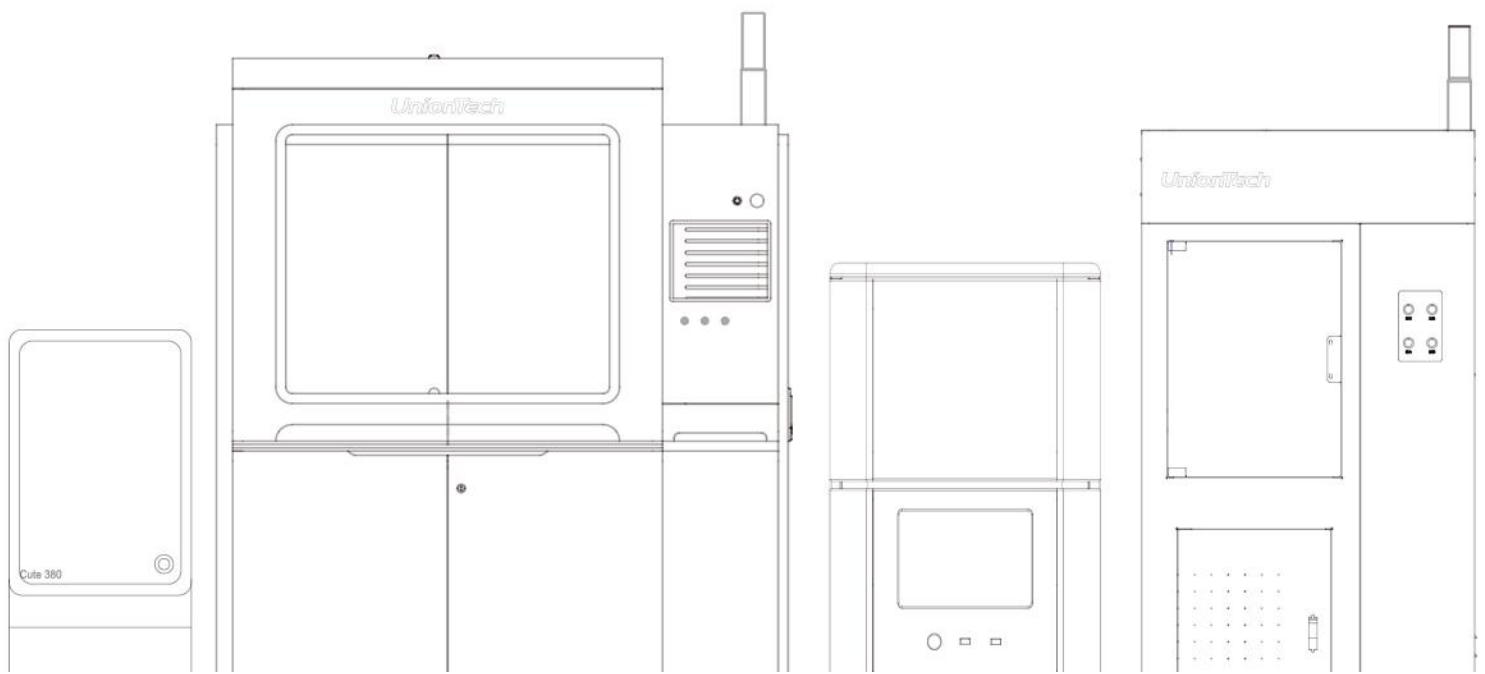


UnionTech

Matrix Series

User Manual



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Foreword

This Manual is a user manual designed for Martrix520/Martrix190 3D printer.

It comprehensively describes main principles, technical, structural and design characteristics, precautions, and post processing of 3D printer, and contains guidelines for application and maintenance of equipment.

Besides of hardware structure of equipment, this Manual also contains information about control system, data preparation software and optional post processing tools.

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1. Safety Alert

- 1) Receipt to determine the appearance and mechanical structure of the machine.
- 2) When removing the printed model from the platform with a shovel, be careful not to put your hand in the forward direction of the shovel.
- 3) In case of emergency, turn off the power of the machine directly.
- 4) Do not touch the moving parts of the machine when the machine is in motion to prevent pinching.
- 5) Wear gloves and goggles when filling resin and post-processing the model.
- 6) The printer and consumables should be placed out of the reach of children to prevent pinching and accidental drinking of resin.
- 7) Please use the printer in a well-ventilated environment and place the machine on a level platform.
- 8) When not in use for a long time, the resin in the machine should be emptied, and the machine should be kept out of moisture when it is sealed.
- 9) When printing, it is recommended to control the ambient temperature between 10°C-40°C and the humidity between 20%-40%. Exceeding the recommended range may cause some printing problems.
- 10) When there is a problem with the machine hardware, please contact the after-sales service, and do not disassemble the machine without permission.

2. Introduction

2.1 Product Overview

The overall appearance of the machine is shown in Figure 2.1 below:



Figure 2.1 Overall appearance of the machine

The structure of the back of the machine is introduced as shown in Figure 2.2 below:

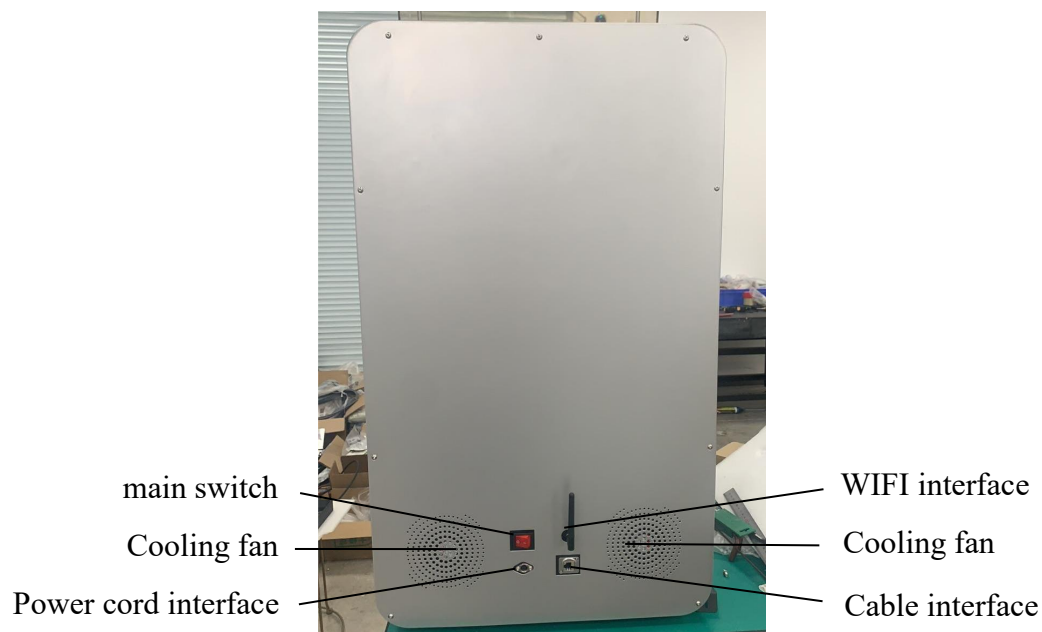
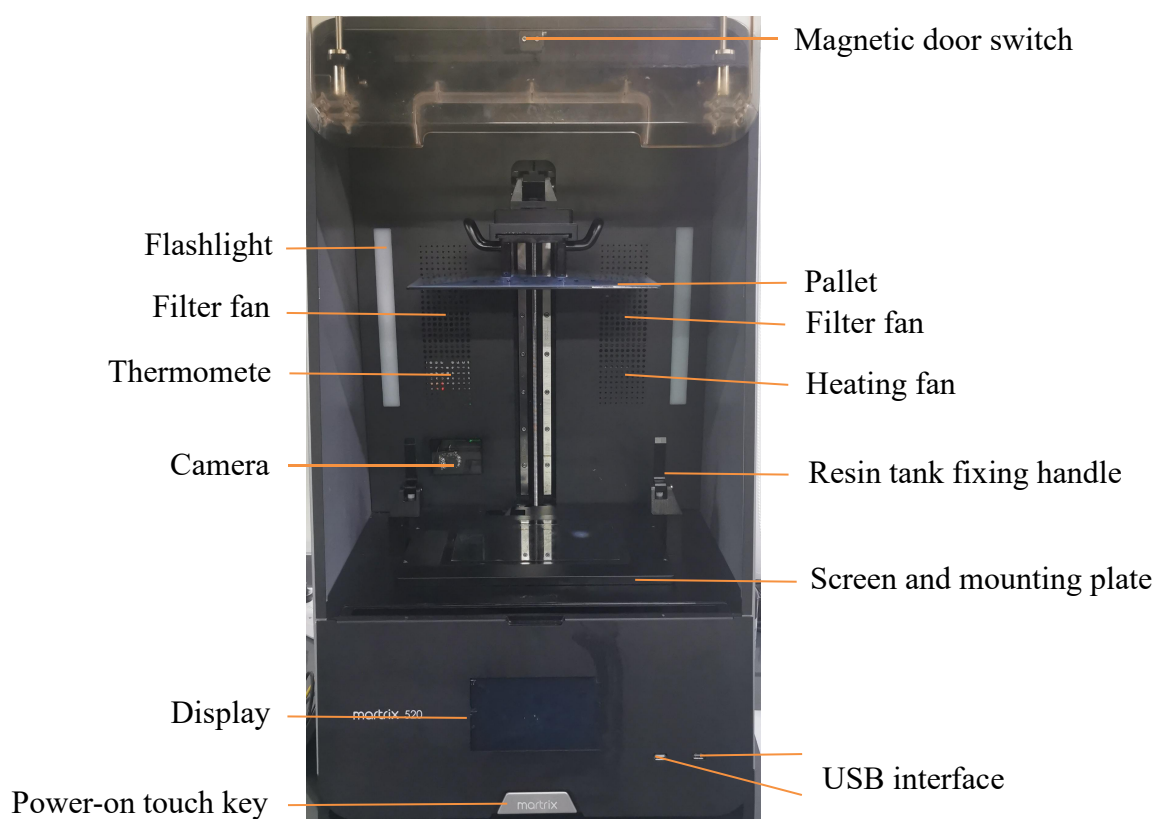


