

20% higher printing efficiency than 10μm resolution system

03



Chip Array Socket

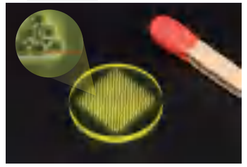
Application fields:
Electronics

Features:
Sample size: 90 × 90 × 14 mm³

The hole diameter increases at equal intervals of 50μm from the inside to the outside.

Minimum diameter: 100μm, tolerance: ±25μm

04



Multichannel Hollow Microneedle

Application fields:
biomedicine, drug delivery, bio-sensing

Features:
Sample size: 8x8x2mm³

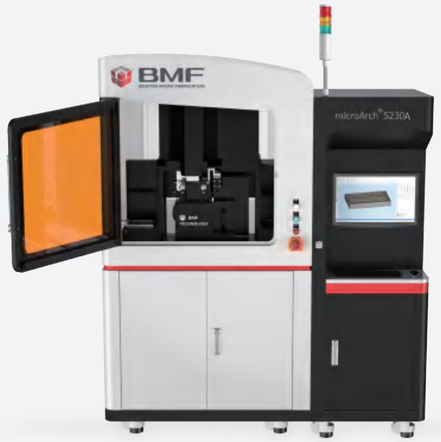
Diameter of channel: 40-100μm

Microneedles printed in 2μm resolution; Base plate printed in 10 μm resolution.

2μm SERIES

microArch®
S230A

CE



*The image shown here is indicative only.
The actual product may differ.

SYSTEM SPECIFICATIONS

Specifications	microArch S230A
Light Source	UV LED(405nm)
Printing Material	Photosensitive resin/ceramic slurry
Optical Resolution	2μm
Layer Thickness	5~20μm
Build Size	Mode 1: single exposure mode 3.84mm(L)×2.16mm(W)×50mm(H) Mode 2: stitching exposure mode 50mm(L)×50mm(W)×50mm(H) Mode 3: micro array mode 50mm(L)×50mm(W)×50mm(H)
Input Data File Format	STL
External Dimensions	1720mm(L)×750mm(W)×1820mm(H)
Total Weight	660kg
Power Supply	220~240V AC, 50/60Hz, 2kW

HIGHLIGHTS

- **Ultra-High resolution:** 2 μm optical resolution;
- Advanced roller system spreads layers in seconds, resulting in a build speed of up to 5× faster;
- Ability to handle higher viscosity materials (up to 5,000cps), resulting in the production of stronger, functional parts;
- **High precision moving system that comes with motorized XYZ stage :** ±0.2μm accuracy;
- Equipped with air-floated platform to improve printing quality;
- Excellent light source stability;
- Powerful printing software and slicing software that support parameters modification.

APPLICATIONS

01

Vascularized Biochip

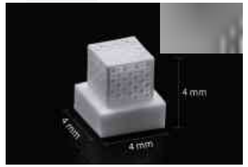
Application Field:
Disease modelling, new drug development, physiological modelling

Features:
Sample size: 18 x 10 x 5 mm³

Composed of 5 layers of flow channels, each layer has 14 parallel perfusion vascular-like channels.

Each channel has interfacial trapezoidal pores (size: 7-10μm) spaced at 300μm intervals.

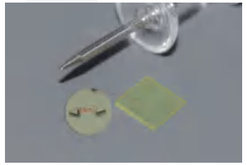
02



Ceramic Lattice

Features:
Sample size: 4 × 4 × 4 mm
Diameter of rods: Min. 50μm

03



Bow-tie Structure Microarray

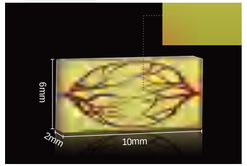
Application Field:
Terahertz detection, sensing

Features:
Sample size: 5 x 5 x 0.5 mm³

Can apply Weyl semimetal thin film to get a terahertz wave detector with high sensitivity and a large e□ective detection area.

IEEE SENS J, 24(10):16040-16046.(2024)

04



Ultra-high Precision Microfluidics

Features:
Sample size: 10 × 6 × 2 mm³
Diameter of channels: Min. 18μm

BMF Precision Tech Inc.

