

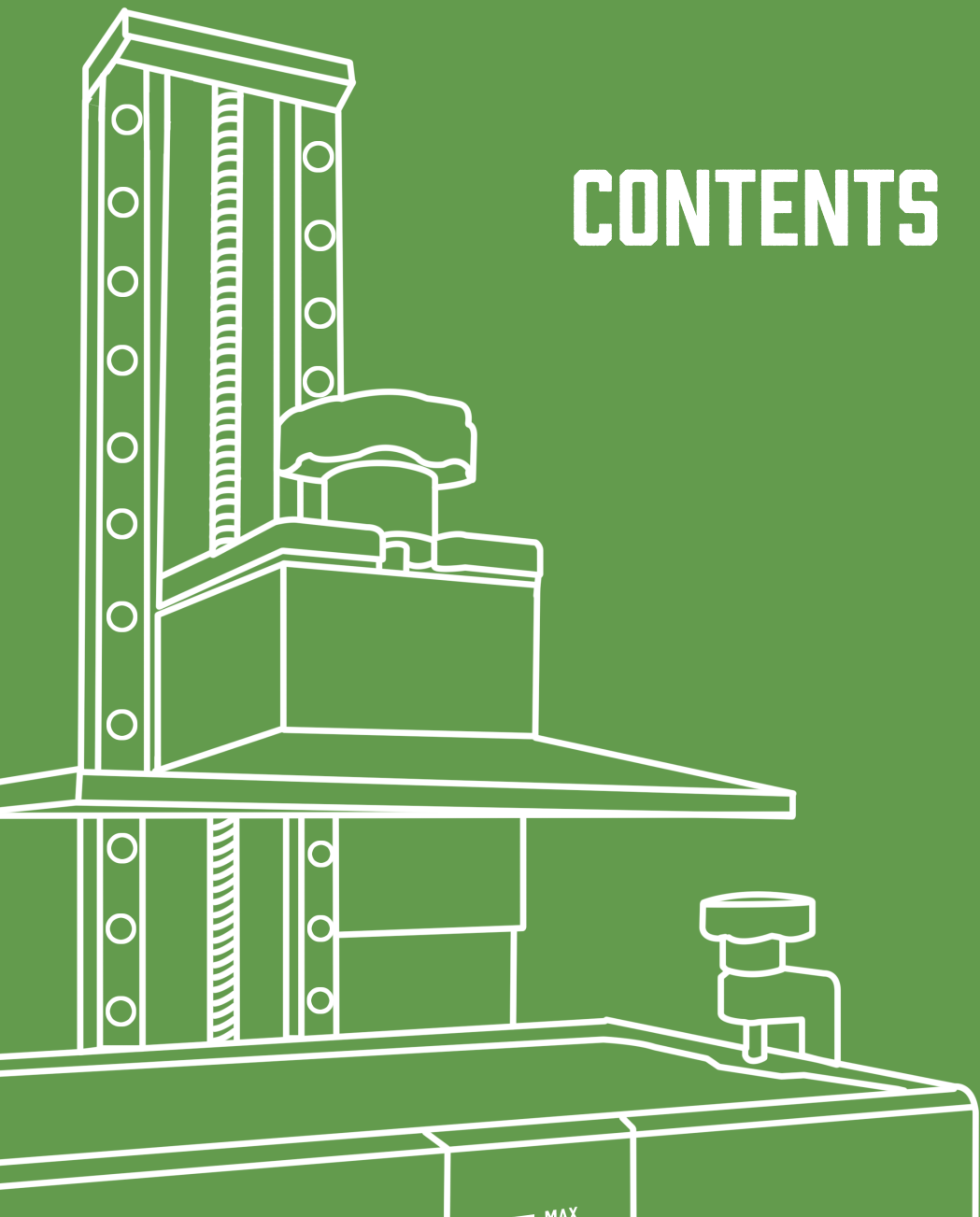
GR1 USER MANUAL



GADOSO

PRECISION LIGHT CURE PRINTER

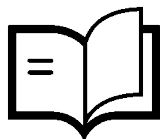
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Some 3d models and other materials are referenced from the following	20

IMPORTANT

HOW TO GET THE MOST OUT OF YOUR 3D PRINTER



READ THIS MANUAL CAREFULLY

You will be able to set up with ease



VISIT OUR WEBSITE FOR TUTORIAL VIDEOS AND GUIDES

www.wanhao3dprinter.com



Google Forum

JOIN WANHAO GOOGLE FORUM FOR ONLINE SUPPORT

<https://groups.google.com/forum/#!forum/wanhao-printer-3d>



EMAIL US! WE'RE ALWAYS HAPPY TO HEAR FROM YOU

Technical support: support@wanhao3dprinter.com

Product feedback and partnerships: hello@wanhao3dprinter.com

Purchase orders: sales@wanhao3dprinter.com

WARRANTY NOTICE

If the product is not performing up to your expectations or you experience any issues, please contact us before returning the item.

We are experienced in resolving problems through phone and email, or you can reach us through your local distributor.

Phone: +86-571-6337-9578 (Hours: Mon to Sat from 8:30 AM to 5:00 PM China Time)

Email: support@wanhao3dprinter.com

Website: www.wanhao3dprinter.com



3D PRINTER

WARRANTY DETAILS

The pre-assembled WANHAO GR1 printer is covered by a 12-month warranty for USER over the world.