Figure 2.2 Machine back structure

The internal structure of the Martrix machine is shown in Figure 2.3 below:



2.2 Packing list

Name	Quantity	Application/Remark
Martrix LCD Printer	1PC	Martrix 520 or 190
Silicone scraper	1PC	For cleaning residual resin in resin tanks
Plastic tweezers	1PC	Used to strip debris and clean up flakes produced
0.1mm Feeler gauge	1PC	For adjusting pallet level
Spatula	1PC	Blade width 15mm, for shovel samples

Metric Allen Wrench Six-Piece Set	1Unit	1.5/2.5/3/4/5#, for leveling pallets, changing screens, etc
200 mesh filter	1PC	For filter resin
Gloves	1Box	To stay safe and clean
U disk	1PC	For test documents & model storage
Tool Box	1PC	For tools storage
Watering Can	1PC	For alcohol cleaning use (250ml)
Screen film	5PCS	For LCD screen protection
Diagonal pliers	1PC	Used to strip debris and clean up flakes produced
Release film	5PCs	Used to replace damaged membranes on resin tanks

Table 2.1 Packing list

3. The Touchscreen User interface

Dscon software is divided into four interfaces: printing interface, control interface, function interface, and hardware interface. There is an exit button at the top right of the interface.

3.1 Print Interface

Figure 3.1 below shows the printing interface of Dscon:

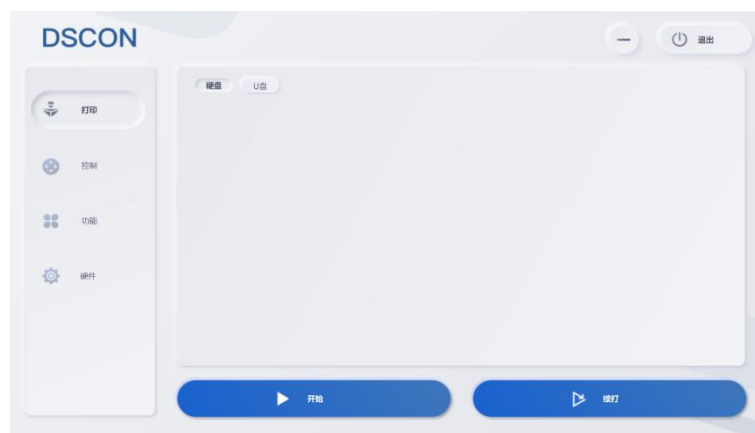


Figure3.1 Print interface

Hard Disk: The location where the print files are stored inside the machine;

U Disk: The location where the print files are stored in the U disk;

Start: Start printing;

Continue Printing: Continue printing.

3.2 Control Interface

Figure 3.2 below is the control interface of Dscon:

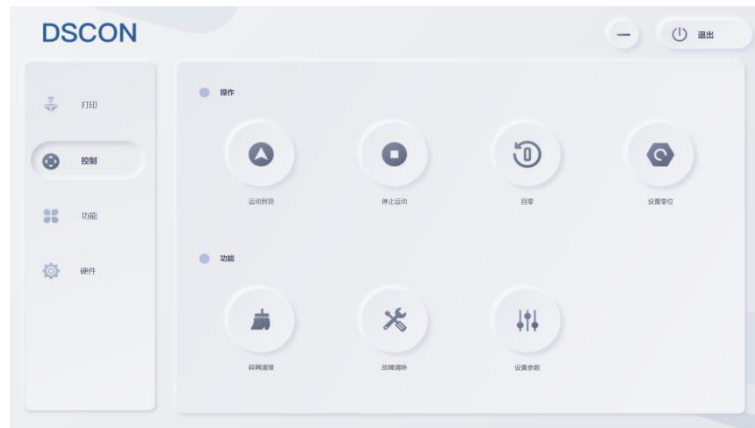


Figure3.2 Control interface

1) Action bar

Move to the top: the pallet moves to the highest point of the z-axis;

Stop motion: stop the motion part;

Return to zero: the pallet moves to the lowest point of the z-axis;

Set zero position: Set the zero position (the lowest point of the z-axis) when printing.

2) Function bar

Debris cleaning: The entire print area is exposed to form a layer of flakes that are removed along with the flakes;

Fault clearing: when the status light alarms, click fault clearing to cancel the alarm;

Setting parameters: Adjust some parameters of the machine, see Figure 3.3 below.



Figure3.3 Setting parameters

3.3 Functional Interface

Figure 3.4 below shows the functional interface of Dscon:

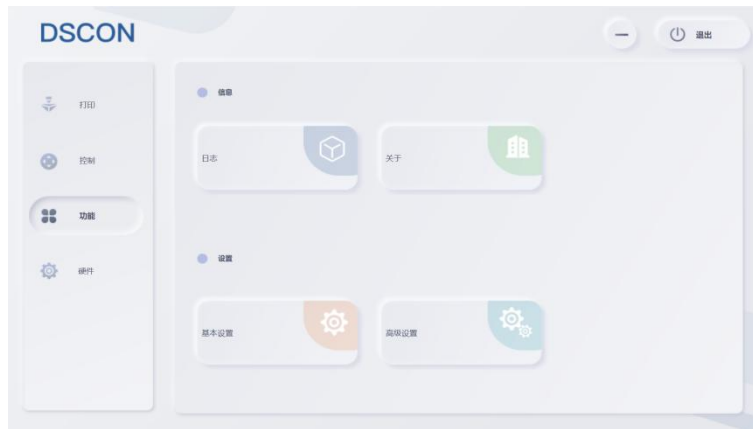


Figure 3.4 Function interface

1) Information bar

Log: record the operating status of the machine;

About: company information, software information.