2μm SERIES

microArch®
S130

CE

*The image shown here is indicative only.
The actual product may differ.

SYSTEM SPECIFICATIONS

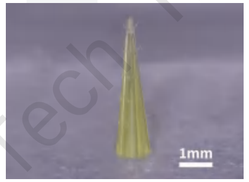
Specifications	microArch S130
Light Source	UV LED(405nm)
Printing Material	Photosensitive resin
Optical Resolution	2μm
Layer Thickness	5~20μm
Build Size	Mode 1: single exposure mode 3.84mm(L)×2.16mm(W)×10mm(H) Mode 2: stitching exposure mode 38.4mm(L)×21.6mm(W)×10mm(H) Mode 3: micro array mode 50mm(L)×50mm(W)×10mm(H)
Input Data File Format	STL
External Dimensions	1720mm(L)×750mm(W)×1820mm(H)
Total Weight	550kg
Power Supply	220~240V AC, 50/60Hz, 2kW

HIGHLIGHTS

- **High resolution:** 2 μm optical resolution;
- **Low layer thickness:** 5-20 μm;
- Optical monitoring system that enables auto focus;
- Equipped with air-floated platform to improve printing quality;
- Excellent light source stability;
- Powerful printing software and slicing software that support parameters modification.

APPLICATIONS

01



Wheat Awn-Like Hierarchical Structure

Application fields:
Biomimetics

Features:
Sample Size: 1.4 × 1.2 × 5 mm³

Each oriented thorn has a diameter of 100μm, a length of 250μm, and an angle of the tilt of 60°

Chem. Eng. J, 399,125139. (2020)

02

Micro Lattice

Application fields:
Mechanical metamaterials

Features:
Sample size: 1.2 × 0.8 × 0.6 mm³
Diameter of rods: 8 μm
Suspended structures without supporting pillars

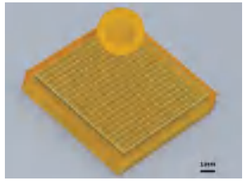
03

Micro Springs

Application fields:
THz devices, pressure sensor

Features:
Sample size: 1.2 × 0.8 × 1 mm³
Diameter of the springs: 20 μm
Complex 3D structures

04



Graded Microdome Structure

Application fields:
Micromechanics
Features:
Sample Size: 9 × 9 × 1.5 mm³
Each uniform microdome has a width of 290μm and a height of 480 μm; each upright micropillar has a diameter of 28μm and a height of 70 μm. By 3D printing the graded microdome structure and applying PDMS molding process, flexible pressure sensor can be made precisely.

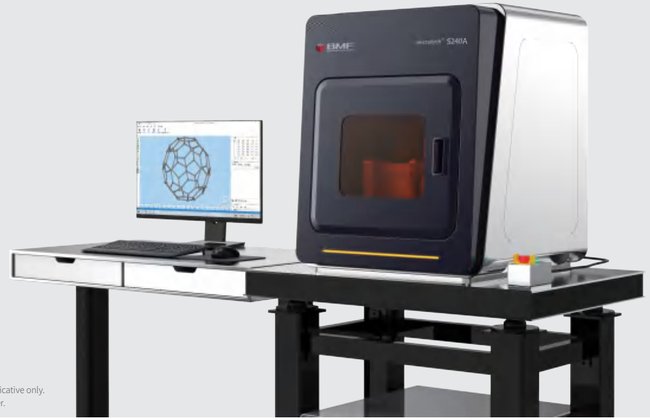
ACS Nano,16(3),4338-4347 (2022)

BMF Precision Tech Inc.

10μm SERIES

microArch®

S240A



*The image shown here is indicative only.
The actual product may differ.