The GR1 provides a 12-month warranty on the functionality of individual parts for end-users over the world.

Wear and tear category components and consumables are excluded from this warranty. The warranty period begins with the day when the customer receives the goods.

WARNING: The exposure display and the FEP foil fall into the category of normal wear and tear components, which are not covered by our standard warranty. Instead, the warranty of the exposure display covers a maximum of 500 hours of printing - the SLA 3D printing process on the GR1 is considered the standard way of using and wearing the original display. The warranty of the FEP foil covers 10 cycles (print jobs). When used properly in accordance with the instructions in the official guides (such as this handbook), the life expectancy of the FEP foil is several times longer.

Neither the Seller's liability for defective products nor the quality warranty applies to printers or parts damaged by handling, which is in conflict with the instructions and recommendations in the official manuals and guides, or improper handling caused by unofficial modifications, such as modifications to hardware or software.

If at any time you are unsatisfied with how your repair is handled, you may escalate your complaint to WANHAO. Please contact us via:

Phone: +86-571-6337-9578

(Hours: Mon to Sat from 8:30 AM to 5:00 PM CST China Time)

Mail: ZHEJIANG WEIBIN 3D TECHNOLOGY CO.,LTD

No. 18 Zhen Shan Road, Chang Kou Town, Fuyang District, Hangzhou City, Zhejiang Province, China

Email: support@wanhao3dprinter.com

Website: www.wanhao3dprinter.com

AFTER SALES SUPPORT



86-571-63379578



support@wanhao3dprinter.com





SAFETY INFORMATION

Read the instructions carefully. Keep this document for future reference. Follow all warnings and instructions marked on the product. Observe the following guidelines when connecting and disconnecting power to the external power supply unit:

- Install the power supply unit before connecting the power cord to the AC power outlet.
- Unplug the power cord before removing the power supply unit from the printer.
- Operate on a table or flat, stable surface, ensuring that the machine cannot fall and is level.
- Do not operate outdoors.
- Do not allow resin or any liquids to get inside the chassis, wipe up any liquid spills immediately.
- Do not use solvents to clean the printer as they may damage the screen. Use a little detergent and warm water to clean any resin spills.
- Disconnect the printer from AC before storage or when not used for a long period of time.
This 3D printer is connected to the electrical network with an input of 110 or 240 V AC, 50/60 Hz, and has an operational voltage of 24V.
- Do not allow anything to rest on the power cord. Do not locate this product where people will walk on the cord.
- If an extension cord is used with this product, make sure that the total ampere rating of the equipment plugged into the extension cord does not exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet does not exceed the fuse rating.
- Use the product only with the supplied power supply cord set. If you need to replace the power cord set, make sure that the new power cord meets the following requirements: detachable type, UL listed/CSA certified, VDE approved or its equivalent, 4.5 meters (15 feet) maximum.
- In case of malfunction, disconnect the printer immediately from network.
- Do not attempt to fix this product by yourself, as opening or removing covers may expose

you to dangerous voltage points or other risks. Refer all repairs to qualified service personnel. Please send an email to your national supplier or contact technical service at:

support@wanhao3dprinter.com

Unplug this product from the wall outlet and refer servicing to a qualified service personnel:

- The power cord or plug is damaged, cut or frayed.
- Liquid has been spilled in the machine.
- The machine was exposed to rain or water.
- The machine has been dropped or the case has been damaged.
- The machine does not operate normally after following the operating instructions.

DISPOSAL INSTRUCTIONS



Do not throw this electronic device into the waste when discarding. To minimise pollution and ensure protection of the environment, please recycle or return to Photocentric for recycling.

SAFETY GUIDELINES



- Keep the printer and resins out of the reach of children.
- The resin is an irritant to skin and eyes. Always wear gloves when coming into contact with the liquid resin. Always use in a well ventialed room.
- Resins are classified as irritants, not harmful, but in exceptional circumstances people can be sensitive to the resin and develop a skin irritation or rash. Avoid this possibility by always wearing gloves and avoid breathing fumes.
- The printer should be operated on a stable and level surface, preferably away from direct ambient light.

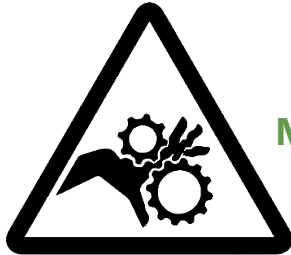
Please notice that the latest instructions will always be available from:

www.wanhao3dprinter.com

SAFETY INSTRUCTIONS

Before you get started, please read these safety instructions.

CAUTION : WANHAO 3D Printers include moving parts that can cause injury. Never reach inside the WANHAO 3D Printer while it is in operation, and allow time for the printer to cool down after operation.



MOVING PARTS



Do not leave the WANHAO 3D Printer unattended during operation.



Always wear gloves while handling resin or printed objects.



Always be careful when using the scraper. Never direct the scraper towards your fingers.

In case of emergency turn off the 3D printer by unplugging the power outlet.

