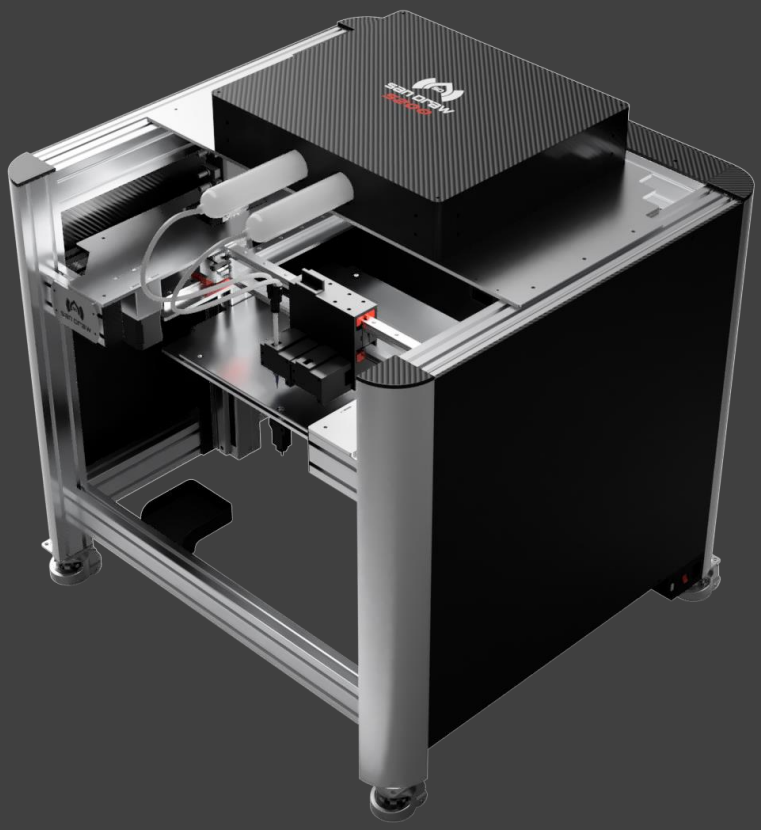
Silicone 3D Printing Pioneer



San Draw Inc

About Us

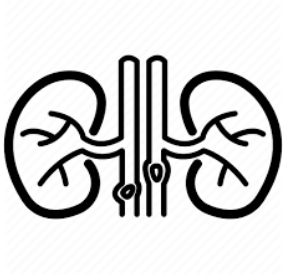
2014	Established San Draw in Silicon Valley
2015	Established San Draw in Taiwan
2016	Graduated from accelerator of UC Berkeley SkyDeck
2017	1. US patent granted, FAM Technology 2. Taiwan start-up SBIR stage1 granted
2018	1. Taiwan start-up SBIR stage2 granted 2. Japan patent granted, FAM Technology 3. Finished series Pre-A fund raising
2019	1. Taiwan patent granted, FAM Technology 2. China patent granted, FAM Technology
2020	Introduce S200 3D Printer, world's first dual silicone (RTV & LSR) 3D printer

FAM Technology

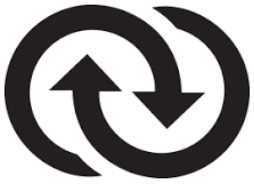
FAM™ stands for Fluid Additive Manufacturing, and it is an additive manufacturing process specially designed for RTV silicone and liquid silicone rubber (LSR). It's world's first silicone 3D printing technology and has been patented in many countries.

Advantages

Multiple Silicone Selections
We develop silicones with different features to apply to your versatile applications, including high elasticity, life-like touch, high strength, and high rigidity.



Bio-compatibility
Many of our silicones are certified by ISO10993, making it suitable for medical device, medical simulator, wearable, and prosthesis.



Bridging prototyping & mass production
We develop a series of 3D printing LSR (SIL50 and SIL70) with similar mechanical properties to injection molding LSR, enabling a seamless transition from prototyping with S200 Silicone 3D Printer to mass production with injection molding machine.

