万协3D打印机
VANSHAPE 3D Printing

型号 Model：PRO100 / PRO120 / PRO150 / PRO200 / PRO300

专注于首饰铸造

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目录 CONTENT

光固化打印使用的材料，称作"光敏树脂（photopolymer）"，常温下为液态，经过一定波长的 UV 光照射后，引起聚合反应，完成固化，在原来的固化面上层层固化叠加起来，打印出三维立体模型。光固化比其他成型原理的精度更高，可以达到 0.01mm

The material that DLP printer use is called Photopolymer or resin, liquid shape under normal ambient temp, under UV light with certian wavelength, it will start polymerization reaction and to finish curing. Compared to other print principle, DLP technology has better resolution, can be 10 microns.

DLP技术介绍及打印成型原理数字光处理（Digital Light Processing，缩写：DLP）技术最早是由德州仪器开发，主要是通过投影仪来逐层固化光敏聚合物液体，从而创建出3D打印对象。由于其具备紫外光投影快速得应用到3D打印领域，成为又一种新的快速成型技术。　　DLP设备中包含一个可以容纳树脂的液槽，用于盛放可被特定波长的紫外光照射后固化的树脂，DLP成像系统置于液槽下方，其成像面正好位于液槽底部，通过能量及图形控制，每次可固化一定厚度及形状的薄层树脂（该层树脂与前面切分所得的截面外形完全相同）。液槽上方设置一个提拉机构，每次截面曝光完成后向上提拉一定高度（该高度与分层厚度一致），使得当前固化完成的固态树脂与液槽底面分离并粘接在提拉板或上一次成型的树脂层上，这样，通过逐层曝光并提升来生成三维实体。

DLP (Digital Light Processing) technology use projector to cure Photopolymer or resin layer by layer to build 3D object. Inside printer, there is one container (also called resin tray) to contain liquid resin, and the projector is right put under the resin tray , each time cure certain thickness resin (thickness of cured resin is same as thickness sliced file), cured resin will be separated or lifted up from the tray by platform, stick on the platform or previous layer, in same way, layer by layer, finally build 3D object.

升降机构 Lifter
树脂液槽 Resin tray
爆光模块 Projector
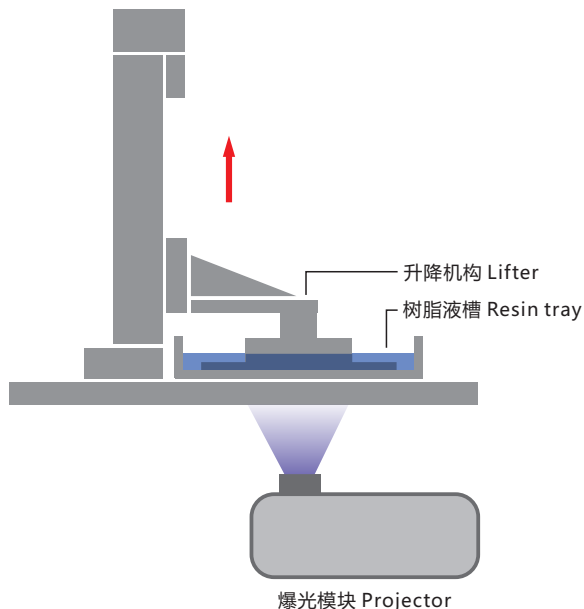
DLP技术的特点与优势 | DLP Characteristcs and features:

相比市面上的其他3D打印设备，由于其投影像素块能够做到50μm左右的尺寸，DLP设备能够打印细节精度要求更高的产品，从而确保其加工尺寸精度可以达到20~30μm，面投影的特点也使其在加工同面积截面时更为高效。设备的投影机构多为集成化，使得层面固化成型功能模块更为小巧，因此设备整理尺寸更为小巧。

Compared to other print technology, DLP projective pixel is able to reach 50 microns, so as to ensure printed object resolution is between 20 to 30 microns. Its projective feature contribute to faster curing within same area.

成型的特点主要体现在以下几点 Dlp 3D printer main features:

1、固化速率高（在405nm光效率高）；High curing speed(with wavelength 405nm)

2、低成本 Low cost

3、高分辨率 High resolution

4、高可靠性。该技术应用于3D打印中具备诸多优势。Reliable and stable, and its advantages inclues.

4.1 高速的空间光调制器，显示速率高达32kHz。
High speed space light modulator, display rate is up to 32kHz.