- The printer must not be exposed to water or rain, or the printer will be damaged.
- The printer is designed to be used in ambient temperatures, ranging from 15°C to 30°C.
- The printer is designed to be used in humidity levels ranging from 20% to 50%.
- Operating the printer outside the recommended temperatures and humidity levels may result in low quality print models.
- Eye protection during cleaning or sanding of the printed models is recommended to protect your eyes from small airborne particles.

CONGRATULATIONS

You have just purchased a new and innovative Direct UV-Light Printing (DUP) technology based 3D printer. The direct UV method of printing uses LCD display panel as a matrix of pixels that hardens the liquid in the resin vat with the light from the UV light source. UV-LEDs at the bottom is used as background lighting.



This revolutionary system is a new way of printing that uses normal UV light as the energy source to provide initiation of free radicals polymerization that is necessary to change the liquid imagepac resin into your solid hardened object.

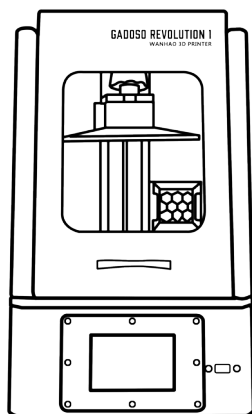
WORKING PRINCIPLES OF DUP 3D PRINTERS

There are two amazing advantages of DUP technology:

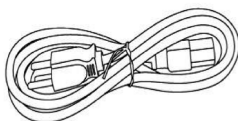
1. High resolution can be achieved through affordable and accessible LCD screens. These screens are the same as the widely available screens of mobile phones and tablets, so phenomenal value for money is passed directly on to you.
2. Energy used by GR1 is an order of magnitude lower than comparable systems. This is not only good news for your energy bills and the environment, but also performance advantage due to avoiding unnecessary creation of excess energy that leads to over-curing. The problem of over-curing is common among Digital Light Projector (DLP) and laser systems.

CONTENTS

The box contains



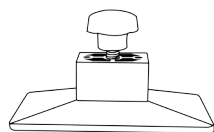
GR1 3D PRINTER



POWER CABLE



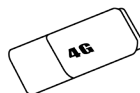
WANHAO RESIN
(0.25KG)



PRINT PLATFORM



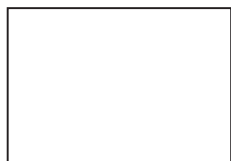
GLOVES



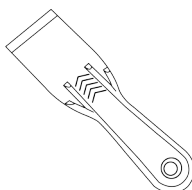
4G U DISK



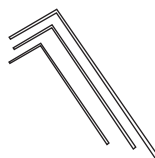
A MODEL



FEP FILM



PVC SHOVEL



HEXAGON WRENCH

DISPOSAL INSTRUCTIONS

- Extra gloves.
- Paper towels.
- Access to a sink with hot water to clean the object.
- Liquid soap (detergent) to clean the object.
- Soft brush or sponge to clean the object.
- Glass or clear plastic container to post expose the object in.
- WANHAO cleaner (Optional)

TECHNICAL SPECIFICATIONS

Machine Type	DLP (Digital Light Processing) 3D Printer
Light Source	405-410nm Wavelength UV Lamp
With Cover or Not	Tilt Hood with Transparent Cover UV Safe
Max Print Area	140*78*200 mm
Max Print Speed	Up to 30mm/hour
Software	GR1 Workshop , all .stl Files
Material Support	405-410nm Wavelength Resin
Case Material	Steel Case
LCD Screen Size	6.33 Inch
Packing Size	34.5*37*52cm
Accuracy	X:140/2560=0.055 mm Y:78/1440=0.055 mm Z:0.035~0.1mm
Layer Thickness	35-100 micron
Net Weight(kg)	12.5kg
Gross Weight(kg)	14.5kg
Certification	CE,CB, FCC
Platform Holder	1 Bolt Adjusting System
Power Supply Unit	Inside 110 AND 220V(Auto Switch), 50/60Hz, 4.5A (input), and takes standard IEC Cable
Typical application	<ul style="list-style-type: none"> • Prototyping, Modeling, Jewelry, Dentistry, Gaming and Art. • Great for Professional use or DIY hobbyists.



GADOSO REVOLUTION 1

Intelligent printing function,
more advantages waiting your exploration.

1.0 USING GR1 WORKSHOP

GR1 workshop is software that prepares 3D models for 3D printing and copy to flash disk to be printed by your GR1 3D Printer.

DOWNLOAD AND INSTALL GR1 WORKSHOP

- a. Insert the WANHAO flash disk into your computer and run the compatible Windows or OS GR1 installation program.
- b. Enter the URL wanhao3dprinter.com/download software and download the correct GR1 installer for your operating system.