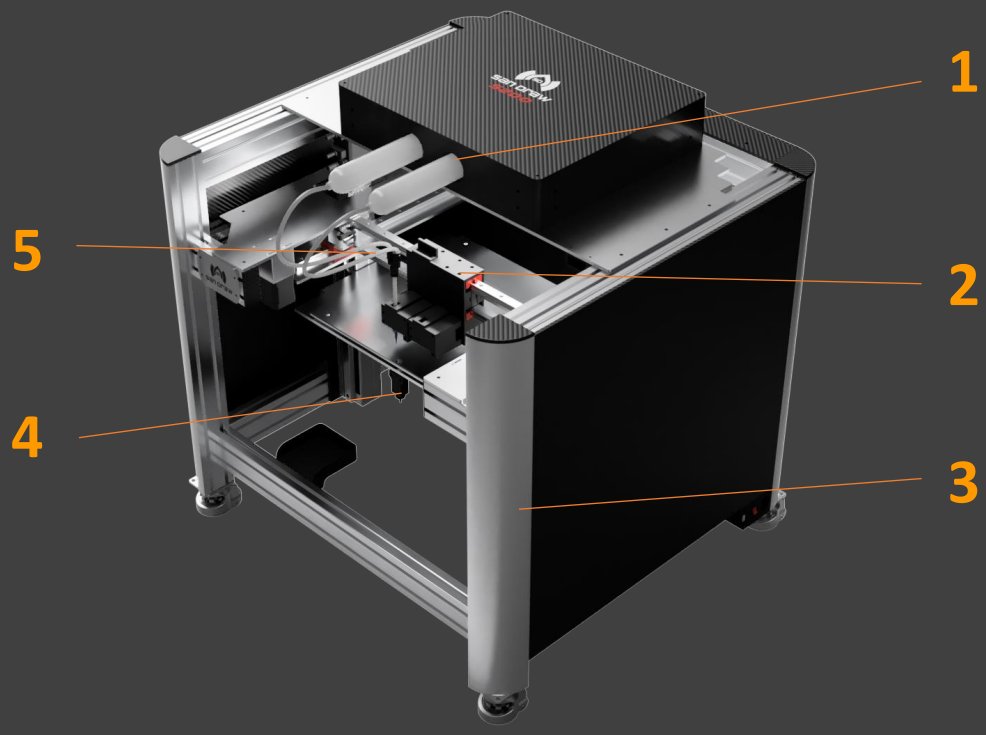
3D Printing Silicone

Our Material

We have the broadest material selection of 3D printing silicone

Silicone	SIL 18	SIL 28	SIL 50	SIL 70
Type	1-part RTV	1-part RTV	2-part LSR	2-part LSR
Color	Transparent Red Yellow	Transparent Skin	Transparent	Transparent
Hardness	Shore A 18	Shore A 28	Shore A 50	Shore A 70
Tensile Strength	200 psi	270 psi	1,750 psi	1,550 psi
Tear Strength	4 kgf/cm	5 kgf/cm	40 kgf/cm	25 kgf/cm
Elongation	800 %	300 %	700 %	460 %
Certification		ISO 10993-5	ISO 10993-5 ISO 10993-10	ISO 10993-5 ISO 10993-10
Liquid Injection Molding Compatibility			Yes	Yes

S200 3D Printer



Features

S200 is world's first dual silicone (RTV & LSR) 3D printer.

(1) Injection System: The special design of barrel, piston, and O-ring can withstand the force more than 100 kgf.