SYSTEM SPECIFICATIONS

Specifications	microArch S240A
Light Source	UV LED(405nm)
Printing Material	Photosensitive resin/ceramic slurry
Optical Resolution	10μm
Layer Thickness	10~40μm
Build Size	Mode 1: single exposure mode 19.2mm(L)×10.8mm(W)×75mm(H) Mode 2: stitching exposure mode 100mm(L)×100mm(W)×75mm(H) Mode 3: micro array mode 100mm(L)×100mm(W)×75mm(H)
Input Data File Format	STL
External Dimensions	650mm(L)×700mm(W)×790mm(H)
Total Weight	300kg
Power Supply	220~240V AC, 50/60Hz, 2kW

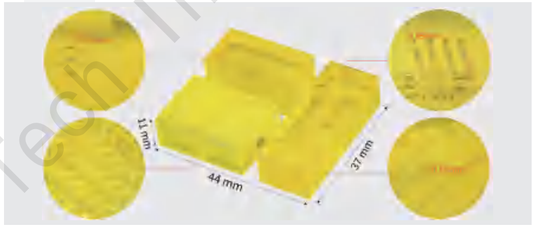
HIGHLIGHTS

- **High resolution:** 10μm optical resolution;
- **Low layer thickness:** 10~40μm;
- Optical monitoring system that enables auto focus;
- Advanced roller system spreads layers in seconds, resulting in a build speed of up to 10× faster;
- Ability to handle higher viscosity materials (up to 20,000 cps), resulting in the production of stronger, functional parts;
- Good for novel material development;
- Ability to print industrial-grade composite polymers and ceramics;
- Powerful printing software and slicing software that support parameters modification.

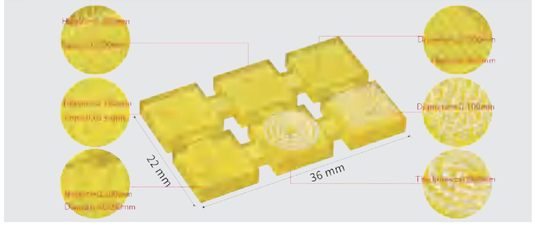
BMF Precision Tech Inc.

APPLICATIONS

01



02



03

Araucaria Leaf–Inspired Surface Ratchet Array

Application fields:
Biomimetics

Features:
Sample Size: 15 × 15 × 3 mm³
Thickness of each ratchet: 80μm
Enables the directional steering and rapid transport of liquids with di□erent surface tensions.

Science, 373(6561): 1344-1348. (2021)

04

Ceramic Gyroid Cube

Application fields:
Biomedicine, mechanical metamaterial

Features:
Sample Size: 10 × 10 × 10 mm³
Wall Thickness: 150μm
Made of smooth continuous curved surface and ordered interconnected pores.

10μm SERIES

microArch®
S140

HIGHLIGHTS

- **Tolerance:** ±25μm;
- **High resolution:** 10 μm optical resolution;
- **Low layer thickness:** 10-40 μm;
- Optical monitoring system that enables auto focus;
- Excellent light source stability;
- Heating system that improve processing e□ciency;
- Powerful printing software and slicing software that support parameters modification.

reddot award 2019
winner

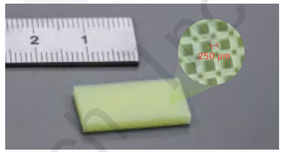
*The image shown here is indicative only.
The actual product may differ.

SYSTEM SPECIFICATIONS

Specifications	microArch S140
Light Source	UV LED(405nm)
Printing Material	Photosensitive resin
Optical Resolution	10μm
Layer Thickness	10~40μm
Build Size	Mode 1: single exposure mode 19.2mm(L)×10.8mm(W)×45mm(H) Mode 2: stitching exposure mode 94mm(L)×52mm(W)×45mm(H) Mode 3: micro array mode 94mm(L)×52mm(W)×45mm(H)
Input Data File Format	STL
External Dimensions	1000mm(L)×700mm(W)×1600mm(H)
Dimensions(mainframe)	650mm(L)×650mm(W)×750mm(H)
Total Weight	245kg
Power Supply	100~240V AC, 50/60Hz, 2kW

APPLICATIONS

01

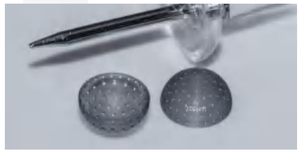


Complex 3D Lattice Structure

Application fields:
New energy, electrochemical energy storage
Features:
Sample Size: 20 × 10 × 2.2 mm³
3D lattices electrode with high design freedom and precision.