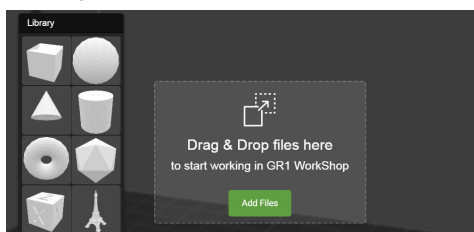
GR1WorkShop
+Setup+2.0.15



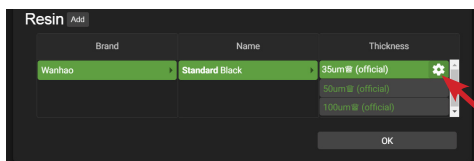
GR1WorkShop-
2.0.15

SOFTWARE OPERATION

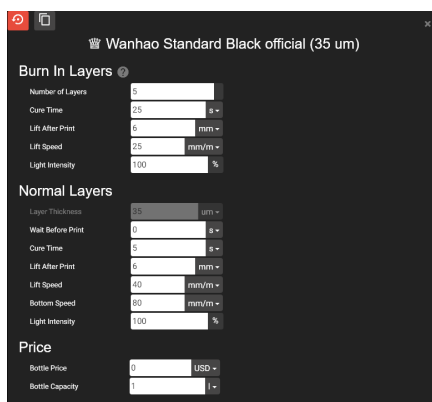
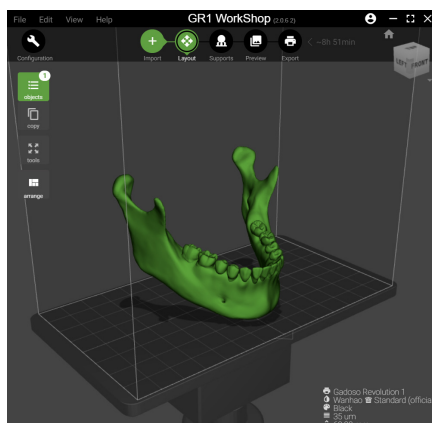
1. Click on Import and import a model to the building surface.



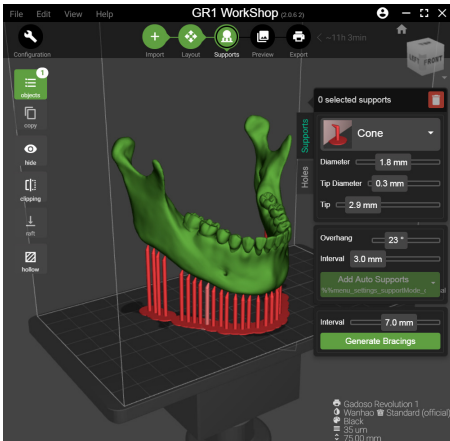
2. By Clicking on Configuration and Setting you can set up your resin's Settings such as curing time and Layer Thickness.



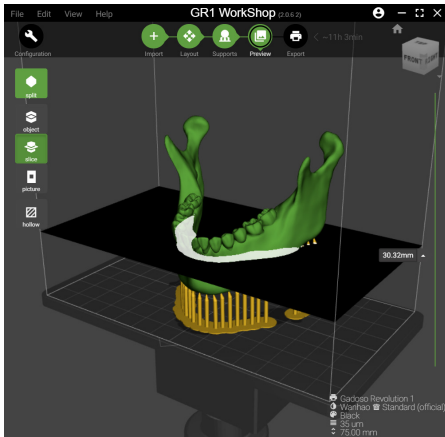
The Movable picture on the right top of the Resin Settings Windows is a good guide of understanding how you can set your Life and sequence section.



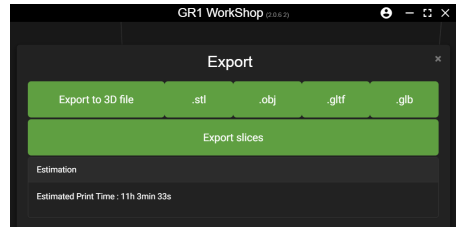
3. In Supports you can add supports to your model Automatically and Manually.



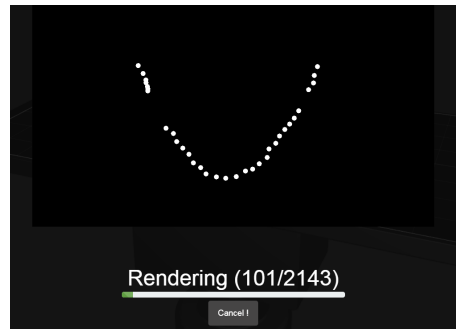
4. In Preview menu you can See the Model in different ways the the software gives you few options for that.



5. When you Model is ready Click on *.GR1 and save the model. Software starts to Render and Generate Gcode of your model.



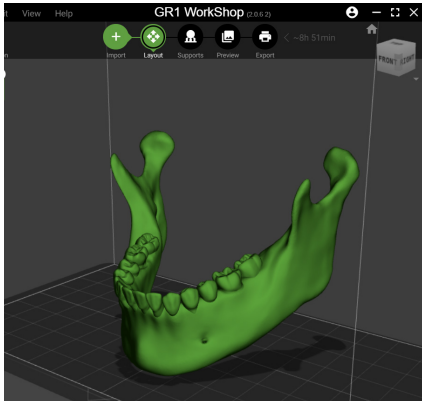
GR1 (*.GR1)
GR1 (*.GR1)



2.0 SOFTWARE DETAILED

SCENE VIEW

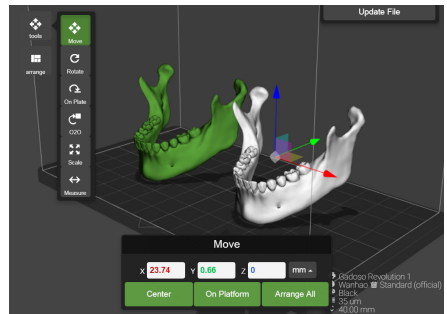
The Scene View allows you to manipulate various aspects of the scene.