4.2 光效率高，微镜反射率达98%以上。
High light efficiency, micromirror reflectivity is up to 98%.

4.3 窗口透射率大于97%。
Transmissivity is more than 97%.

4.4 支持波长范围在395nm至420nm之间。
Workable wavalength is 395‑420nm.

4.5 微镜的光学效率不受温度影响。
Optical efficiency is not affected by ambient temp.

打印参数 | Printer Parameters

型号 Model	PRO100	PRO120	PRO150	PRO200	PRO300
打印尺寸(最大) Maximum printingarea size	65x41x80mm	80x50x110mm	96x54x130mm	144x81x170mm	192x108x170mm
打印速度 Printing speed	每小时打印高度12mm 12mm per hour				
XY分辨(最小特征尺寸) XY resolution	50μm	62.5μm	50μm	75μm	100μm
Z分辨率(可调) Z resolution (adjustable)	0.01mm - 0.05mm				
主控软件 Control software	Vanshape DLP V2.0				
文件格式 File format	STL、SLC、YXP				
供电 Power supply	100- 120V,5A / 200- 240V,2.5A				
外型尺寸 Machine size	340x465x795mm			360x495x945mm	\
重量 Weight	48kg			58kg	\

VANSHAPE PRO特点 | VANSHAPE PRO 3D Printer Charateristics

◆ 自主研发优势，成熟的操作界面，让你的使用过程得心应手。
   Independent R&D, convenient operation interface.

◆ 47 微米的高精度，是 SLA 的 4 倍。
   47microns high resolution, 4 times than SLA printer.

市面上多数采用开源系统，而 VANSHAPE 则使用自主研发
VANSHAPE own software

YXP 系统，主要特点有：
YXP system,with following advantages:

1、一键清理料盘功能，每次打印无需担忧残留物；
One time clean residue left in resin tray

2、兼容市面上多数 3D 软件，并可作为第三方切片软件使用；

◆ 全钣金机身，结构更稳定，拆装调试更便捷；
   Compatible with various 3D file, also can be used as slicing software.

◆ 全彩触摸屏，快速、高效、智能，一键升级，享受最新最快的版本迭代。
   Full -color touch screen , rapid, efficient, one key to upgrade.

开源系统与自研发系统对比 | Difference between connection type and YXP

系统参数 System parameter	开源系统 Connection type	YXP
硬件 Hardware	树莓派 PC	Creator Board 3.0
系统升级 System upgrade	等待开源系统升级 passive upgrade	3D Creator 定期更新 3D Creator upgrade periodically
打印方式 Print method	USB PC output	USB、脱机、网络 USB
切片速度 Slicing speed	慢 Slow	快 5 倍的切片速度 5 times faster
适用性 Applicability	复杂配置 Complicated	即插即用 Convenient

自主研发的系统，更快的切片速度、脱机打印、自主更新；
Independent R&D system, faster slicing speed, off-line printing, upgrage periodically
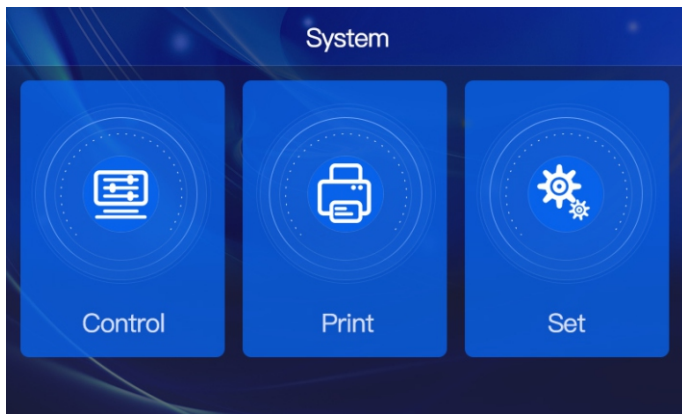
7英寸全彩触摸屏，领先的操作控制
7 Inch full color touch screen, leading operatin control system.

创新料槽设计，换料更便捷，更节省使用成本
Innovative design of resin tray, easy to replace resin, cost saving.