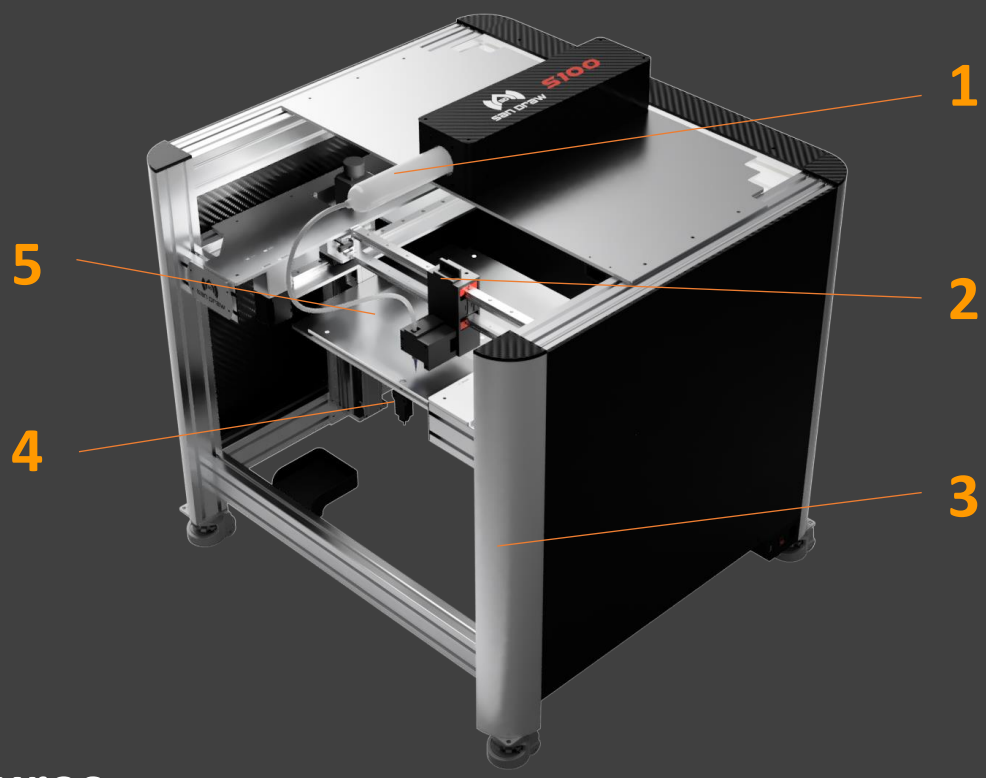
(2) Motion System: The special motion system can reduce the loading of printing module, reduce mechanical vibration, and increase printing quality.

(3) Structure: We use 6063 aluminum extrusion as the main frame, and we use aluminum CNC plates as sub-frames, making it strong, precise, and light.

(4) Calibration: Sensor to automatically calibrate the height of print head.

(5) Linear Actuator: We choose industrial grade linear actuators from Oriental Motor to deliver precise and quiet Z motion.

S100 3D Printer



Features

S100 is world's first 3D printer specifically for RTV silicone.

(1) Injection System: The special design of barrel, piston, and O-ring can withstand the force more than 100 kgf.