In Object menu you can Select and visible or invisible the model. This is very useful tool in case you have few models in the platform and you want to analyze other models.



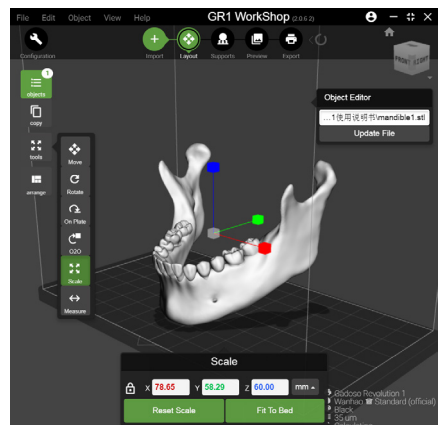
In Copy Section You can duplicate your model as many as you want but ensure that all models would place on the platform. Software will automatically arrange and align models for you. You can set the number of the Copies you want to duplicate the model.



IN TOOLS MENU YOU CAN MOVE, ROTATE, ORIENT AND SCALE YOUR MODEL.

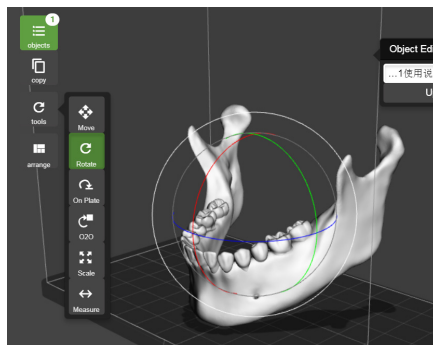
SCALE

A model can be scaled (reduced or increased) by selecting it, and using the 'Scale' view to enter in a new scaler value.



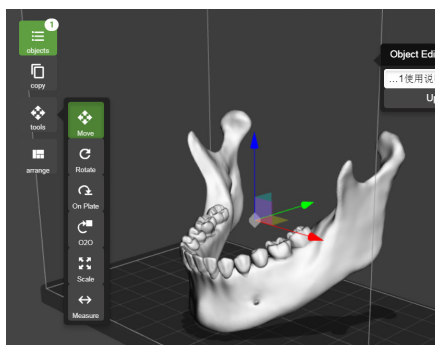
ROTATING

Rotating a model works in a similar way to moving a model. Simply select the model you want to work with, and use the X/Y/ Z +/- buttons to rotate the model by your specified degrees.



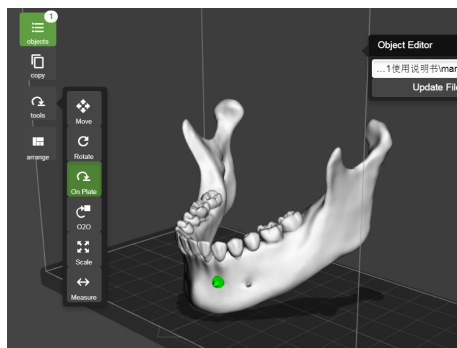
MOVE

The Move function allows you to move objects on the build platform along the x:y:z axis by the distance entered.



ORIENTATION TO PLATE

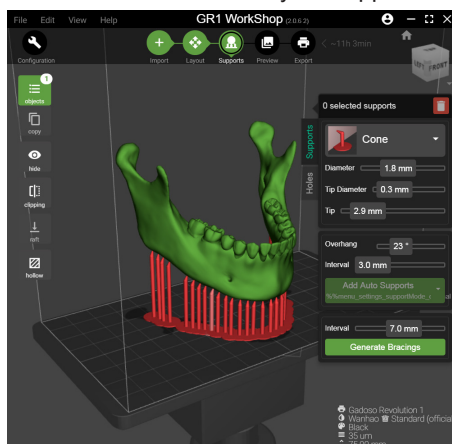
You can place the model all over the building surface and by double clicking on it the model rotates in different angle.



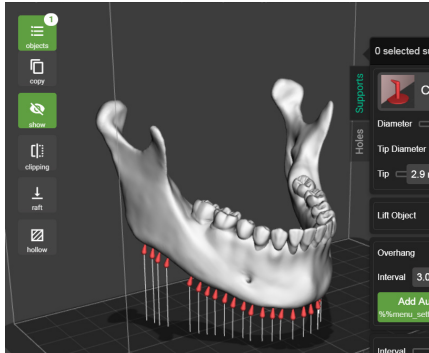
SUPPORTS

Supports are sometime required to properly attach a model to the build space. Because of the nature of DPP the lower layers must be supported by the supports unless it has a wide surface in the first layers.

In supports section you can add supports to your model Manually and Automatically. You can adjust the settings in this section based on the model and your preference. You are also able to add Brace to your supports.



You can Show and Hide the added supports on your model. The software only shows you the supports Tips.