日本进口THK直线导轨模组，保证打印稳定性、精度
Japan imported THK linear guide moudle to ensure printing stability and resolution.
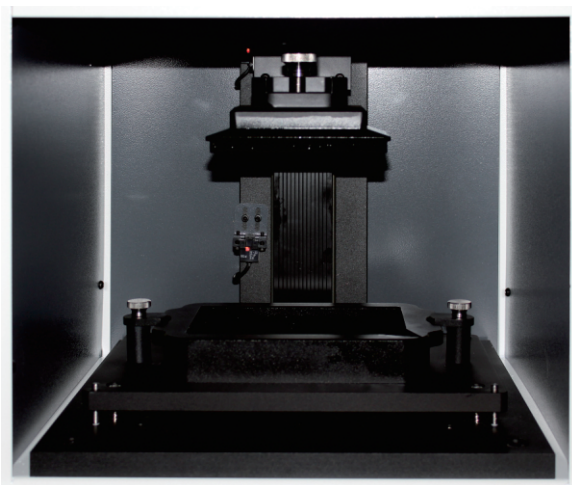
专利调平平台，免于打印脱板现象
Special flat - adjustment platform, avoid off - plate problem during printing process.

操作使用流程 | Operational process

一、安装 Installation

1、将打印机摆放在水平的工作台面上，插上电源线，把成型工作台和料槽取出来用纸巾蘸上酒精擦拭干净，料槽绷好离型膜用酒精清洗干净，绷离型膜请看附带视频。

Put the 3D printer on the horizontal place, plug in, take print plate and resin tray out and use tissue and ethonal to clean them, then install them on the machine. To repalce film, please check video.

2、机器安装好后，检查料槽底板有没有松动，如没松动，用0.1mm厚的复印纸裁成四张小纸条放在玻璃角落上，点控制按钮进入控制界面，点到下限位，工作台到下限位后，能把四张小纸条取出即为正常。这一步一定要做，主要是预防机器运输途中有变化。

After install the machine, check if resin tray is fix good and no loose, then put 0.1mm thick paper slip in each corner of botton resin tray, then Press Control button on sreen, after that press Max down button, when print plate move to down, and you when can take the paper out from each corner means machine is normal, no move during transportation.

步骤如下：
第一步：请准备四张纸和两把六角扳手（六角扳手尺寸: 2mm和4mm）
Please prepare four pieces of paper and two hex wrenches （Hexagon wrench size: 2mm and 4mm）
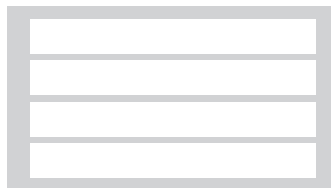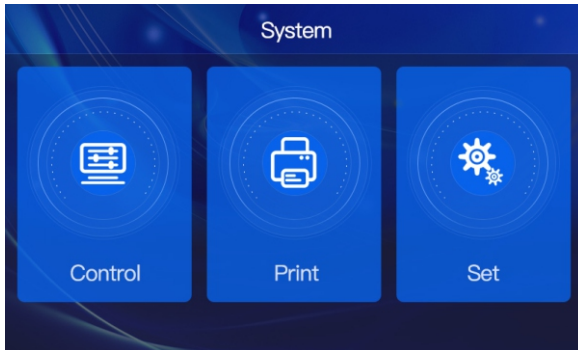
第二步：根据图片放四张纸
Put four pieces of paper according to the picture
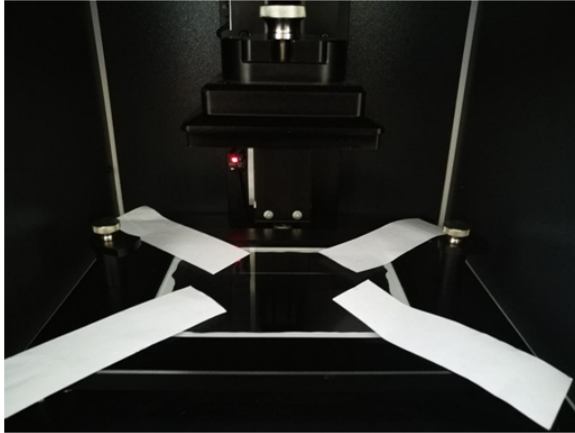
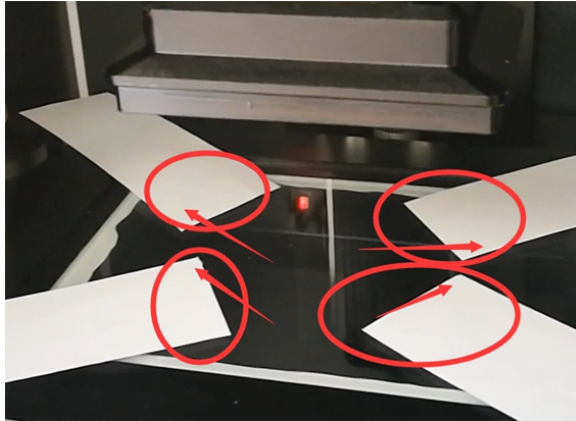**第三步：**下一步点击控制页面（Control）
The next click control page