Adv. Energy Mater.,11(19), 2003927 (2021)

02

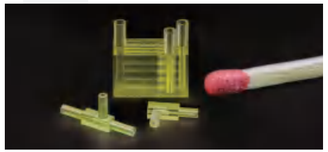


Pinhole Compound Eye

Application fields:
Biomimetics
Features:
Sample Size: 5 × 5 × 2.5 mm³
A hemispherical photodetector array with thin wall and dense pinholes.

Sci. Robot., 9, eadi8666 (2024)

03

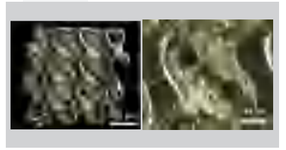


Emulsion Generator

Features:
Produce uniform single emulsion and double emulsion, (Oil in water/Water in oil)
Concentric pipe structure, Min. diameter of channel: 70μm
Multi-channel paralleled emulsion generator

Jia Z et al. J Food Eng. 2020, 290,110212.

04

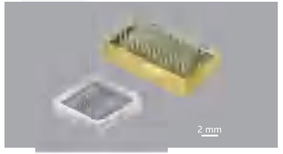


Triply-Periodic Minimal Surface Hydrogel Sca□old

Application fields: Biomedicine, regenerative medicine
Features:
Sample Size: 6 × 6 × 2 mm³
Minimum diameter of interconnected pore: 100μm
Made of smooth continuous curved surface and ordered interconnected pores.

Nat. Commun.,14, 3063(2023)

05



Tilted Microneedle

Application fields: Biomedicine
Features:
Sample Size: 9.6 × 5.4 × 2 mm³
Height of needles: 250-1000μm; diameter of needles: 100-300μm; angle of the tilt: 60°
Composed of tilted microneedles of di□erent diameters and heights, can be printed in sacrificial resin for PDMS replica molding.

CMF Precision Technology

25μm SERIES

microArch®

S150

CE

*The image shown here is indicative only.
The actual product may differ.

SYSTEM SPECIFICATIONS

Specifications	microArch S150
Light Source	UV LED (405nm)
Printing Material	Photosensitive Resin, Biocompatible Resin
Optical Resolution	25μm
Layer Thickness	20-100μm
Build Size	Mode 1: single exposure mode 27mm(L)×48mm(W)×50mm(H) Mode 2: stitching exposure mode 80mm(L)×48mm(W)×50mm(H) Mode 3: micro array mode 80mm(L)×48mm(W)×50mm(H)
Input Data File Format	STL
External Dimensions	800mm(L)×485mm(W)×450mm(H)
Touchscreen Monitor Size	10.1inch (1280*800)
Total Weight	70kg
Power Supply	220~240V AC, 50/60Hz, 1.3kW

HIGHLIGHTS

- **Interactive Touch Screen:** equipped with an integrated touchscreen that features built-in printing parameters for standard materials and supports customized printing, enhancing the success rate of printing.
- **Side-shifting Membrane:** Calibration-free for faster production turnaround time.
- **Scraper and Roller:** eliminate air bubbles to improve surface quality, spread layers in seconds and handle higher viscosity materials (up to 20,000cps).
- **Resin Vat Heating System:** heated up to 60°C, suitable for multiple application scenarios.
- **Platform with Diamond-Like Carbon (DLC) Coating:** easier printed part removal and enhanced scratch resistance, increase platform lifespan.
- **Fresh Air Filtration System:** built-in HEPA13 filter and inner chamber UV-C (253.7nm) sterilization, providing clean and safe operational environment.
- **Flexible Options:** S150 can be placed in the biological safety cabinet, desktop and other o□ce environments; T5ml and T20ml micro resin vats are optional.

