PRIME USER MANUAL

CUBICON

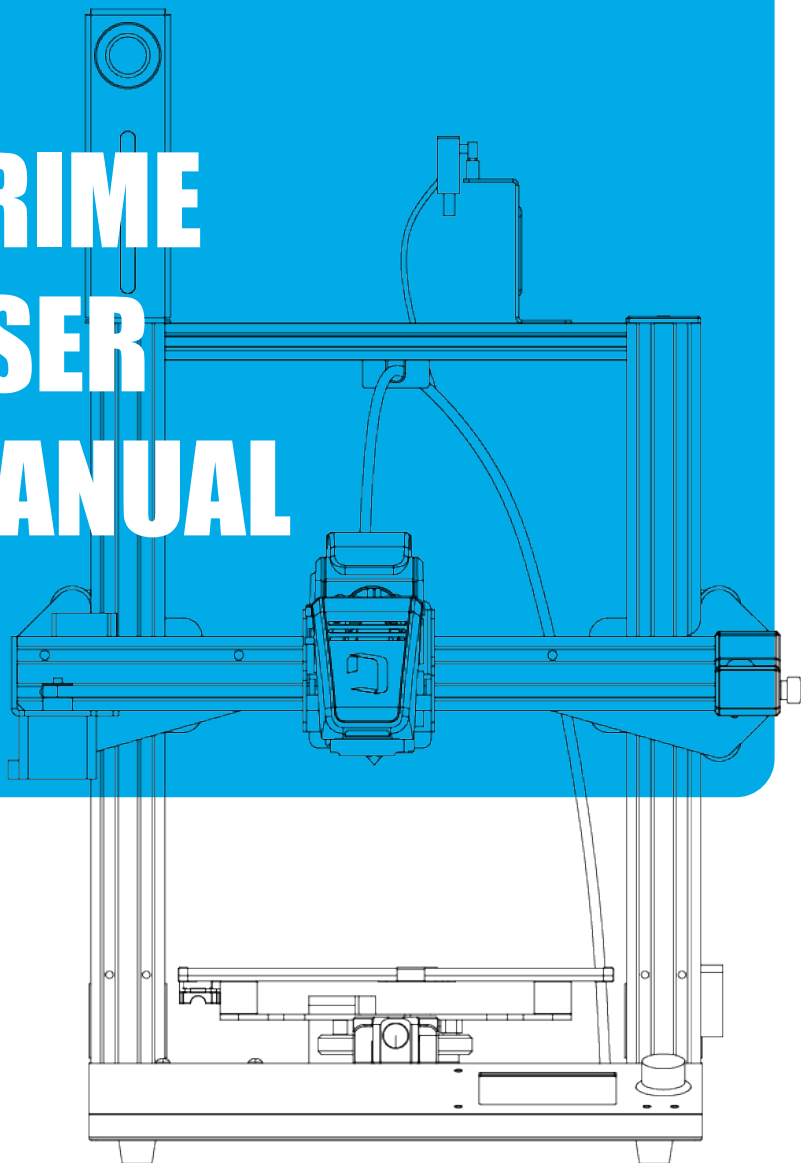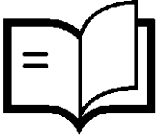## AUTO LEVELING EXTRUSION 3D PRINTER

IMPORTANT

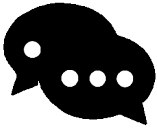## HOW TO GET THE MOST OUT OF YOUR 3D PRINTER

READ THIS MANUAL CAREFULLY
You will be able to set up with ease

VISIT OUR WEBSITE FOR TUTORIAL VIDEOS AND GUIDES
eng.3dcubicon.com

VISIT OUR COMMUNITY, REDDIT
https://www.reddit.com/user/Rising-Cubicon

Reddit

EMAIL US! WE'RE ALWAYS HAPPY TO HEAR FROM YOU
Technical support : overseas@3dcubicon.com
Product feedback and partnerships : overseas@3dcubicon.com
Purchase orders : overseas@3dcubicon.com

TECHNICAL SUPPORT

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.