点击移动到下限位 The click moves to the lower limit

第四步：此时，打印平台将缓慢下降到最低位置
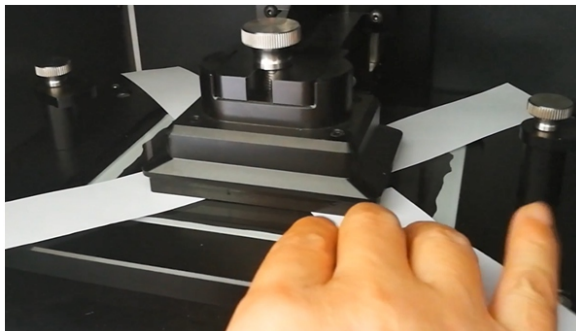This point, the printing platform will slowly descend to the lowest position

⚠️ **请注意，这四张纸没有重叠**
Please note that the four pieces of paper do not overlap

第五步：打印平台已经下降到最低位置，四张纸被压下，试着拉四张纸，确保四个位置上没有任何松散的纸片。
Platform down to the lowest position and press the paper, try to pull four pieces of paper and make sure paper cannot pulled out.

二、注意事项 Cautions

1、打印一定次数后（不大于 5 次）树脂过滤。
Need to filt resin after maximum 5 times print.

2、清理料槽和膜及工作台要用无尘布。
Use dry clean cloth to clean resin tray and film, water is prohibited,instead please use ethonal.

3、每次打印之前一定要确认树脂槽里无杂物残留，否则打印时会压坏玻璃导致打印机完全损坏。
Before print, please make sure there is no residue or dust inside the resin tray, if not glass will get broken during printing process.

三、安装切片软件 Install YXP slicing software

将U盘里的压缩文件wxqp.zip拷到桌面并解压文件，打开wxqp文件夹，再进入Release文件夹，选中YX.exe，右键单击选择发送到桌面快键方式。
Copy compressed install file on to the desktop , decompress wxqp.zip file, then find Release file, slect YX.exe, click mouse right to create desktop short cut.


YX.exe

四、做切片文件 To do file slicing

1、准备好带底板的STL格式的文件，底板厚度一般0.2mm。
Prepare STL file (base is already made), base thickness is normally 0.2mm.

2、将加密狗插入电脑USB。
Connect dongle to USB.

3、双击YX.exe快键方式，打开切片软件。
Double click YX.exe shortcut to open YXP software.

4、按照下面的四个步骤执行。
Then do following 4 steps.