2) Setting bar

Basic settings: set language, etc.;

Advanced settings: set the printing parameters of the machine, etc.

3.4 Hardware Interface

Figure 3.5 below shows the hardware interface of Dscon:



Figure3.5 Hardware interface

Lighting: The light inside the machine will be on long after the sliding door is pushed up;

Heating: The heating fan starts to work to heat the resin in the resin tank;

Screen: The 10.1-inch screen is a high-precision screen, and the 13.3-inch screen is a large-size screen. Tap the screen to switch the screen.

4. Workspace Preparation and Initial Setup

4.1 Resin Tank Membrane Change and Installation

Instructions

1) Resin tank membrane replacement

Remove the 8 screws of the fixed frame, the screw style is shown in Figure 4.1 below:



Figure4.1 Remove the frame

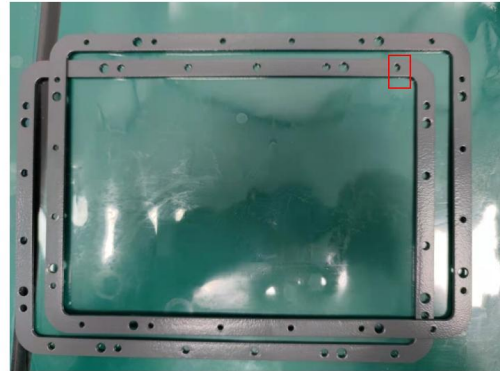


Figure4.2 Detached frame

Take out the frame and remove the screws that fix the frame. The positions of the screws are shown in Figure 4.2 above:

Place the release film between the two frames and keep it as tight as possible, tighten all the screws, cut off the excess release film around, and finally fix the frame on the resin tank and screw on the fixing screws. As shown in Figure 4.3:



Figure4.3 Resin Tank Recovery

2) Resin tank installation instructions

Check whether the release film is intact. As shown in Figure 4.4 below:

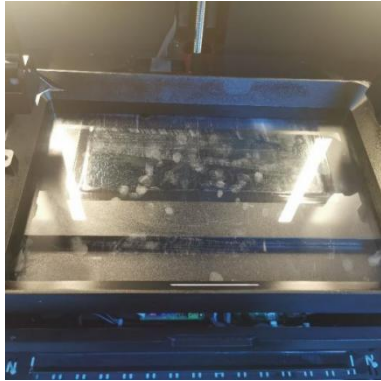


Figure4.4 Detection of release film



Figure4.5 Orientation of resin tank

Install the resin tank above the screen and tighten the wrench, paying attention to the orientation. As shown in Figure 4.5 above:

4.2 Leveling

1) Pallet leveling verification

Install the pallet to the designated position, as shown in Figure 4.6 below:

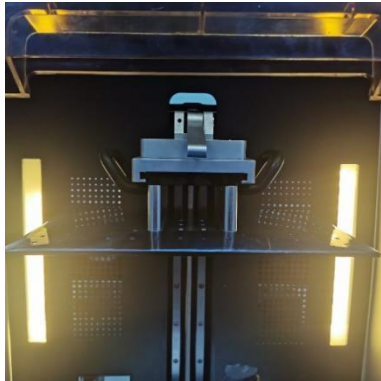


Figure4.6 Pallet installation

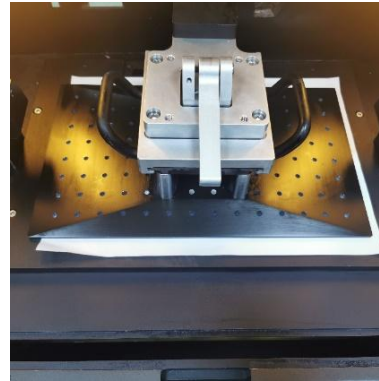


Figure4.7 Put A4 paper between the tray and the screen

Put a piece of A4 paper on top of the screen to prevent the screen from being scratched, as shown in Figure 4.7 above:

Find the zero return command in the machine control interface and click it, as shown in Figure 4.8 below:

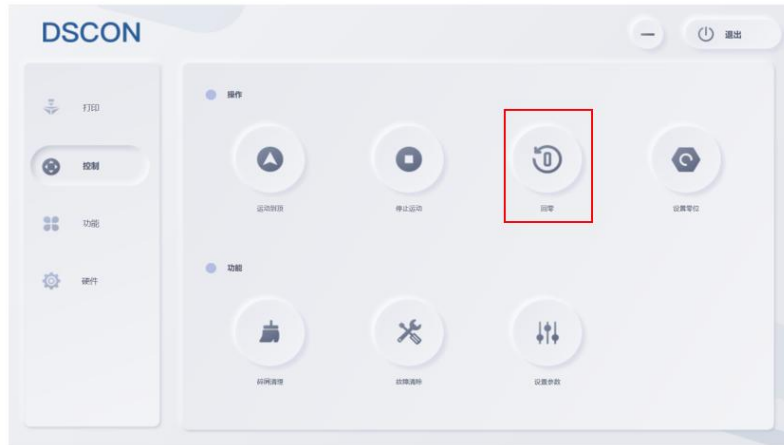


Figure4.8 Return to zero command

Insert the attached feeler gauge (0.1mm) into the four corners of the pallet, as shown in Figure 4.9 below:

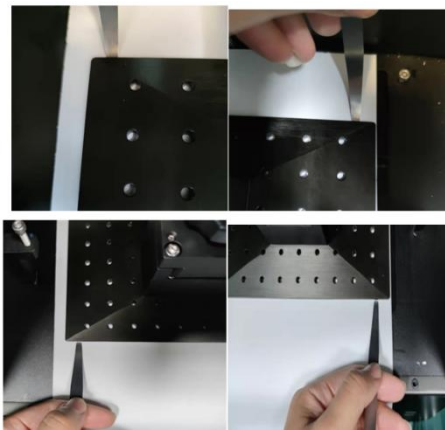


Figure4.9 Detecting the gap between the pallet and the screen

If the tightness of the four corners is the same and the feeler gauge is not easy to insert, there is no problem in leveling. If one corner is too loose or too tight, it needs to be re-leveled.

2) Leveling the pallet

There are a total of 8 screws on the top of the supporting plate, 2 in each corner, one is pulled up and the other is pushed down. When a corner feeler gauge can be easily inserted, this corner of the supporting plate is on the high side, and it should be loosened at this time. Open the wire and tighten the top wire. If the feeler gauge

cannot be inserted into a corner, the corner of the pallet is too tight, then loosen the top screw and tighten the top screw. It should be noted that when adjusting the screw, the amplitude should not be too large to prevent the screen from being crushed. As shown in Figure 4.10:

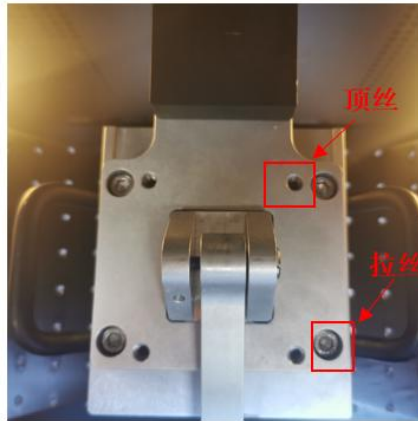


Figure4.10 Schematic diagram of top wire and wire drawing

5. Onboarding and First Print

5.1 Data processing software

This section will introduce the installation of the data processing software Polydevs DLP, the function introduction of the software, and the use of the software.

Polydevs is a data preprocessing software for additive manufacturing, 3D printing that makes it quick and easy to prepare and optimize printed parts, ensuring high-quality parts. Before preparing for printing, Polydevs converts the 3D file to be printed into a 2D slice file, and the converted 2D slice layer list file is printed by the machine. It can be used in a variety of printing technologies such as DLP, SLS, SLA and SLM. It has all the functions required for 3D printing data pre-processing, including data import, STL file repair, 2D/3D placement, generation support, slicing, etc., which greatly reduces the time of user 3D printing data pre-processing and significantly improves the printing success rate.