APPLICATIONS

01

Microfluidic Chip

Application fields:
Microfluidics

Features:
Sample size: 60 x 40 x 10 mm³
Diameter of channels: 300μm

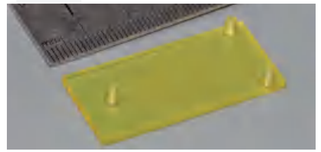
02

Nozzle

Application fields:
Industry

Features:
Sample size: 8.09 x 8.09 x 19.9 mm³
Diameter of nozzle: 150μm

03

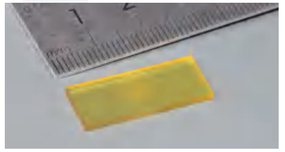


Microfluidic Chip

Application fields:
Microfluidics

Features:
Sample size: 40 × 15 × 10 mm³
Minimum diameter of channel: 100μm

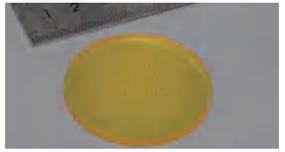
04



Microfluidic Chip

Application fields: Microfluidics
Features:
Sample size: 25 × 10 × 10 mm³
Width of lines: 25μm, 50μm, 100μm; Side length of the square cavity: 100 μm; diameter of the circular cavity: 125μm

05



Gradual-Changing Microneedle Array

Application fields: Biomedicine, drug delivery, biosensing
Features:
Sample size: 50 × 50 × 6 mm³
Height of needles: 750-3000μm; diameter of needles: 250-1000μm

DWP Precision Tech. Inc.

25μm SERIES

microArch®

S350

*The image shown here is indicative only.
The actual product may differ.

SYSTEM SPECIFICATIONS

Specifications	microArch S350
Light Source	UV LED (405nm)
Printing Material	Photosensitive resin
Optical Resolution	25μm
Layer Thickness	10~50μm
Build Size	Mode 1: single exposure mode 67.9mm(L)×38.2mm(W)×50mm(H) Mode 2: stitching exposure mode 100mm(L)×100mm(W)×50mm(H) Mode 3: micro array mode 100mm(L)×100mm(W)×50mm(H)
Input Data File Format	STL
External Dimensions	1350mm(L)×850mm(W)×1950mm(H)
Total Weight	500kg
Power Supply	220~240V AC, 50/60Hz, 2kW

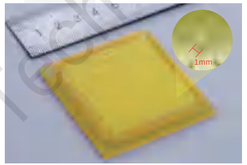
HIGHLIGHTS

- **High tolerance control capability:** 25μm optical resolution, and ±50μm printing tolerance;
- **Large printing size:** Multi-scale stitching printing, resulting in high-e□ciency small batch and scalable manufacturing;
- **Magnetic platform & side-shift membrane:** quick disassembly and assembly to improve user's experience;
- **Advanced roller system:** spread layers in seconds, and enable higher viscosity resin (up to 5000cps);
- **Automatic setting:** equip automatic liquid supply for accurate feeding, and support automatic & manual parameter setting to simplify users' operation;
- **Heating device:** support heating the resin to 60℃.

BMF Precision Tech Inc.

APPLICATIONS

01



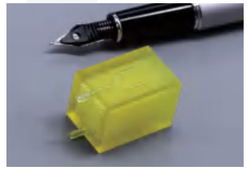
Reconfigurable Multifunctional Metadevice

Application fields:
Terahertz

Features:
Composed of 16 × 16 unit cells with a period of 2.7 mm (0.9λ) and a height of 5 mm (≈1.67λ).
Capable of developing reconfigurable multifunctional electromagnetic devices in fields such as radar, wireless communication, and imaging.

Virtual Phys Prototyp.19(1).2430335(2024)

02



Airborne Particle Enrichment Cube

Application fields:
Biomedicine, regenerative medicine

Features:
Sample Size： 15 × 15 × 27 mm³
Composed of channels with threaded structures (125μm diameter) and curved channels (420μm diameter).

03

Side-hole Needle Array

Application fields:
Biomedicine

Features:
Sample size: 10.8 × 10.8 × 14.8 mm³

Internal pipes and transverse holes: 0.5mm in diameter

One-shot Fabrication

04

Precision complex connector

Application fields:
Micro-Mechanics

Features:
Individual model size: 16.7 × 9.6 × 9.4 mm³

Minimum wall thickness: 0.14mm, minimum spacing: 0.28mm

50pcs in one batch

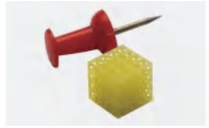
HIGH PRECISION PRINTING MATERIAL

BMF's open material system allows you to print with our specially formulated liquid polymers or to print with the material of your choice. Whether you use BMF's materials or choose your own, you have a variety of options available that will allow you to achieve the results you need based on your application.