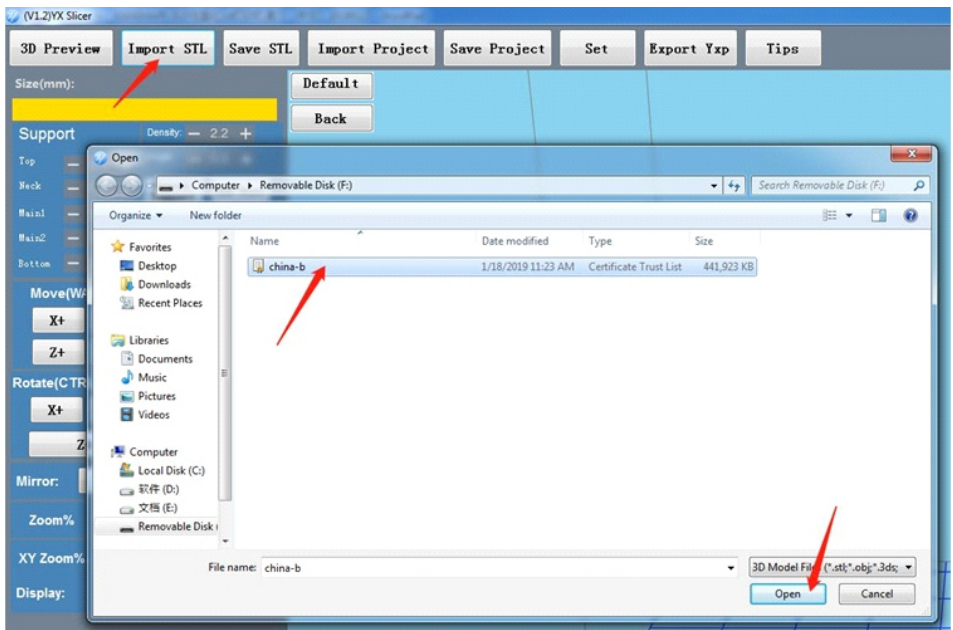**第一步：**点"Set"按钮设置机器参数，参数设置对照机型参数表，设置完后点"save"按钮，下次启动时默认此次设置。
1. Click Set to input parameters, for PRO100 machine , X 65, Y41, Z 80; for PRO150 machine, X 96, Y54, Z100; for PRO200 machine X 144, Y 81, Z 180
2. Both PRO150 and PRO200 machine, X Pixel 1920, Y Pixel 1080
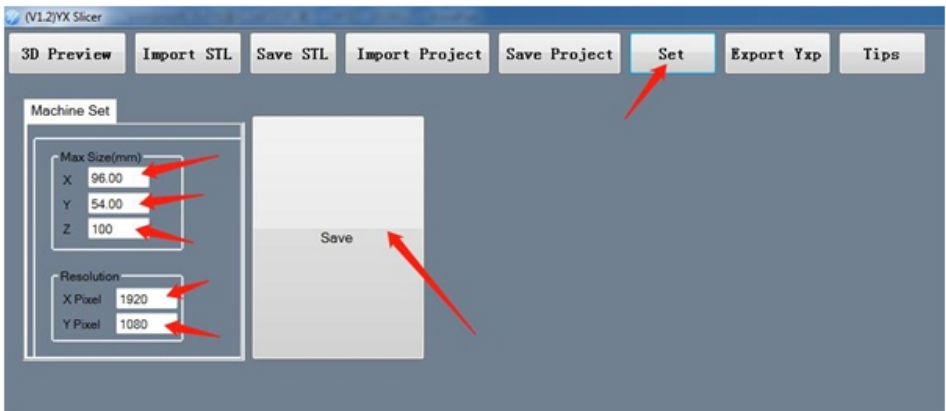
**第二步：**点"3D preview"按钮，回到主界面
Click 3D preview back to Home
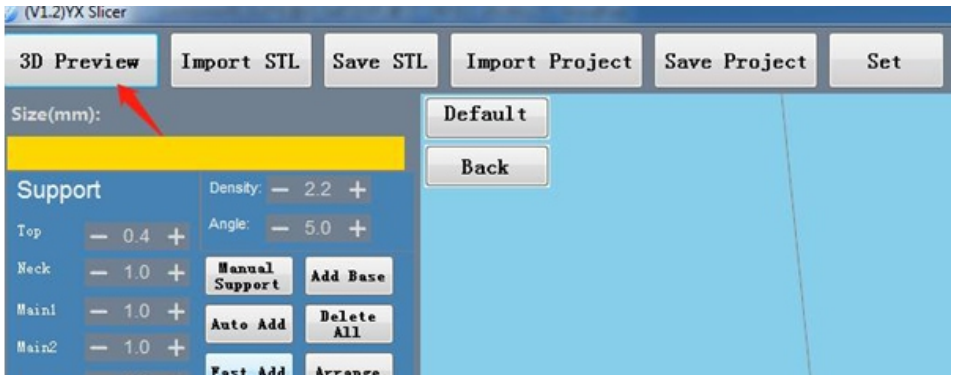
第三步：点"Import STL"按钮，导入stl格式文件。
Click Import STL button to load stl file.

第四步：点"Export Yxp"导出yxp格式文件，修改Thick值（0.01-0.05，常用值0.05），Tnti-aliasing修士（0-10，常用值3），File Name值（字母和数字），再点"Export Yxp"选择文件路径，路径设置为优盘，再点"ok"