Tel : +86-70-4601-6315 (Hours: Mon to Fri from 9:00 AM to 6:00 PM Korea Time)
Email : overseas@3dcubicon.com
Website : eng.3dcubicon.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 can't fall and is level.
- Do not operate outdoors.
- Do not use solvents to clean the printer as they may damage the screen.
- 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 115 or 230 VAC, 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 doesn't exceed the extension cord ampere rating. Also, make sure that the total rating of all products plugged into the wall outlet doesn't exceed the fuse rating.
- Use the product only with the supplied power supply cord set.
- 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 techincal service at:
overseas@3dcubicon.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 doesn't 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 INSTRUCTIONS

Before you get started, please read these safety instructions.

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

MOVING PARTS
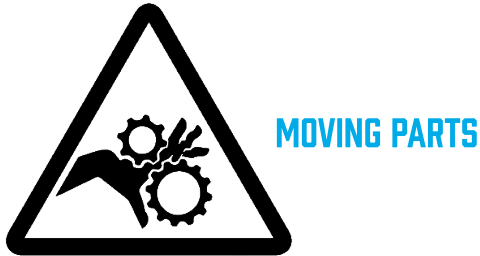
 Do not leave the CUBICON 3D Printer unattended during operation.

 Do not point sharp tools at yourself when dealing with model stripping.

 During the printing process, do not have a strong collision with the printer.

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.

Read this manual carefully,
it will bring you great convenience.

USING PRIME
# THE FIRST TIME
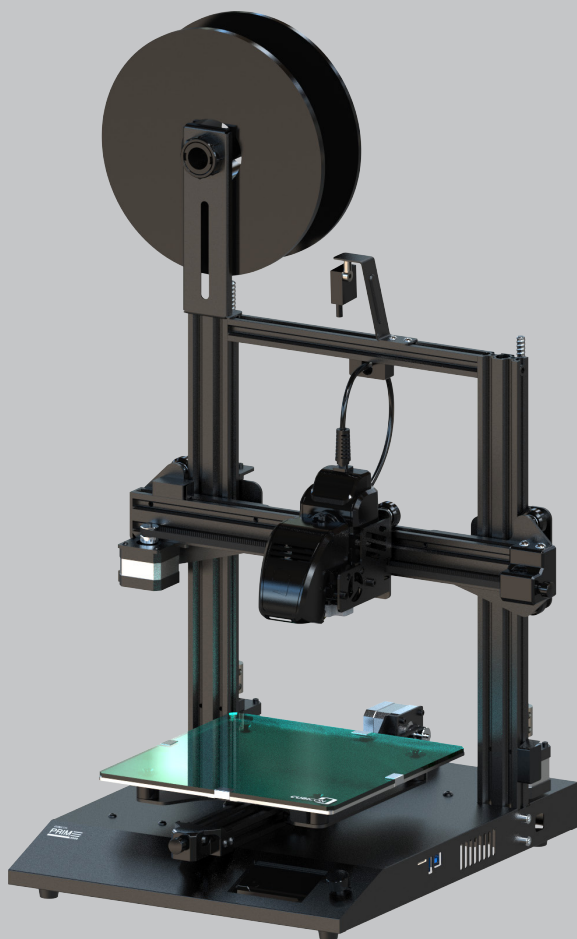
TECHNICAL SPECIFICATIONS

|	
Build size	220x220x235mm
Structure	Mendel
Feeder system	Direct
Transportation	Roller type
Max print speed	150mm/s
SW	CuraForCubicon
OS	Mac, Windows
Material	PLA, ABS, TPU
Fliament diameter	1.75mm
Z-axis	Dual
Bed temp.	110C
Bed type	Carbon glass
UI	3.5 Touch screen
Power supply	110W
Interface	USB
Key features	Auto Leveling, Wifi, Filament sensor

CON TENTS

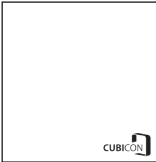The box contains
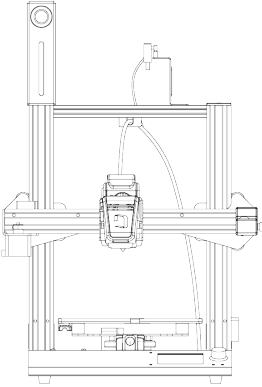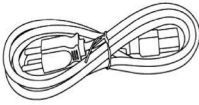
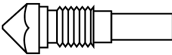POWER CABLE