BMF's open material system gives you unparalleled freedom and flexibility to achieve the end results you require.

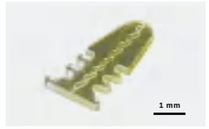
01 **Functional Materials**

Featuring high strength, high toughness, fatigue resistance, and high-temperature stability, these materials can be widely applied in various research fields.



02 **Bio-Application Material (BIO)**

With excellent biocompatibility, it is widely used in medical and bioengineering research.



03 **Engineering Application Material (SR)**

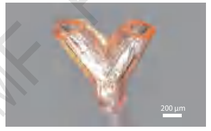
Supports replica molding and injection molding of engineering materials such as PDMS, POM, PP, LCP, SOOC, TPU, etc.

04 **Ceramic Material (CA-100A)**

With outstanding heat resistance, corrosion resistance, and chemical stability, it is widely used in mechanical engineering, aerospace, biomedical, and other fields.

05 **Third-Party Materials (GelMA)**

After adequate tests and verification, these materials are compatible with all models of BMF equipment to meet diverse printing needs.



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MORE MATERIAL PROCESSING

SR is a soluble resin that can be used as a sacrificial material to print single-use molds to manufacture parts in other materials.

By combining micro 3D printing technology with processes such as replica molding and injection molding, precision devices can be made using materials that are more suitable for end-use applications. SR fulfills the increasing demand for microstructures and material diversity in academia and industry.

PARAMETER PERFORMANCE

Viscosity (at 25℃)	25
Elongation at Break	26%
Tensile Strength	38 MPa
Hardness	60 Shore D

PROCESS

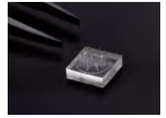
PRINT SR MOLD
Print the reverse mold with SR

REPLICA MOLDING/INJECTION MOLDING
Use materials such as PDMS, POM, PP, LCP, SOOC, TPU, etc

DISSOLVE
Place the sample into an NaOH solution to dissolve

FINAL PRODUCT
Clean the sample to get the target final product

APPLICATIONS


PDMS Replica Molding: Micropillar Array


PDMS Replica Molding: Blood Vessel Chip


PDMS Replica Molding: Tilted Microneedle Array


PDMS Replica Molding: Vessel Clamp


PP


TPU


POM


LCP

FUNCTIONAL MATERIALS

The test specimens were printed on S140 with a 20μm layer thickness and post-processed with thermal curing and further light curing;

Standard test methods included ASTM D1708, ASTM D790, ASTM D648-07, ASTM D785, AMTM D256-97. Measurements may vary between models.

Resin	HTL (High-Temperature Resistance)	HT200 (High-Temperature Resistance)
Viscosity (at 25°C)	85	285
Tensile Strength	72 MPa	88 MPa
Elongation at Break	8%	5%
Elasticity Modulus	2.4 GPa	3.1 GPa
Bending Strength	113 MPa	154 MPa
Flexural Modulus	2.8 GPa	3.8 GPa
Thermal Expansion Coe□cient (50℃-100℃) μm/m/C	169	102
Thermal Expansion Coe□cient (100℃-150℃) μm/m/C	143	116
Distortion Temperature @0.45MPa	114 °C	218 °C
Hardness	81 Shore D	79 Shore D
Standard Color *Customized colors available on special request	Yellow Trans/Black	Yellow Trans
Series	D0210, D1025, S230A, S130, S240A, S140, S150, S350	D0210, D1025, S230A, S130, S240A, S140, S150, S350