Click "Export Yxp to output Yxp format file, set thick value (0.01-0.05, normal value is 0.05), Tnti-aliasing value (0-10, normal value is 3), file name (only english letter and numbers). then click Export YXP to save the file in removable disk.
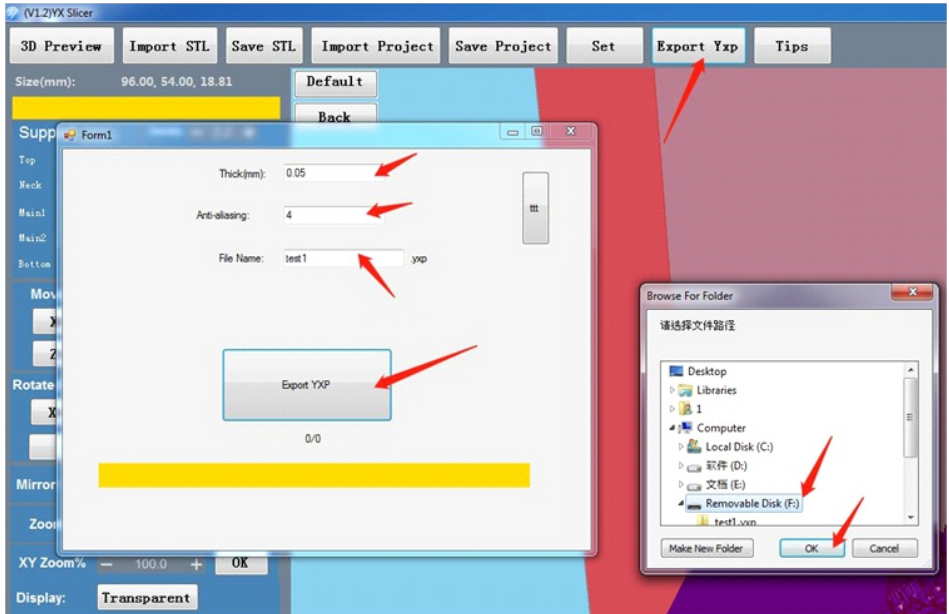
五、打印流程 Printing process

第一步：将优盘插在机器后面的USB上，插上电源线，打开电源开关。

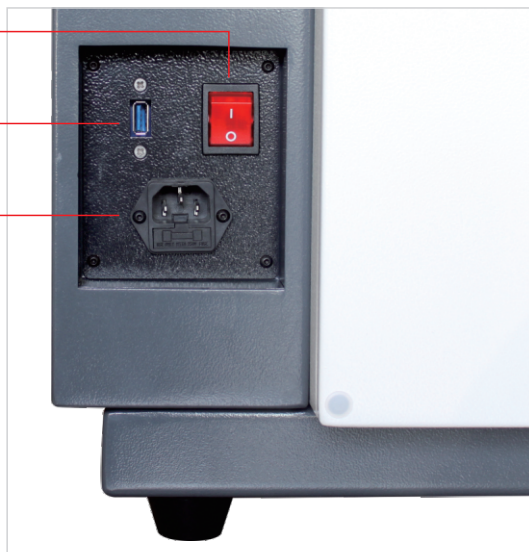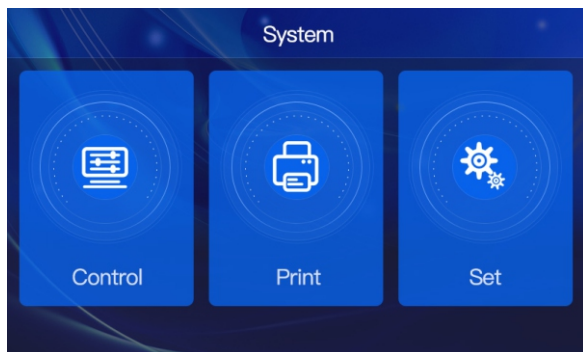Connect movable disk to the USB on the backside of 3D printer, plug in, then power on.
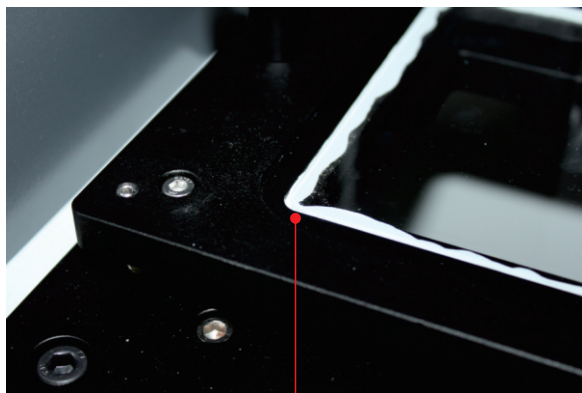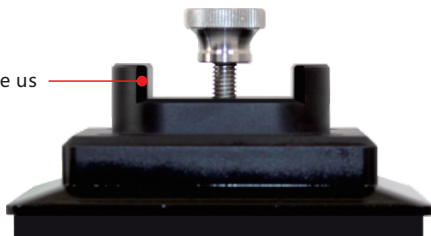
第二步：按下启动按钮 ⊙ ，等待约 2 分钟显示屏进入主画面。