5.1.1 Installation of Polydevs DLP

Open the software installation package, double-click to open as shown in Figure 5.1.

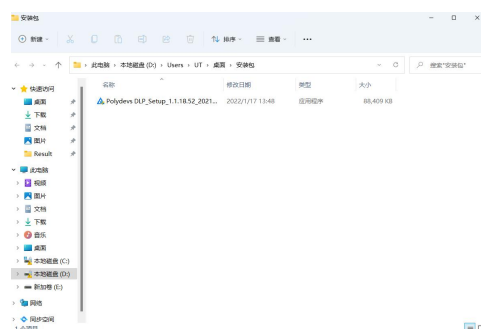


Figure 5.1



Figure 5.2

Select and determine the language of the software as shown in Figure 5.2.

Click Next as prompted and select "I accept the terms of the License Agreement"

as shown in Figures 5.3 and 5.4 .



Figure 5.3

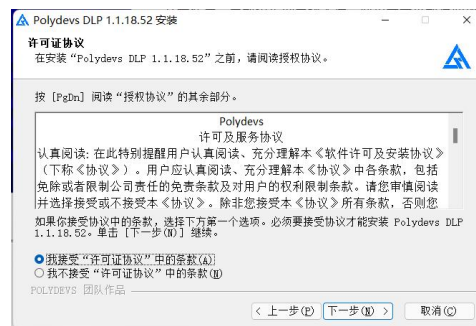


Figure 5.4

As shown in Figure 5.5 and 5.6, click Next and select the installation directory according to the prompts, the default is in the root directory of the C drive, and click the install button.

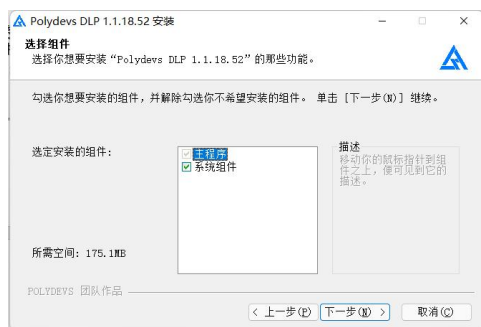


Figure 5.5

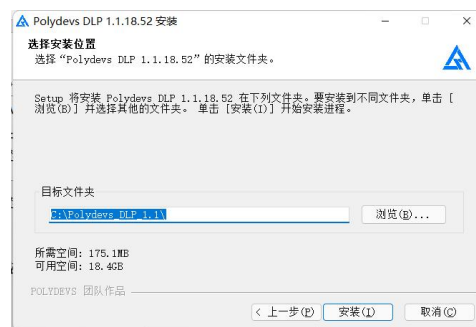


Figure 5.6

As shown in Figure 5.7, after the installation is successful, click Finish.



Figure 5.7

5.1.2 Introduction to polydevs DLP function modules

The Polydevs DLP working interface is divided into 8 parts, as shown in Figure

5.8 below.



Figure 5.8 Working interface

1. Top toolbar

Includes file, edit, perspective, support, help. You can select the appropriate function according to your needs.

2. Left toolbar

Icon	Name	Function
	Open file	Import the file to be printed into the software.
	Auto layout	The software automatically places the parts on the platform.
	Move	Adjust the position of the part on the platform.
	Orientation	Adjust the part angle on the platform.
	Punch	Punch the part.
	Support	Add supports to the part.
	Start printing	The software automatically slices the parts on the platform and generates printer-recognizable files.
	One-click send	Send the file directly to the printer.

3. Print platform

Places the printed part and displays the printable range of the machine.

4. Coordinate

Displays the position of the current platform XZY three axes.

5. Zoom control buttons

Zooms in and out of the platform field of view. The buttons from left to right are zoom in, restore, and zoom out, respectively.

6. View toggle buttons

Switch the angle of view of the platform. The button in the middle is the main viewing angle, the button on the left rotates 90° to the left view, and so on for the other three buttons.

7. The view area of the object being printed

Displays the imported parts list and clicks the part to select parts.

8. Bottom status bar

Displays information such as the volume, weight, and so on of the printed part.

5.1.3 Introduction to the usage process

1) Open the software

After opening the software, the software will pop up the task options action box for the user to operate.

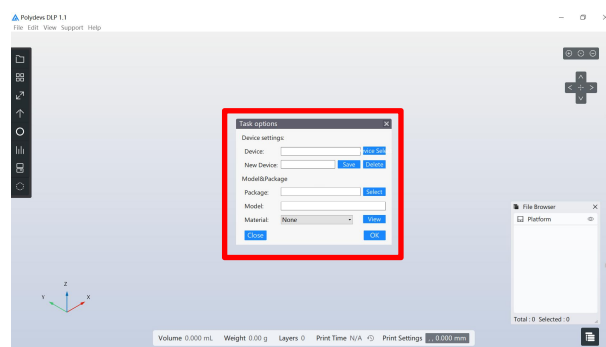
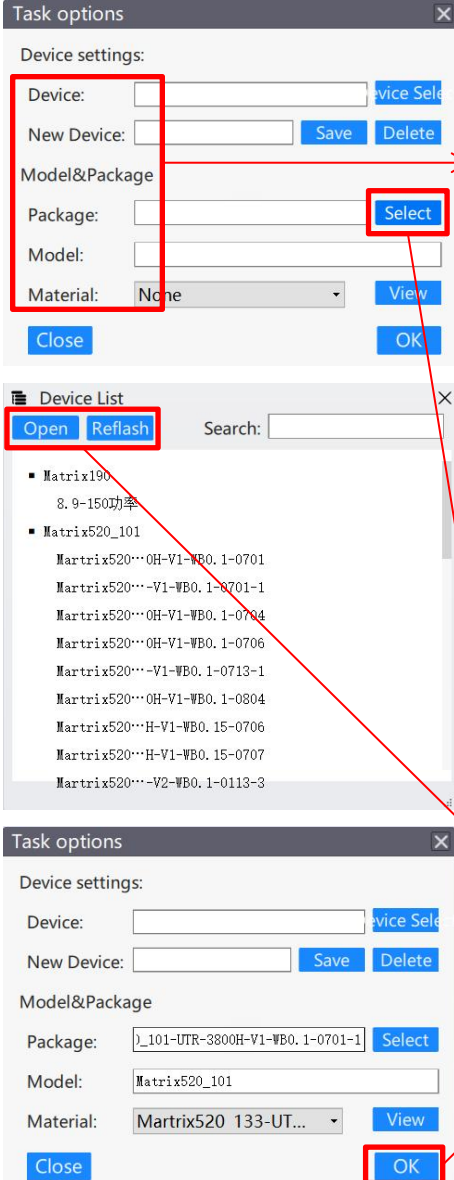


Figure 5.8

2) Import process packages



Device: Select the saved models and process packages for direct application.

New Device: Select the appropriate model and process package and save it as equipment for your next use.

Package: Preset the optimization parameters corresponding to the material and model, and the printing parameters can not be adjusted additionally after application.

Model: The model of the device used.

Material: The resin model used.

Selection of package:

- ① Click the **Select** button to enter the secondary menu and double-click to select the corresponding process package;
- ② If there are no process packages in the list, click the **Open** button, enter the folder where the process package is stored, copy the process package into the folder, and then click the **Refresh** button;
- ③ Click the **OK** button to complete the selection of the process package.

Figure 5.9

3) Import the part

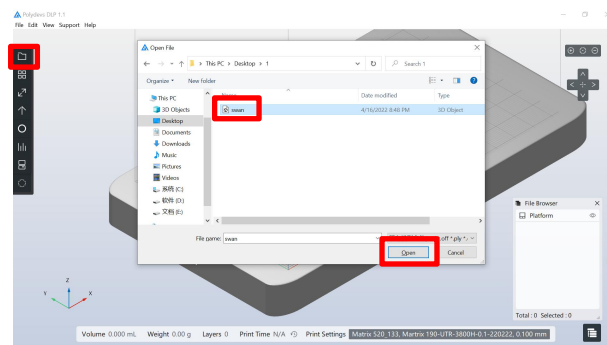


Figure 5.10

Click the "  " button on the left ribbon, find the model file (.stl suffix) in the pop-up file manager window, double-click the file directly or click the Open button in the lower right corner to import the part.