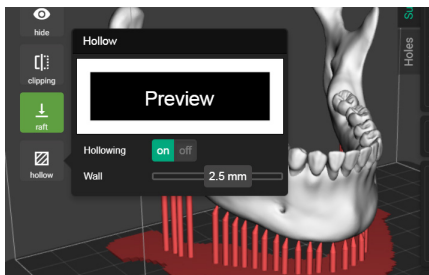


You can add Raft to your model. You are able to adjust the Raft settings as well. There are different types of Rafts that you can choose based on your preferences.

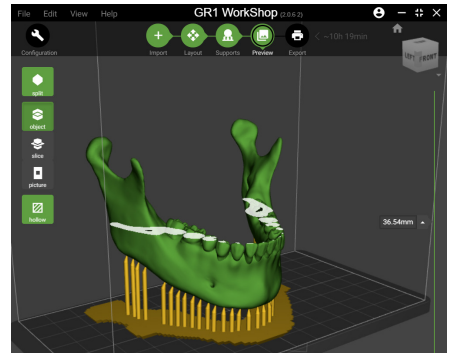


HOLLOW

The Hollow feature of GR1 Workshop helps you to save time and resin. you can adjust the Wall thickness after hollowing it. Not every model have to be hollowed.



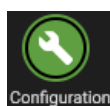
You can preview you model before the print. By sliding the the bar on the right side of the software you can see the layers of your model that are going to print.



If you hollow your model software also allows you to make a hole into your model. It is recommended that make the hole somewhere that is no visible after printing process is finished.



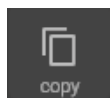
3.0 INTRODUCTION TO SOFTWARE KEYS



Configuration

SETTINGS:

Opens a menu that allows you to change layer thickness, curing time, printing speed etc..



copy

Copy:

To duplicate the model in expected quantity.



Move

Move:

click and drag with your mouse to move the model. In this mode, click and drag with your mouse to move an object around the plate. Use the arrow at the side of the selected Move button to open the Change Position submenu and move an object by a specified distance and direction.



On Plate

On Plate:

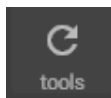
Double click the object to auto place the model in suitable printing orientation.



objects

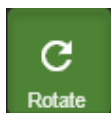
Objects:

Click the object button or hit the model to go into Look mode. In this mode, or choose to view to not view the model.



tools

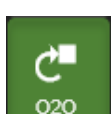
Tools



Rotate

Rotate:

In this mode, click and drag with your mouse to rotate the object. Use the arrow at the side of the selected Turn button to open the Change Rotation submenu and rotate an object by a specified angle and direction.



O2O

O2O:

This function enable one object to move to connect to the 2nd one in any direction.

**Scale:**

Click the Scale button or hit Object to go into Scale mode. In this mode, click and drag with your mouse to enlarge or shrink your object. Use the arrow at the side of the selected Scale button to open the Change Dimensions submenu and scale by a percentage or to a specific measurement.

**Mirror:**

The Mirror view allows you to mirror the selected object on the specified axis.

**Measure:**

This measure enable you to check the specific dimension between 2 points of model.

**Arrange:**

Click to auto arrange the models onto the building plate.

**Import:**

Click this button to add an object to your build plate. You can add as many objects as you can fit on the plate.

**Layout:**

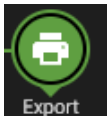
visual display.

**supports:**

Select this to have your object include easily removable support structures for overhanging parts of the object.

**Preview:**

provide 4 kinds of visual image. Split view, Object view, Slice view, Picture view, hollow view.

**Export:**

Various 3D file format export options. And you can export to printing slices file.

**Home:**

Resets GR1 workshop to the default view of the object.

**Orthographic:**

views separation method of multi-views for 3D reconstruction

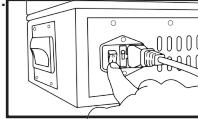
**Status:**

Indicate the basic configuration for printing.

4.0 PREPAIR GRI FOR PRINTING

UNPACK AND CONNECT CABLES

Connect the power supply to printer and turn on the switch behind the printer. Open the cover and software and load the objet (LSTL/STL/OBJ).

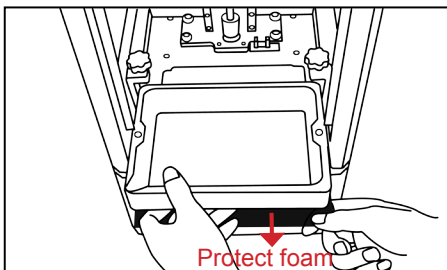
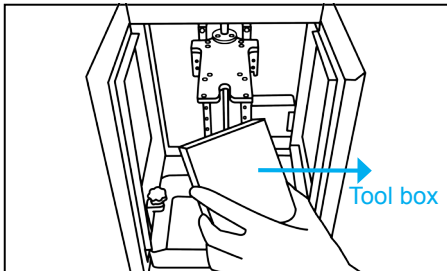


Click **Import** to import the 3D file(STL, OBJ), You can add support, change direction etc.




Then Click **Export** to slice the object into GR1 file. Copy the file into the flash disk.

Open the packing. Put the printer onto one flat table. Pull open the front cover and take out **tool box**. The building plate is inside the **tool box**. Loose the 2 VAT locking screw to take out the VAT and **protection Foam**.