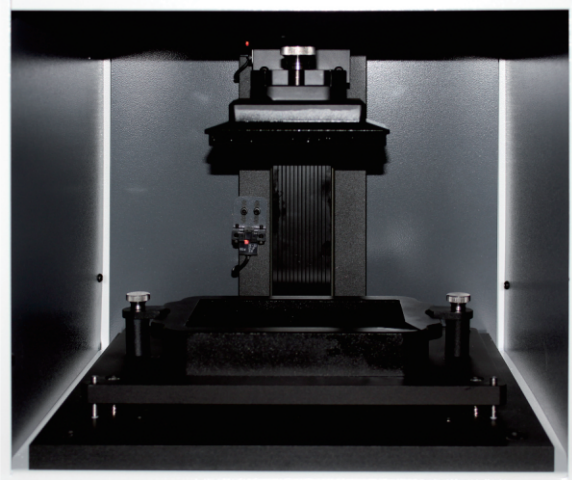Press Start button ⊙ , wait for 2 mins till screen display.

第三步：放上工作台和树脂槽，工作台有平口的一面向里，树脂槽要完全放入凹槽内，树脂槽里装入适量的树脂，锁上压紧螺母。

Fix print plate and resin tray , print tray with cut face us, fill resin into the resin tray, fix screws.
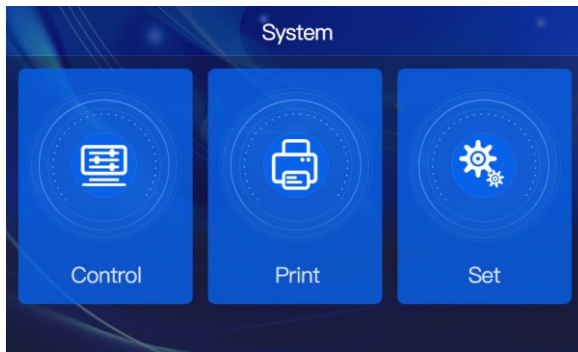

有平口的这面向里
With cut side face us

树脂槽完全放在凹槽内
Fill resin inside tray

第四步：打印 Printing

1、点"Set"按钮进入设置界面

Press Set

遵循粗件时间稍短，细件时间长一点，机器出厂时已配置好打印参数，一般打印件不用调整参数，即使要调整只需调普通层参数。参数说明如下，要设置那个选项参数，

Printing time we have set in factory, but if you indeed need to change the time, if you file is very thin print time is more, if you file is thick and big, printing item is less.

先点中它，再按调整按钮"∧""∨"加减，对应的参数值即显示在时间及光强的圆圈里 ⬤ ，设置好后点"Home"按钮返回。

First choose the parameter you need to change, then press"∧""∨"to increase or decrease, the revised value will show in ⬤ , after finish seting, click Home to back to Home page.
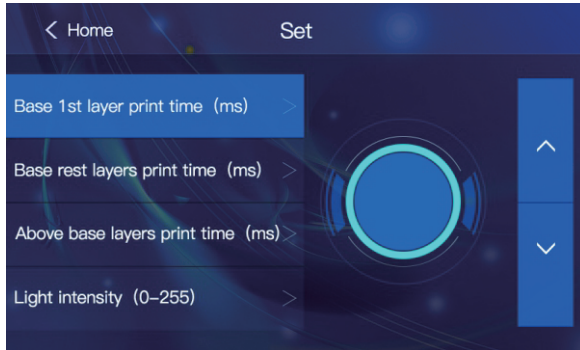
2、点"Print",进入选择打印文件
Press Print to select file
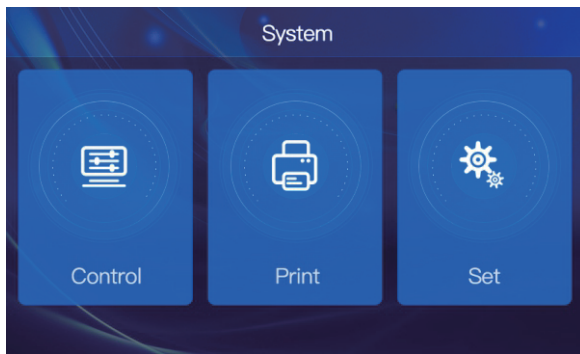
3、选择要打印的文件，点击进入打印界面
Slect file that you need to print