4) Adjust the part

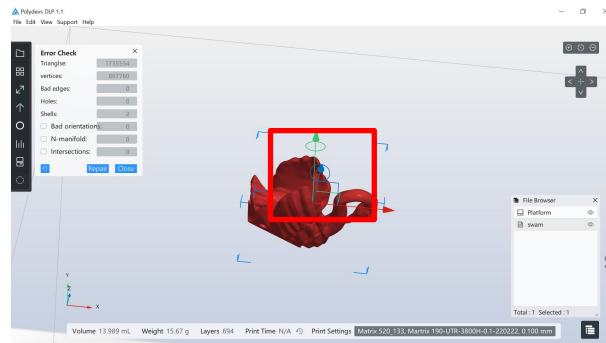


Figure 5.11

After importing the part, the part needs to be positioned and bug fixed.

Part appears red: Indicates that the part is not in the print platform, and moving the mouse over the coordinate axis of the part allows you to move and rotate the part.

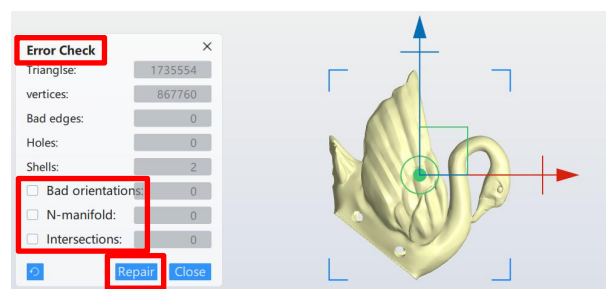


Figure 5.12

Part appears white: There is an incorrect triangular patch of the part.

When there is an error in the part, the system automatically pops up the **Error Check** window. Tick the items that need to be repaired and click the **Repair** button to fix the error.

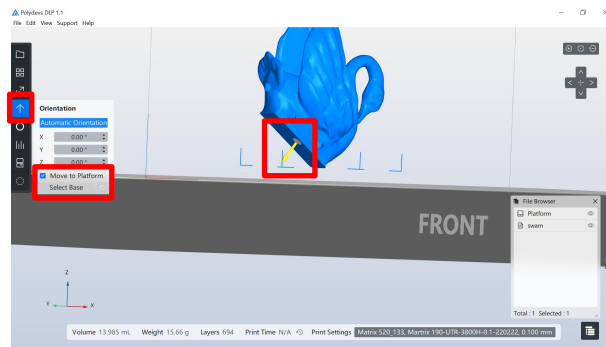


Figure 5.13

If the bottom of the part is not parallel to the bottom of the platform, click the  - specify the bottom surface - the bottom of the model, and then complete the adjustment.

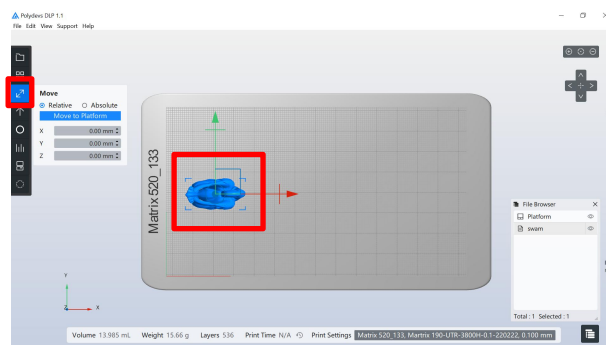


Figure 5.14

Click the  to open the Model Location interface to adjust the placement of the model or directly drag the coordinate system on the model to adjust the model position.

5) Shell extraction

In general, the model of the .stl file is solid, and it is usually necessary to shell it before slicing, and the model is processed into a hollow to save material and obtain better printing results.

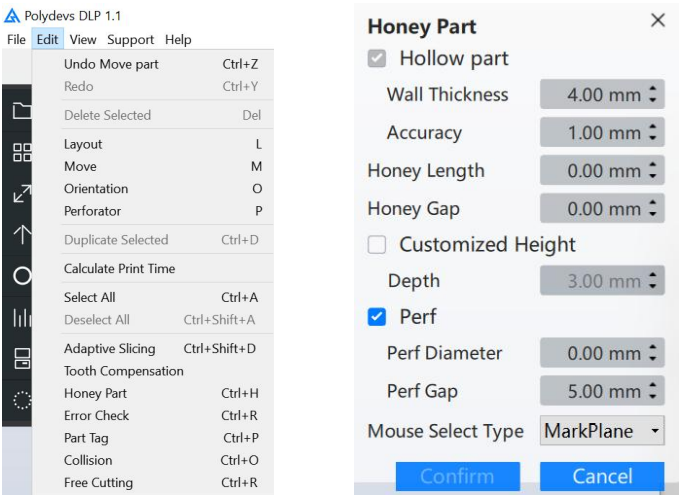


Figure 5.15

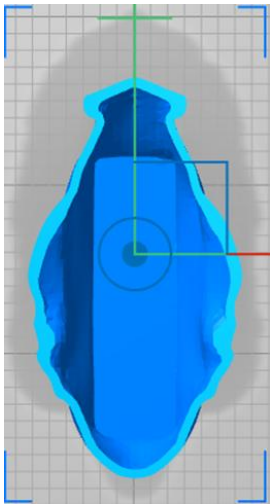


Figure 5.16 The thickness of the shell is 1mm

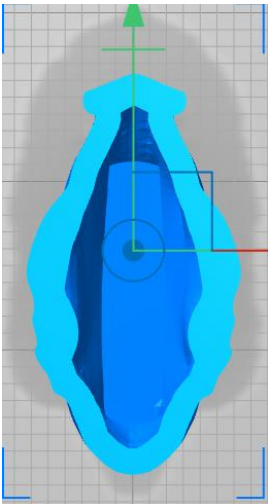


Figure 5.17 The thickness of the shell is 3mm

6) Honey Part

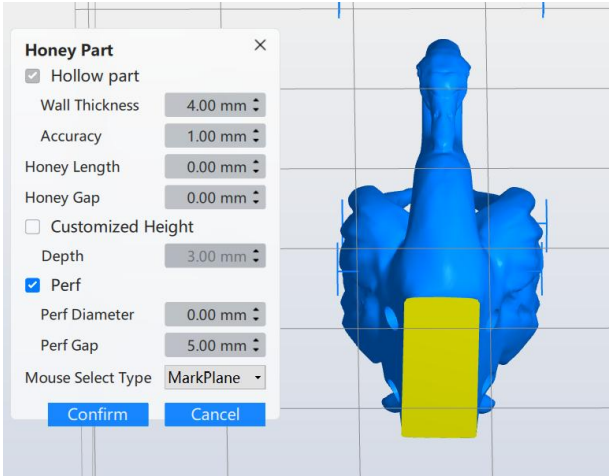


Figure 5.18

When shelling, select a face to be deleted, the inside will have the honeycomb structure filled, check the punch button, create holes inside the honeycomb structure, increase the flow of resin. It is recommended to use the honeycomb structure function when printing models with a flatter surface.

7) Perf

After the shell is extracted, the space inside the model is closed and the resin cannot be excluded, so a hole is punched in the part to allow the resin to flow out.