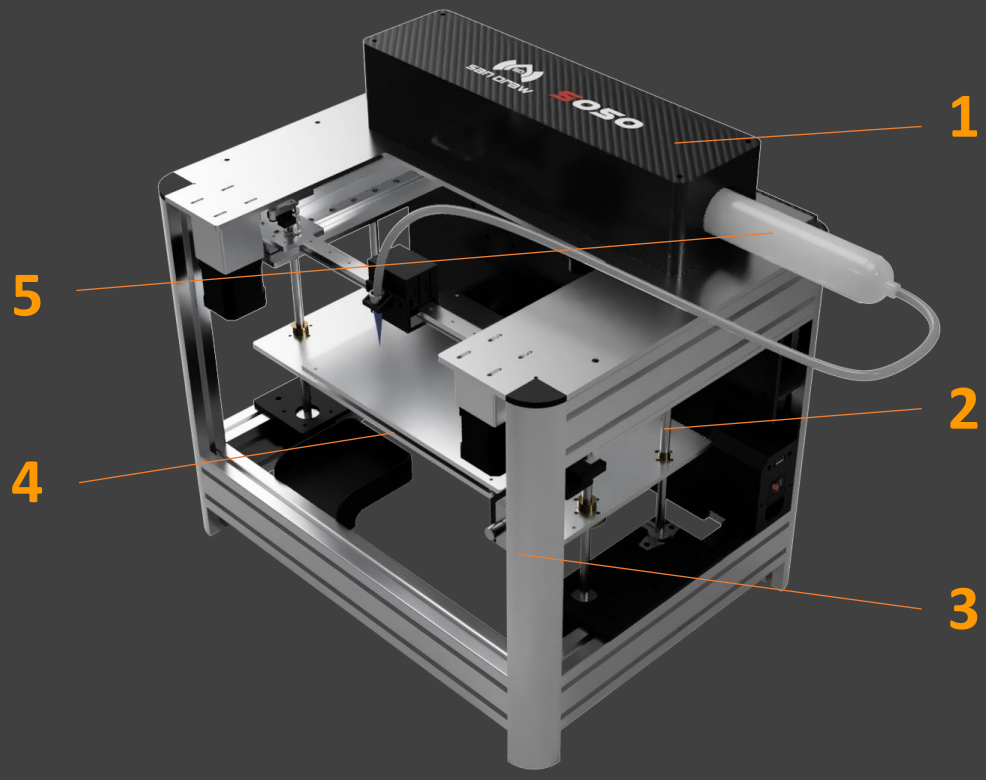
(2) Motion System: The special motion system can reduce the loading of printing module, reduce mechanical vibration, and increase printing quality.

(3) Structure: We use 6063 aluminum extrusion as the main frame, and we use aluminum CNC plates as sub-frames, making it strong, precise, and light.

(4) Calibration: Sensor to automatically calibrate the height of print head.

(5) Linear Actuator: We choose industrial grade linear actuators to deliver precise and quiet Z motion.

S050 3D Printer



Features

S050 is world's first education-oriented silicone 3D printer.

(1) Injection System: The longitudinal layout results in excellent print to printer ratio (print volume / printer volume).

(2) Motion System: The special motion system can reduce the loading of printing module, reduce mechanical vibration, and increase printing quality.

(3) Structure: We use 6063 aluminum extrusion as the main frame, and we use aluminum CNC plates as sub-frames, making it strong, precise, and light.

(4) Calibration: Equipped with high-precision aluminum linear translation stage.

(5) Safe Material: SIL28 is biocompatible and certified by ISO10993, providing a safe material for schools and universities.

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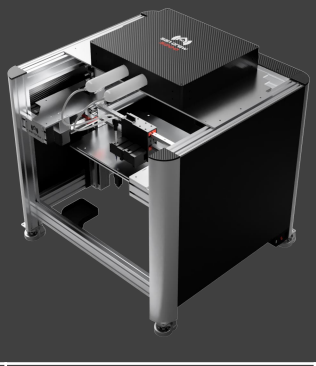
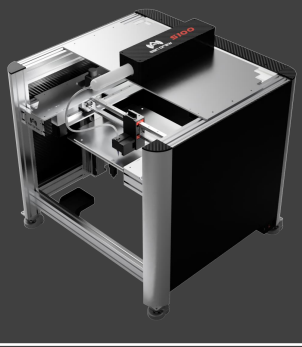
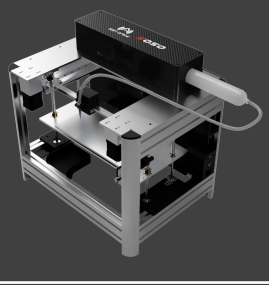
Technical Spec

	S200	S100	S050
			
Print Technology	FAM	FAM	FAM
Software	FAMufacture	FAMufacture	FAMufacture
File Type	STL	STL	STL
Operating System	Windows 10	Windows 10	Windows 10
Print Volume	235 x 270 x 150 mm	235 x 270 x 150 mm	200 x 150 x 100 mm
Printer Dimension	700 x 700 x 700 mm	700 x 700 x 700 mm	460 x 350 x 440 mm
Curb Weight	Approx. 60kg	Approx. 60kg	Approx. 20kg
Barrel Number	2	1	1
Nozzle Number	1	1	1
Z axis motion	Linear Actuator w/ ball screw	Linear Actuator w/ ball screw	Stepper Motor w/ screw
Z axis Repetitive Positioning Accuracy	±0.02 mm	±0.02 mm	N/A