USB CABLE

FILAMENT

CUBICON
3D PRINTER
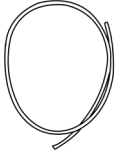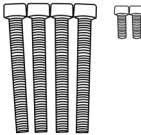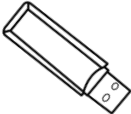
SCREW

HEXAGON
WRENCH

FILAMENT
SHAFT
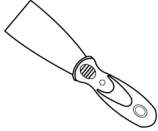
CARBON
GLASS BED

SPARE
NOZZLE

USB

SHOVEL

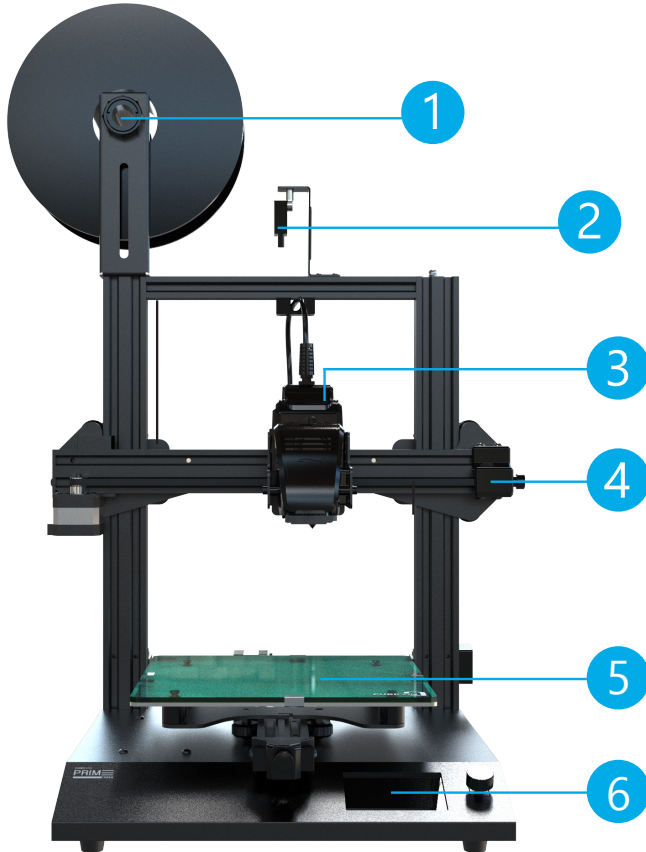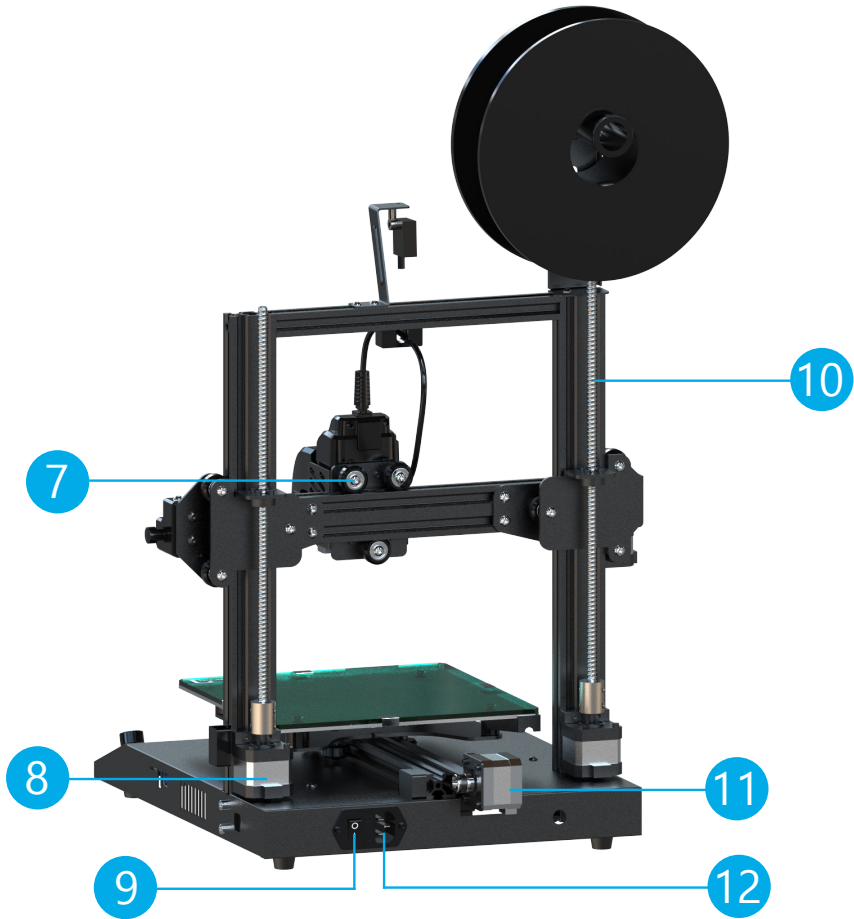TWEEZERS