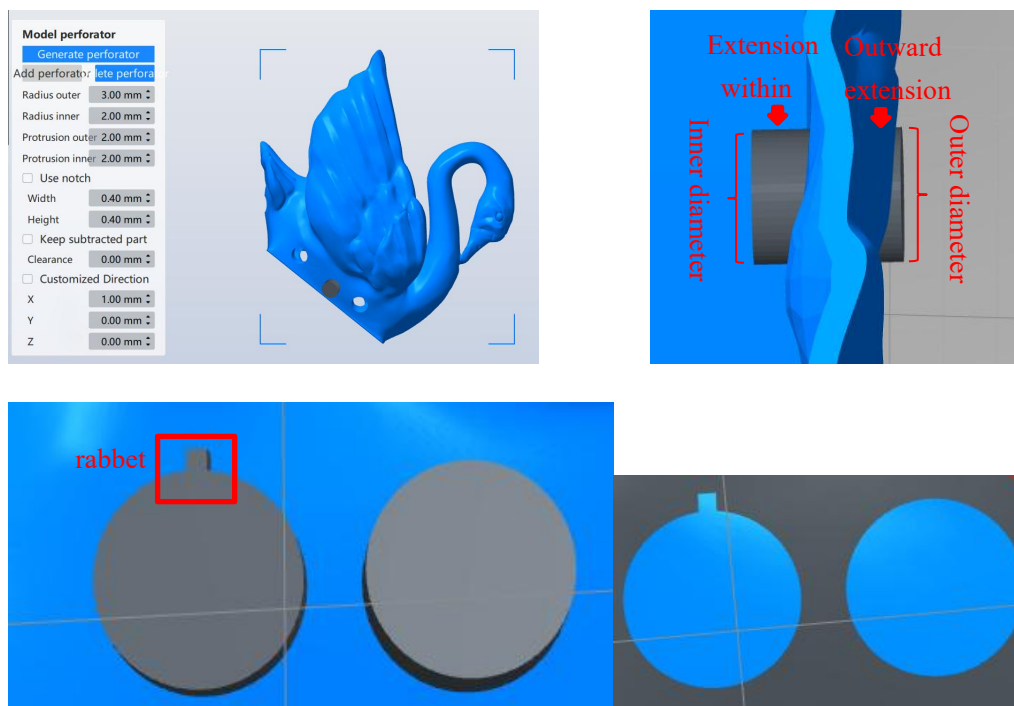


Figure 5.19 Keep the deleted portion

After clicking the **Add perforator** button, click the location on the model where you need to add a hole, a gray preview part will be generated, clicking on the slot will add a slot on the hole, click Keep the deleted part, and the patch where the hole is punched will be retained.

8) Supports

The support parameter setting interface is shown in Figure 5.20 below.

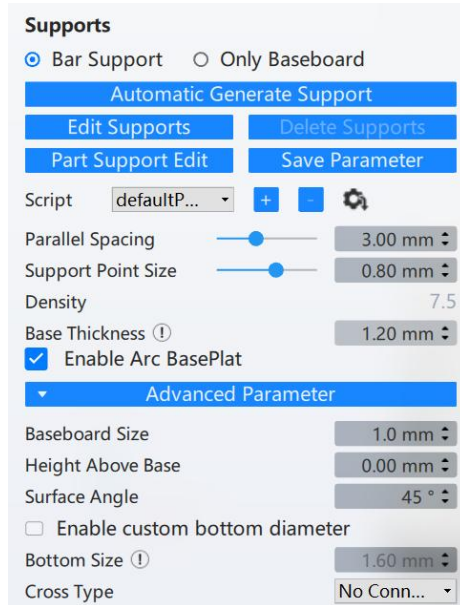


Figure 5.20 Support parameter setting interface

Bar Support & Only Baseboard: Bar support generates supports and baseplates, and **Only Baseboard** generates only baseplates.

Script: Click to save the current parameters as the support script, click to delete the current support script, and click to set the current script as the default script.

Parallel Spacing: The gap size of the support is automatically generated.

Support Point Size: The diameter size of the support is automatically generated.

Density: Automatically adjusts based on parallel spacing.

Base Thickness: The thickness of the base plate is automatically generated.

Enable Arc BasePlat: After checking, a certain curvature will be generated around the bottom plate to facilitate the shovel.

Baseboard Size: Controls the size of the backplane outwards.

Height Above Base: The distance between the model and the baseplate.

Surface Angle: Support anchor points are automatically added when the set angle is reached during the automatic support generation process.

There are three types of supports, the specific types of which are shown in Figure 5.21.

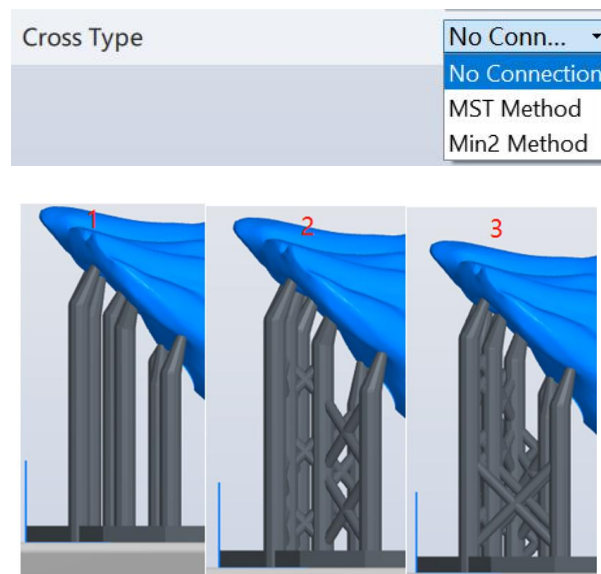


Figure 5.21 Support Type

When adding supports, different support types can be selected to adapt to

different parts, so as to achieve the effect of saving material and strengthening stability, the bifurcation connection between the supports can provide better stability for the support, and the number of supports can be reduced to save materials.

The following images 5.22 - 5.28 show the sample results generated by the command.

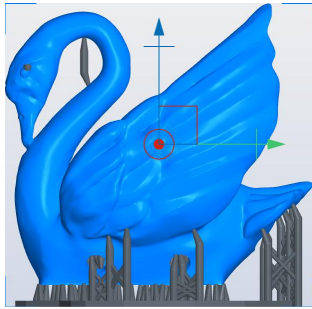


Figure 5.22 Tree supports

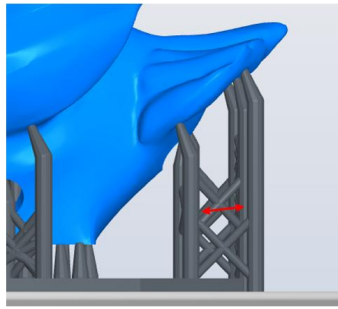


Figure 5.23 Parallel Spacing

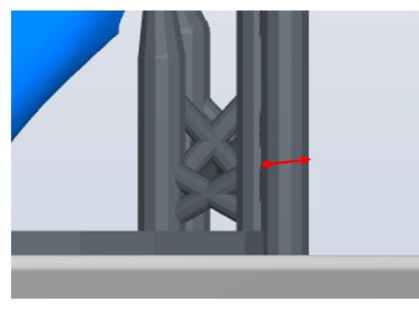


Figure 5.24 Density

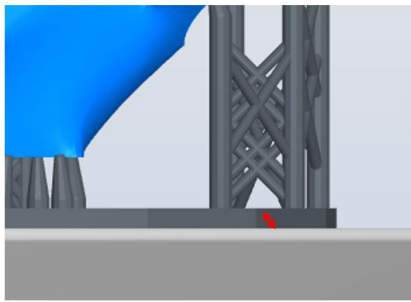


Figure 5.25 Base Thickness



Figure 5.26 Base plate curvature

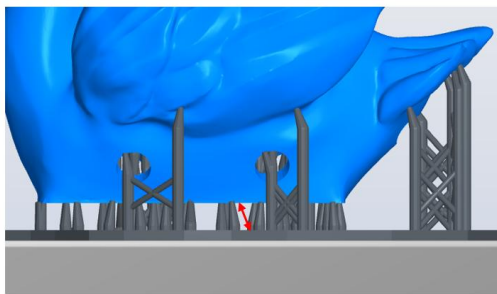


Figure 5.27 Height Above Base

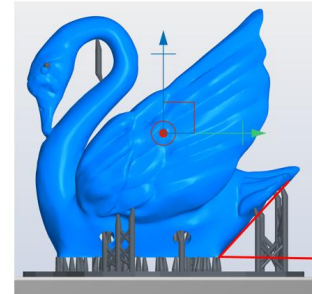


Figure 5.28 Surface Angle

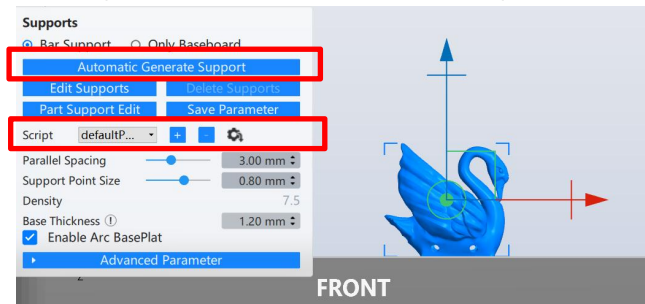


Figure 5.29

After entering the script parameters, click  to save the current support

parameters for later calling, click the Auto Generate Support button to add support, and click the Edit Support button to manually adjust the support.