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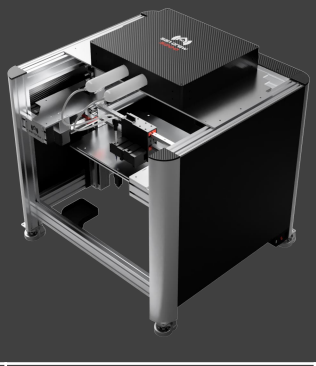
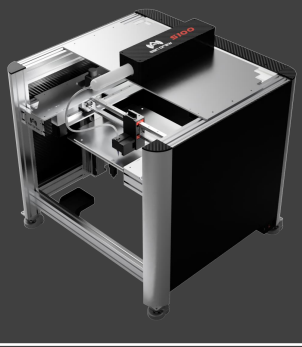
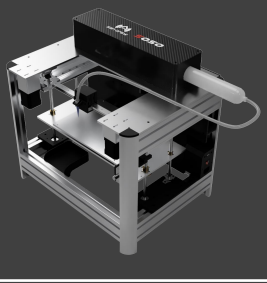
Technical Spec

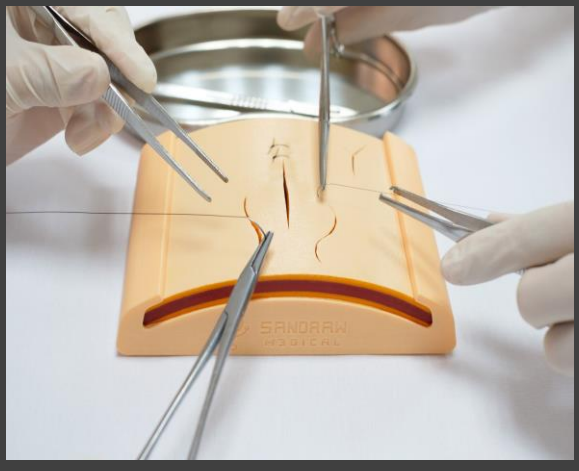
	S200	S100	S050
			
XY resolution	0.04 mm	0.04 mm	0.2 mm
Recommended Z layer thickness	0.2 mm	0.2 mm	0.2 mm
Nozzle Diameter	0.4 mm, 0.2mm	0.4 mm, 0.2mm	0.4 mm, 0.2mm
Calibration	Automatic sensor	Automatic sensor	aluminum linear translation stage
Roller w/ brake	Yes	Yes	No
Material Compatibility	SIL18, SIL28, SIL50, SIL70	SIL18, SIL28	SIL18, SIL28
Power	110 V	110 V	110 V

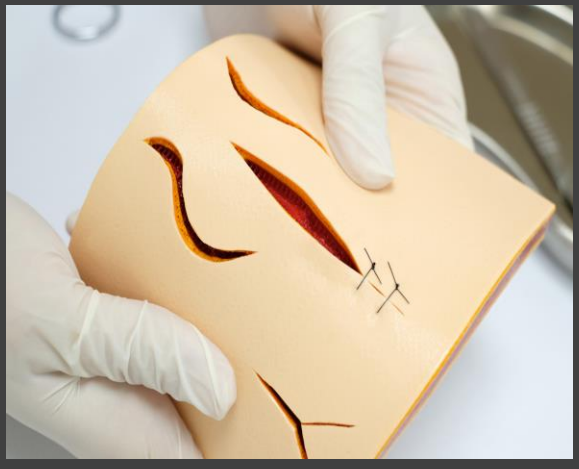
Application — Clinical Skill Trainer

S100 is the first silicone 3D printer used in commercial production.

Suture Training Kit

Human skin is multi-layered with different hardness and touch, making it extremely challenging to replicate. S100 prints SIL18 and SIL28 in layers with different internal structures to make it an ultra-realistic and durable suture pad.