4、（1）点"start"，开始打印
Press Start to start printing

Name: text1.yxp
Count Time: 00: 00: 00
Print Time: 02: 43: 22
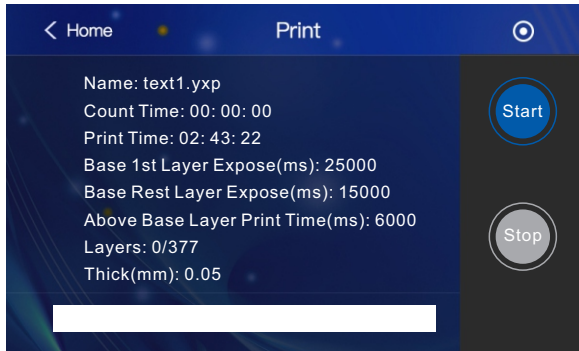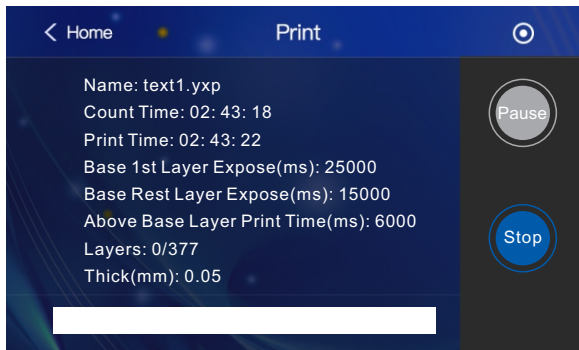Base 1st Layer Expose(ms): 25000
Base Rest Layer Expose(ms): 15000
Above Base Layer Print Time(ms): 6000
Layers: 0/377
Thick(mm): 0.05

（2）点"stop"取消此次打印，工作台即刻回到上限位
Press Stop button to stop printing, print plate will move up to top.

Name: text1.yxp
Count Time: 02: 43: 18
Print Time: 02: 43: 22
Base 1st Layer Expose(ms): 25000
Base Rest Layer Expose(ms): 15000
Above Base Layer Print Time(ms): 6000
Layers: 0/377
Thick(mm): 0.05

（3）点"pause"暂停，再点"start"从暂停的位置开始打印。
Press Pause, then press Pause to restart printing

Name: text1.yxp
Count Time: 02: 41: 19
Print Time: 02: 43: 22
Base 1st Layer Expose(ms): 25000
Base Rest Layer Expose(ms): 15000
Above Base Layer Print Time(ms): 6000
Layers: 0/377
Thick(mm): 0.05
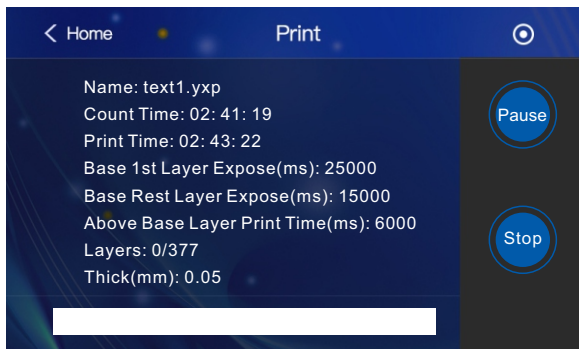
（4）如若遇紧急情况，再弹出机器面板启动按钮 ⬤ ，可断掉整个电源。

If any emergency , press this button to power off.

六、清洗 Clean

待模型打印好后，拿一张纸巾放在树脂槽往外这边，以免我们取下工作台的时候会有树脂滴落到机器里面，取下工作台后用手倾下拿着，让模型表面的上树脂滴到树脂槽里，减少树脂浪费，拿出来后用铲刀轻轻的把底板和工作台分离开，用镊子夹底板放入无水乙醇中清洗，过两遍无水乙醇清洗掉表面液体树脂，洗干净后用吹风机吹干，处理时候要小心谨慎，没有固化之前不能用手触摸模型，否则会破坏模型表面。再放到装着80摄氏度热水的石英杯中，水要没过模型，放到固化箱中固化一小时左右，固化好后表面干爽，不粘手。

When print finish, put a tissue near the resin tray to avoid liquid resin drop on the machine, take off the resin tray and hold it with angle, let the resin drop into the tray to avoid wastage. Then use shovel to move off the resin from the plate, use tweezer to soak the resin in ethonal to clean, normally clean 2-3 times, then dry it with blower. When resin get dray, put the resin into the baker where is fill with hot water (around 80c) to cure one hour, when you touch the resin no sticky , means curing process finish.

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