NOZZLE
CLEANER

PRODUCT OVERVIEW
PRINTER FRONT VIEW

1. Filament holder
2. Filament detector
3. Extruder

4. Z axis belt tension adjuster
5. Carbon glass bed
6.Touching screen

PRODUCT OVERVIEW
PRINTER REAR VIEW

7. X axis roller
8. Z axis motor
9. Power switch

10. Z axis screw
11. Y axis motor
12. Power socket

ASSEMBLING AND INSTALLATION

1 Place the printer components onto a flat table. Please handle with care.
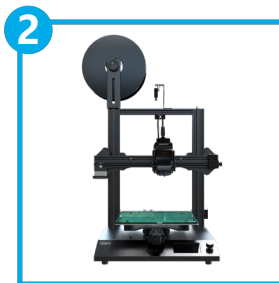
2 Remove the protection foam and tape from position.
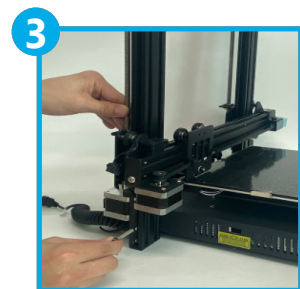
3 Put the printer base on it's side. Install the Z-axis profile onto the base. Then use 4pcs M5 x 50mm bolt to lock the Z-axis profile onto the base.

Note : On the base there's sticker No.1 and on the tower there's sticker No.1. So No.1 base match to the No.1 tower. No.2 base match to the No.2 tower.
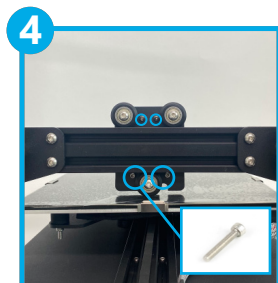
4 Install the printing head onto the gantry. Then to lock the head with **2 M3 x 6mm** locking screw.

6

Install the filament spool holder onto the stand and twist the nut to lock it.
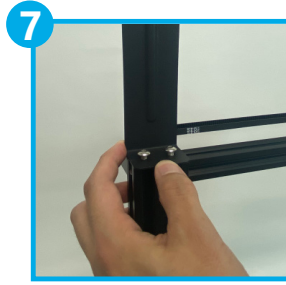
7

Install the stand of fillament spool holder onto the left side aluminum slot by 2 M5 x 8mm bolts.

8

Install the 2 M5 x 8mm bolts with the T-net.
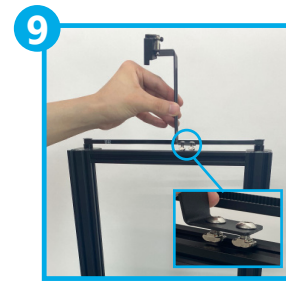
9

Inserting the block into the middle aluminum slot and twist the bolt to lock it.