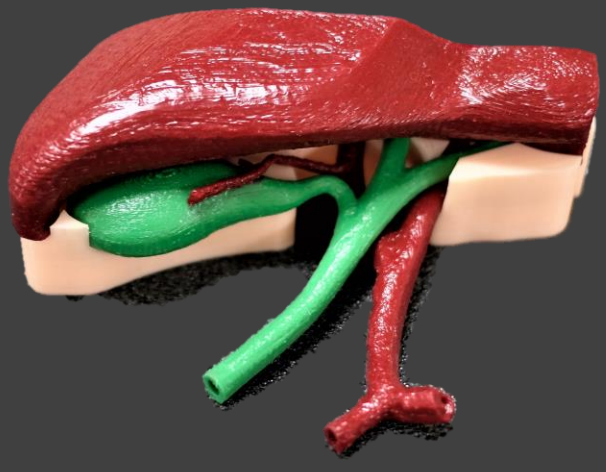


Surgery Simulation Model

SIL18 and SIL28 present highly similar hardness and density to human muscle, so it’s suitable to be used as the material for simulation model, delivering super realistic touch.

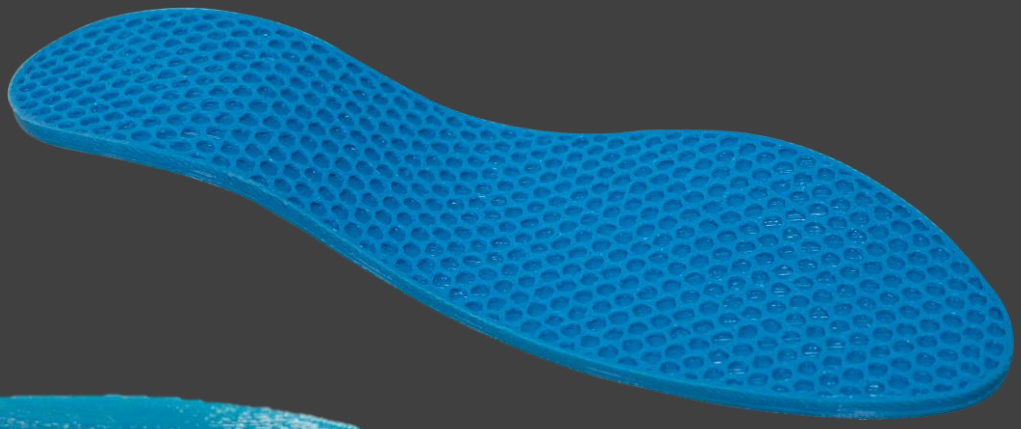
Liver Model

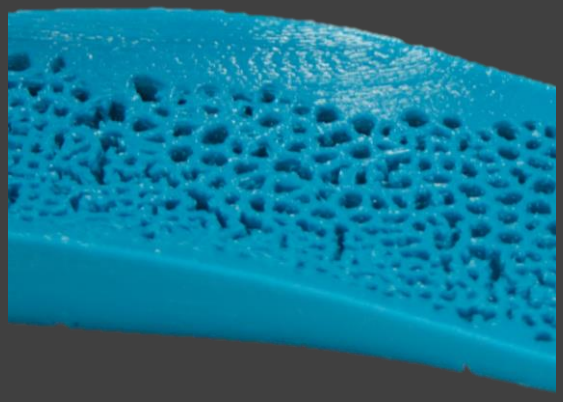
Gallbladder Model



Application -- Shoe

The user scenario of a pair of shoes is very challenging, and it faces thousands of temperature and loading changes. Midsole is the key to comfort and functionality of shoes, and S100 and S200 are able to print midsole in intricate designs, achieving better functionality and weight reduction.





Application — Human Implant

Silicone is known for its great biocompatibility, and it is commonly used in human implants. S100 and S200 are able to print short-term and long-term implantable grade silicone, creating new business opportunity for you.

Facial implants

Print The Future

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San Draw Inc