Resin	Tough (High Toughness)
Viscosity (at 25°C)	180
Tensile Strength	83 MPa
Elongation at Break	14%
Elasticity Modulus	2.6 GPa
Bending Strength	122 MPa
Flexural Modulus	4.0 GPa
Thermal Expansion Coe□cient (50℃-100℃) μm/m/C	118
Thermal Expansion Coe□cient (100℃-150℃) μm/m/C	109
Distortion Temperature @0.45MPa	78 °C
Hardness	75 Shore D
Standard Color *Customized colors available on special request	Yellow Trans/Black
Series	D0210, D1025, S230A, S130, S240A, S140, S150, S350

BIOLOGICAL APPLICATION

The test specimens were printed on S140 with a 20μm layer thickness and post-processed with thermal curing and further light curing;

Standard test methods included ASTM D1708, ASTM D790, ASTM D648-07, ASTM D785, AMTM D256-97. Measurements may vary between models.

Resin	BIO (Biocompatible)
Viscosity (at 25°C)	300
Tensile Strength	56 MPa
Elongation at Break	6%
Elasticity Modulus	1.6 GPa
Bending Strength	107 MPa
Flexural Modulus	3.5 GPa
Thermal Expansion Coe□cient (50℃-100℃) μm/m/C	170
Thermal Expansion Coe□cient (100℃-150℃) μm/m/C	179
Distortion Temperature @0.45MPa	86 °C
Hardness	84 Shore D
Standard Color *Customized colors available on special request	Yellow Trans
Series	D0210, D1025, S230A, S130, S240A, S140, S150, S350

CERAMICS

The test specimens were printed on S140 with a 20μm layer thickness and post-processed with thermal curing and further light curing;

Standard test methods included ASTM D1708, ASTM D790, ASTM D648-07, ASTM D785, AMTM D256-97. Measurements may vary between models.

	Ceramics	AL Alumina (CA-100A)
POWDER	Powder Purity (%)	99.99
SLURRY	Solids Loading (vol%)	51.4
	Dynamic Viscosity (Pa·s)	8.4
SINTERED CERAMIC	Theoretical Density (g/cm³)	3.99
	Relative Density (%)	99.5
	Three-point Bending Strength (Mpa)	500
	Surface Roughness Ra (μm)	<0.5
	Young's Modulus (GPa)	300
	Coe□cient Of Thermal Expansion(ppm/K)	7-8
	Thermal Conductivity (W/(m•K))	32
	Specific Electrical Resistivity (Ω•cm)	≈10^{14}
	System	D0210, D1025, S230A, S240A, S140

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THIRD-PARTY MATERIAL

The test specimens were printed on S140 with a 20μm layer thickness and post-processed with thermal curing and further light curing;

Standard test methods included ASTM D1708, ASTM D790, ASTM D648-07, ASTM D785, AMTM D256-97. Measurements may vary between models.

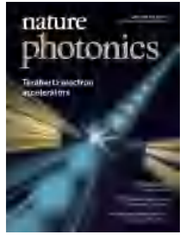
Resin	ST1400 (High Toughness & Elongation)	RG (Durable Engineering)
Viscosity (at 25°C)	280	1100
Tensile Strength	45 MPa	60 MPa
Elongation at Break	43%	12%
Elasticity Modulus	1.9 GPa	1.8 GPa
Bending Strength	80 MPa	78 MPa
Flexural Modulus	1.5 GPa	2.1 GPa
Thermal Expansion Coe□cient (50℃-100℃) μm/m/C	/	157
Thermal Expansion Coe□cient (100℃-150℃) μm/m/C	/	145
Distortion Temperature @0.45MPa	57 °C	57 °C
Hardness	78 Shore D	77 Shore D
Standard Color *Customized colors available on special request	Yellow Trans	Yellow Trans
Series	D1025, S240A, S140, S150, S350	D0210, D1025, S230A, S240A, S150, S350

GelMA (Hydrogel)	Concentration	Modulus of Elasticity in Compression	Viscosity
GelMA-DS60	5%~10%	8.6~20kpa	7×10^{-3}~1.8×10^{-2} Pa·s
	10%~15%	20~43kpa	1.8×10^{-3}~1.8×10^{-1} Pa·s
	15%~20%	43~120kpa	1.8×10^{-1}~6.6×10^{-1} Pa·s
	Series： D0210, D1025, S230A, S130, S240A, S140, S150, S350		

BMF Precision Technology

EMPOWERING ACADEMIC RESEARCH AND INNOVATION

Upholding the concept of manufacturing empowered by industry-academia linkage, BMF has successfully assisted more than 700 top universities and institutes around the world to achieve new progress in scientific research, and helped them publish more than 300 academic papers in top journals, such as Science, Nature, and Nature Materials.