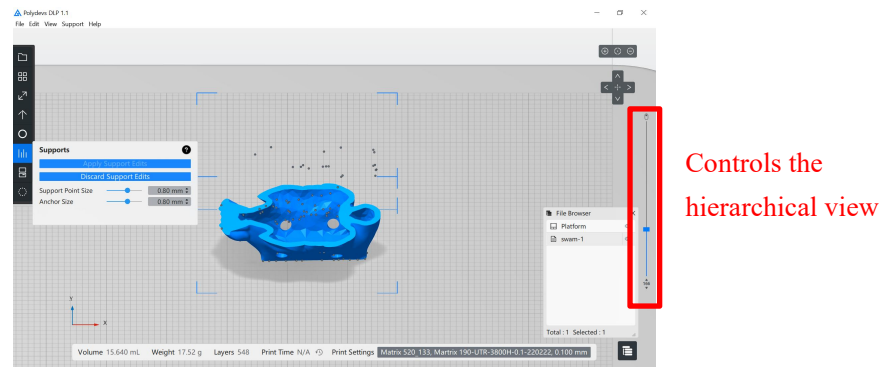


Figure 5.30

When manually adjusting the support, you can slide the right side to control the hierarchical view button to see where you need to add support, use the left mouse button to click the location where you need to manually add support to add support anchor points, click the support anchor point to remove support, and click **Discard Support Edits** to complete the support addition.

9) Get on board

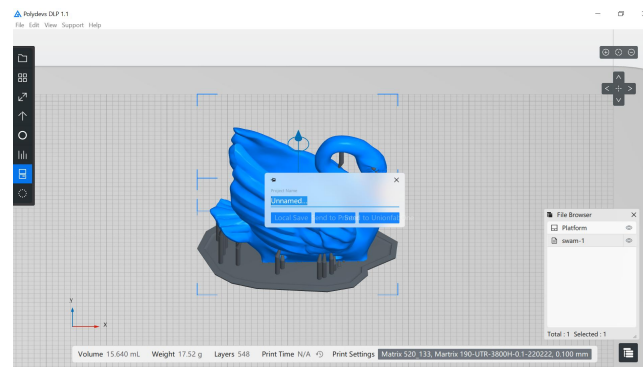


Figure 5.31

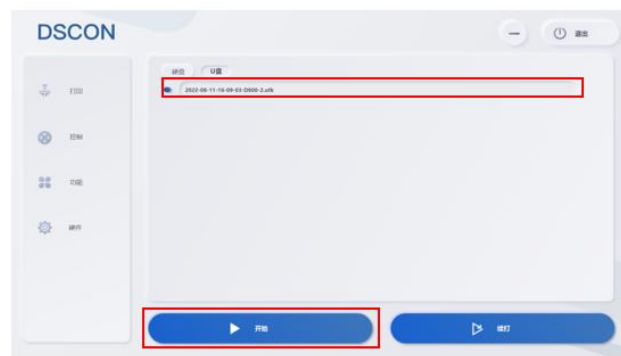
Click  to enter the name of the slice file in the pop-up dialog. Click **Local Save** to save the .utk file to a USB flash drive.

5.2 On-board process

Insert the U disk into the USB port.



After ensuring that all parameters on the machine are accurate, select the file to be printed in the U disk of the printing interface, and then click "Start".



After clicking OK, the interface will display the information of the print file. After checking the information is correct, select "OK" to print the machine.



5.3 Disembarkation process

Remove the pallet from the machine and place it in the tray, and use the included spatula to scoop the parts off the pallet. As shown in Figure 5.4:

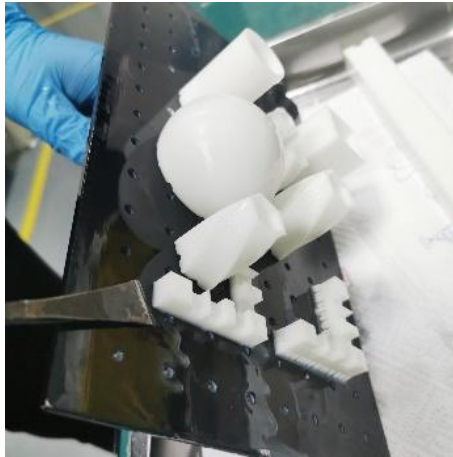


Figure 5.4 Schematic diagram of shovel

After the parts are printed, you need to select the "debris cleaning" function in the control interface to clean up the residue deposited in the resin tank. After the debris has been cleaned up, use the provided tweezers to pick up the flakes from the sides of the resulting flakes. The operation is shown in Figure 5.5 below:



Figure5.5 Debris cleaning

After the debris is cleaned, take out the resin tank full of resin, use the equipped funnel and screen to screen the resin in the resin tank and pour it back into the material bottle to ensure that there is no suspended magazine in the resin. The operation is shown in Figure 5.6 below:



Figure5.6 Resin Filtration

6. Machine screen change operation method

This chapter will explain how to switch between the 10.1-inch and 13.3-inch screens of the Martrix520 machine.

6.1 Remove the fixing screws

In the Martrix520 machine, both the 10.1-inch screen and the 13.3-inch screen are fixed to the machine by four screws, so we first need to use an all-hex wrench to remove these four screws. As shown in Figure 6.1 below:

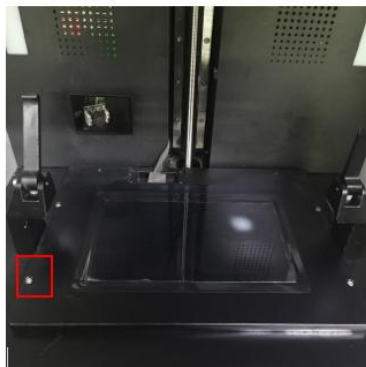


Figure 6.1 Screw location

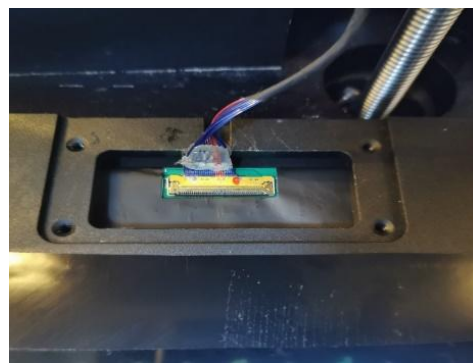


Figure 6.2 The data cable socket

6.2 Replace the cable

In the Martrix520 machine, the 10.1-inch screen data cable and the 13.3-inch screen data cable are not common, so the data cable on the back end of the screen needs to be unplugged after the screen screws on the original machine are removed. Plug the corresponding data cable into the screen after replacing the other screen. As shown in Figure 6.2 above:

6.3 Mounting screws

Align the four screw openings on the screen with the threaded openings on the machine and install the four screws that you just removed back in. After the screws

are applied, you need to manually check whether the screen is still shaking to make sure that the machine screen is fixed to death.