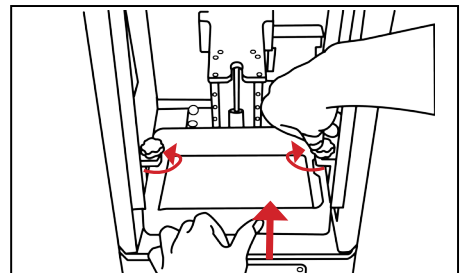
FUNCTION CHECKING

Click the **Tool -- Detection --**  on the touching screen. The WANHAO logo shall project on the printing display.

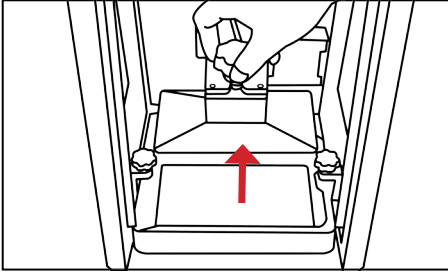


Install the VAT onto the printer. Make sure the 2 locking screw well secure the VAT from moving up and down.

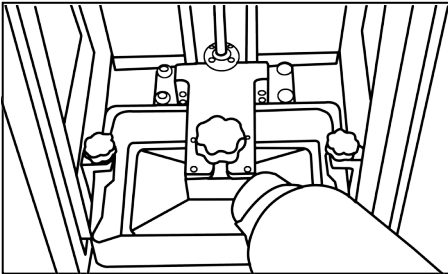
NOTE: VAT window side toward you.



Loose the knob on the building plate. Insert the building plate into the holder slot. Tighten the knob to secure the building plate. Note: The printer has been calibrated before dispatching. In case you are not satisfied with the current calibration. Please read Re-calibration on User Manual.)



Raise the building plate and pour the resin inside until the resin level reach the Min scale.



Hang on the front cover. Insert the Flash disk. Go to **Print— Choose the file — Print**.



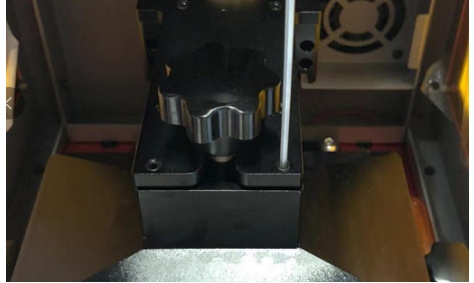
Note: loading file may take few seconds, please print when you see the Preview displayed.

RE-LEVELING THE BUILDING PLATE

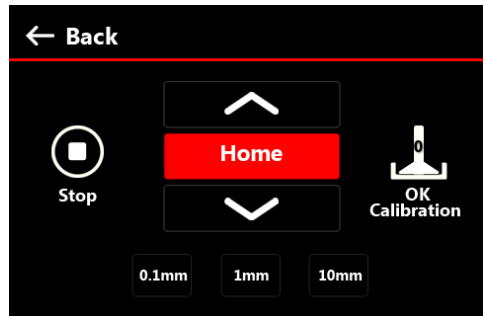
1. To use the 1.5mm hex wrench to Loose the 4 locking set screw by turning screws Anti-clockwise.




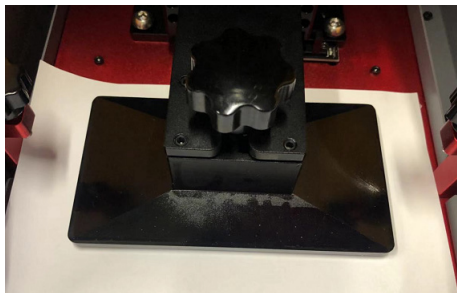
2. To use 2.5mm hex wrench to loose 4 leveling set screws by turning the screw Anti-clockwise.





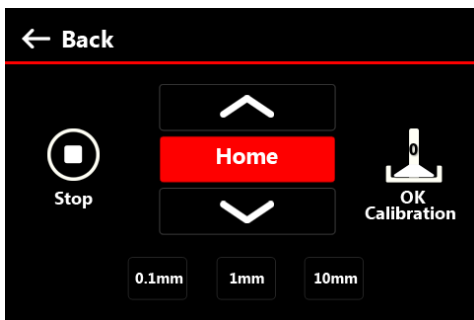
3. Take off the building plate. Put one paper onto the LCD screen. Then HOME the Z axis by click MOVE Z AXIS — HOME.



4. Install the building plate onto the holder slot. In case there's not enough space to install the plate. Please raise the building plate by clicking  by 0.1mm or 1mm, until it can be installed.



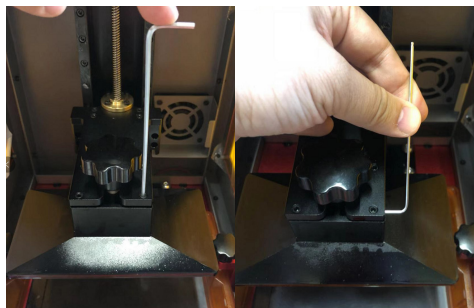
5. Please drag the A4 paper back and forth until you can feel the obvious resistance between the building plate and screen which means the building plate is fine leveled. In case still too much distance, you may need to click  and  to lower or raise the building plate for obvious friction from the dragging paper.
Important Notice: Please click the lower button once a time to avoid continuous clicking cause the breakage of screen.