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[1] Tang.H.C,Yang.Y.Y,Liu.Z. et al.Injectable ultrasonic sensor for wireless monitoring of intracranial signals.Nature. 630,84–90 (2024)

[2] Zhang.Y,Zhou.X.M,Zhang.N. et al. Ultrafast piezocapacitive soft pressure sensors with over 10kHz bandwidth via bonded microstructured interfaces.Nat. Commun.15:3048 (2024)

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[4] Bai, N., Xue, Y., Chen, S. et al. A robotic sensory system with high spatiotemporal resolution for texture recognition. Nat Commun 14, 7121 (2023)

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[2]Zhou.Y,Sun.Z.B,Ding.Y.C. et al.An ultrawide field-of-view pinhole compound eye using hemispherical nanowire array for robot vision. Sci. Robot. 9, eadi8666 (2024)

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[1] Reinforcing Gelatin Hydrogels via In Situ Phase Separation and Enhanced Interphase Bonding for Advanced 3D Fabrication, Adv. Mater.2416432(2024)

[2] Seung-Hwan Joo, Jaehyun Kim, Juhyeong Hong. et al.Dissolvable Self-Locking Microneedle Patches Integrated with Immunomodulators for Cancer Immunotherapy.Adv. Mater.35(10), 2209966(2023)

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[1]Bao.B.K, Zeng.Q.M,Li.K. et al.Rapid fabrication of physically robust hydrogels. Nat. Mater.22, 1253–1260(2023)

[2]Highly conductive and stretchable nanostructured ionogels for 3D printing capacitive sensors with superior performance. Nature Communications. 6431(2024)

[3]One-photon three-dimensional printed fused silica glass with sub-micron features. Nature Communications. 15:2689(2024)

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[1]Superior fracture resistance and topology-induced intrinsic toughening mechanism in 3D shell-based lattice metamaterials.Science Advances.10(2024)

[2]Dong.H.W, Shen.C, Zhao.S.D. et al.Achromatic metasurfaces by dispersion customization for ultra-broadband acoustic beam engineering. Nat. Sci. Rev. nwac030(2022)

[3]Fang.X, Wen.J.H, Cheng.L. et al.Programmable gear-based mechanical metamaterials. Nat. Mater. 21, 869–876(2022)

[4]Achieving the theoretical limit of strength in shell-based carbon nanolattices. PNAS.119 (34) , e2119536119(2022)

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[2] Zhang.T.S,Li.G,Ren.H. et al.Sub-millimeter fiberscopic robot with integrated maneuvering, imaging, and biomedical operation abilities.Nat. Commun.15(1), 10874(2024)

[3] Gao. H, Liu. H, Jia. H. et al. Multi-axis robotic forceps with decoupled pneumatic actuation and force sensing for cochlear implantation. Nat. Commun. 16, 1648 (2025)

[4] Ren.X.Z,Yuya Morimoto,Shoji Takeuchi. et al.Biohybrid hand actuated by multiple human muscle tissues.Sci. Robot.10,eadr5512(2025)

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[1]Record-high heat transfer performance of spray cooling on 3D-printed hierarchical micro/nano-structured surface.Science Bulletin.223-231(2024)

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[3] Zhang.G.H,Zhang.X.N,Liu.H.Z. et al.3D-Printed Multi-Channel Metal Lattices Enabling Localized Electric-Field Redistribution for Dendrite-Free Aqueous Zn Ion Batteries.Adv. Energy Mater. 11(19), 2003927(2021)

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[2] Broadband and Multiband Terahertz Metamaterials Based on 3-D-Printed Liquid Metal-Filled Microchannel.IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES. 71,8: 3333-3340(2023)

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