6.4 Pallet leveling

See Pallet Leveling in Section 4.2 for details.

6.5 Adjust software parameters

1) After the above work is completed, the following operations need to be carried out in the software. Select hardware operation in the options bar on the far left side of the screen, and then select the corresponding screen (10.1 inches for high-definition screen, 13.3 inches for large-size screens), after selecting the screen, the machine will restart, and the machine will automatically adjust to the corresponding size after restarting. As shown in Figure 6.3 below:



Figure 6.3 Screen switching function

2) After completing the above operation, select the setting parameters in the control operation, and adjust the parameters such as the scale factor to the parameters corresponding to the screen size (the parameters are not unique, and the initial settings are 1). The parameters are detailed in Figure 3.3 of Section 3.3.

6.6 Check the screen

After the above steps are completed in the "Control" command, select "Debris Cleanup" to see if the screen is intact. As shown in Figure 6.4 below:

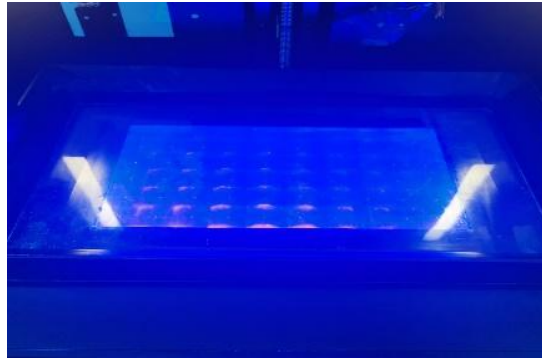


Figure 6.4 Check the screen

6.7 Install the resin tank

After all the above operations are complete, place the resin tank above the screen to make sure that the snap is aligned with the hole on the resin tank, and press the wrenches on both sides to make sure that the resin tank will not move again.

6.8 Replace the process package

7. FAQ

7.1 Troubleshooting of printer

Fault phenomena	Possible causes	Solutions
The equipment cannot start up	The power plug of printer is not inserted to the specified position	Readjust the position of power plug to ensure tight and stable

normally		connection
	The main power switch on the back of printer is not turned on	Turn the power switch  on the back to "I"
	The fuse system of printer blows out	Replace the fuse and restart the printer
	Program startup failed to find optical machine	Check the connecting cable of the optical scanner
	No power on or misconfiguration of CAN port	Check the connecting cable of the motor and CAN
	Use utk files that are not required for Martrix520 or 190	Using BPC software of Martrix520 or 190 to regenerate utk
The lifting of building platform is stuck	The building platform reaches the limitation of limit switch	Rest the Elevator position and lift it again
	Another process is controlling the lifting of platform	Close the process and lift it again
	The lifting is stuck by other foreign bodies near the platform	Clear away all foreign bodies near the platform in advance
The building process is interrupted suddenly	Power failure or poor contact of the printer	Insert all cable plugs again and print again
	DSCON control software failure	Restart the control software and print again
	The building platform reaches the limitation of limit switch	Rest the Elevator position and print again
The blade cannot	The vacuum pump is broken	Replace the vacuum pump

absorb resin during production	The negative pressure is not adjusted properly	Adjust the negative pressure
Failure shutdown	Building failure results in that the blade touches limit switch	Check support, process parameters and blade, etc.
Unstable liquid level	Fault of liquid level balance system	Check
	The liquid level in the resin tank is too high or too low	Add resin or reduce resin
	Z axis lowers too fast	Reduce the speed (1mm/s)

7.2 Troubleshooting of building part

Fault phenomena	Possible causes	Solutions
Missing details of building part	Data are lost during preprocessing of models	Restart the preparation software and load the STL file
	Building resin is dampened, resulting in soft details	Replace resin and control ambient humidity
	Details are lost due to impact of strong flow at postprocessing	Wash the part with alcohol gently and slowly
	Faults of preprocessed files, e.g. insufficient support	Preprocess source files and print again
	Body part is cleared away in the postprocessing process	Carry out postprocessing operation prudently
	Building is affected by vibration source near the printer	Move away the vibration source near the printer
	The adjusting foot margin of printer are	Adjust the foot margin

	unstable	appropriately and print again
Softened structure of building part	Building resin is dampened, resulting in soft details	Replace resin and control ambient humidity
	The post curing time or light intensity is not enough	Adjust post curing-related parameters
	Light projection parameters are incorrect, and resin is not cured completely	Adjust light projection parameters and print again
	The temperature changes largely in the building process	Strictly control the temperature in the building process
	Preprocessing support is not set reasonably	Redo preprocessing and add support
Scratched during building	Design defect of support	Check and redesign the support
	Resin absorbs moisture	Ensure the humidity in building room is lower than 40%
	Blade is disordered	Adjust the blade
	Cup mouth effect	Open hole in the part or change the building direction
	Foreign matter on the bottom surface of blade	Clean the bottom surface of blade

8. Care & Maintenance

8.1 Regular maintenance procedure

Please refer to the following procedure for daily maintenance of the printer:

- 1) Confirm all switches are in off state and unplug all cables connected to the printer.
- 2) Wipe the whole building platform of printer with clean non-woven fabrics wetted with a little alcohol to clear off residual resin.
- 3) Check all fasteners for looseness and breakage, etc.
- 4) Check the functionality of all safety gears, and make sure they are kept in reset state.
- 5) Check all sockets for their integrity and the trace of overcurrent burn off.
- 6) Check the sealing condition of door to prevent print failure and the influence of light leak on resin quality.
- 7) Check all cables and adapters for integrity and applicability, and in case of breakage or aging, immediately replace them with cables of the same type.
- 8) Check all standards parts in the building platform (e.g. screw and nut, etc.), and immediately replace damaged parts with parts of the same type if any.

8.2 Precautions for daily operation and use

- 1) It's strictly prohibited to dismount modules/components of the printer or adjust components of the upper actuator without authorization.
- 2) It shall be ensured that all exposed wiring connections are sheathed with protective cover to prevent the danger of electric shock in case of aging failure.
- 3) Cable joints, panel indicators and buttons must be inspected regularly to confirm

they are in good condition.

4) It's strictly prohibited to tear up, alter and move the nameplate and warning signs of the printer without permission.

5) Mechanisms of the printer must be inspected regularly for missing, lose or damaged parts.

6) Safety gears of the printer must be inspected regularly to ensure their functionality and stability.

7) The printer must be installed far away from combustion source, water source, heat source, and vibration source, etc.

8) The printer must be cleaned regularly, and the building room shall be kept sanitary and low-dust.

9) After completion of each production, solid residual resin on the platform shall be cleared off, and blocked holes shall be unchoked timely.

10) Foreign matters on the blade shall be cleared off timely if any.

11) The guide rail and lead screw at Z axis should be cleaned regularly to remove debris and oiled every six months.

12) In daily use, please do not carve on the surface of equipment with sharp objects so as to avoid damage to outer coating.

13) Please do not knock the equipment with blunt so as to avoid deformation of equipment.

9. After-sales service & warranty

UnionTech undertakes to provide one-year warranty and life-time technical support for Martrix520 or 190 printer, the warranty period is counted from the installation date of printer and software, and the following points shall be noted here:

The warranty is only limited to the Martrix 520 or 190 printer itself, and the accessories attached to the printer are defined as consumables, which are not covered under warranty.

The warranty is only limited to data preparation software and control software attached to the printer, excluding any third-party software.

Any damage of the printer or related accessories caused by operators' failure to comply with this User Manual and personal misoperation is not covered under warranty.

Any damage of the printer or related accessories caused by operators' disassembly of printer without permission is not covered under warranty, and the warranty period expires immediately in such cases.

It's strictly prohibited for any organization or individual to pass on any data of Martrix520 or 190 printer to other organizations or individuals without written authorization of UnionTech, and relevant personnel shall be investigated for legal responsibility according to law once verified.

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FCC WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC's RF Exposure guidelines, This equipment

should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.