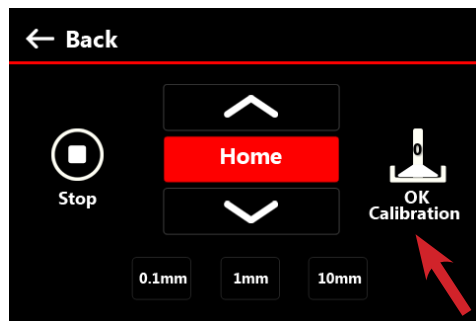
6. Now we need to fine tune the top locking screw of building plate. By adjusting the top set screws, until you get even force back from all direction of paper. Finally lock the set screw from the 4 side set screws.

Important Notice: Building plate need to be parallel touching the screen. If the building plate tilt to the screen, the leveling need to be re-tuned.

For Video Instruction, please visit URL **WWW.WANHAO3DPRINTER.COM/VIDEO**

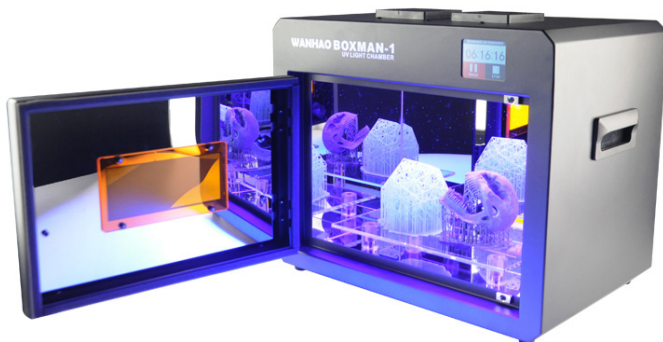
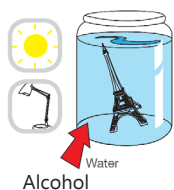


7. After fine-tuned leveling, Please click OK calibration to memorize the current setting.



POST PROCESSING

Place the platform to **WANHAO Washer**. Remove the objects by sliding the scraper in at their base. Wash off any liquid polymer in alcohol container. You can gently clean it with a soft brush or sponge, take care not to damage it, it will not achieve full hardness until after post exposing in UV light. A **WANHAO Washer** will clean your objects without the possibility of damaging them.



Check your object is thoroughly clean as resin cannot be easily removed afterwards and then leave it under water in sunlight for about 3 days. Or in the **WANHAO CURING BOX** for 20 minutes. The longer you leave it under water the darker the colour will get, some colour change is inevitable. When it is completely post-exposed it will be strong and have a dry surface. Empty the contents of the vat back into the bottle by pouring through a sieve with the vat on a flat surface wipe the inside thoroughly with absorbent paper. Replace the film when damaged.

SOME 3D MODELS AND OTHER MATERIALS ARE REFERENCED FROM THE FOLLOWING

Human Jaw by gebrin

Published on Aug 14, 2015
www.thingiverse.com/thing:968975



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Voronoi lamp by Markellov

Published on December 9, 2014
www.thingiverse.com/thing:584714



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Twisted 6-sided Vase Basic by MaakMijnIdee

Published on March 7, 2012
www.thingiverse.com/thing:18672



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General purpose hook by Erikjuh

Published on October 20, 2015
www.thingiverse.com/thing:1081862



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Cable Holder (Cable Clip) by bardiaesm

Published on April 6, 2013
www.thingiverse.com/thing:70549



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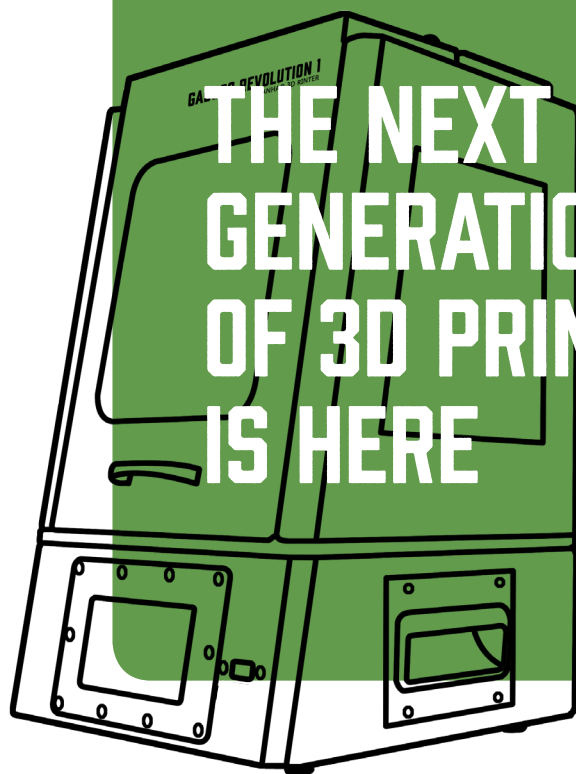
Twisted bracelet by Gepetto

Published on January 25, 2015
www.thingiverse.com/thing:651677



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Do not throw this electronic device into the waste when discarding. To minimize pollution and ensure utmost protection of the global environment, please recycle or return to Photocentric for recycling.

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GR1 USER MANUAL



GADOSO

PRECISION LIGHT CURE PRINTER