10

Install the cable holder onto the right side aluminum slot by 2 M5 x 8mm bolts.
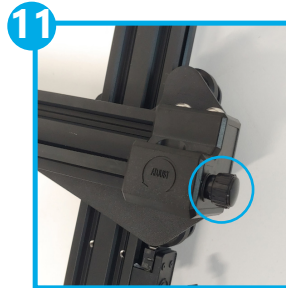
11

Twist the X axis belt tension adjusting knob clock wise to tighten the belt tension. You can check the tension by use one finger to push the belt. Either too tight or too loose would be perfect.

12

Twist the Y axis belt tension adjusting knob clock wise to tighten the belt tension. You can check the tension by use one finger to push the belt. Either too tight or too loose would be perfect.

LOAD THE FILAMENT

1 Please hang the filament on the filament spool holder.
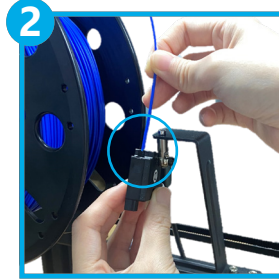
2 Pass the filament through the filament sensor.

3 Press the extrution spring and insert the filament until the nozzle along the extrution.
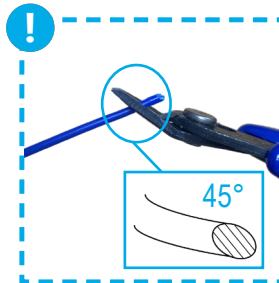
! For an easy filament rod, cut the end of the filament to 45 degrees.

45°

SETUP

AUTO LEVELING THE HEATING BED

It is important to ensure the Heated Print Bed is level and set to approximately 0.1mm distance prior to printing.

Firmware Update

1. Fit the usb included in the box to the 3D printer.
2. Turn on the 3D Printer, using the switch on the back of the Control Box
3. Tab the menu in order on the main screen
    : [Setting] - [EEPROM Set] - [Revert setting to factory defaults]

Auto Leveling Setting

1. Tab the menu in order on the main screen. : [Tool] - [Auto-level]
2. Auto-leveling is performed at 16 points.
3. Test the gap with a sheet of paper.
4. Perform manual leveling with the Zoffset +/- buttons.
5. Keep adjusting and testing with the enclosed leveling paper until the proper gap is present.

CUBICON CURA SETTING

1. If the Cura was installed on your PC, delete it.
2. Fit the usb included in the box to the 3D printer.
3. Install the file 'CuraForCubicon' on your computer.
4. Run the Cura and set printer to 'Cubicon Prime – M22Z'
5. Load any file with the following extentions : .STL, .OBJ, .DAE, .AMF.
6. Slicing and saving on USB.

INTRODUCTION TO SLICING SOFTWARE

USING CURA
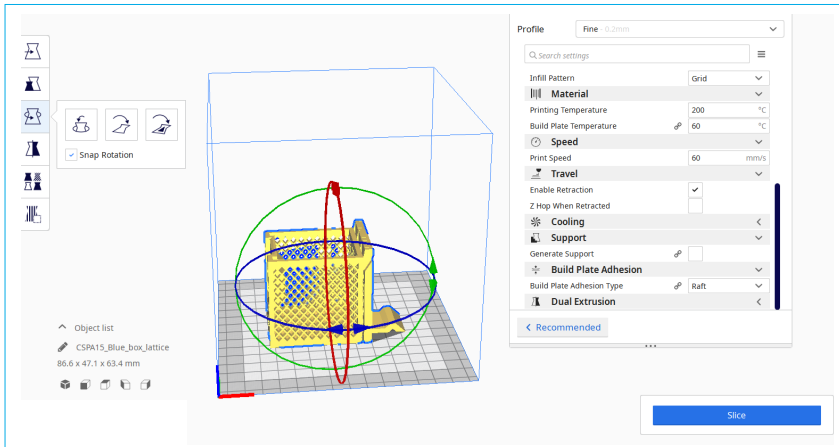
Rotate
The Rotate button will give you the ability to orient your model in along all three axes. Once you click the rotate button, three circles will surround your model. The red circle will allow you to rotate around the Z axis. The Yellow circle will rotate around the Y axis. The Green circle will rotate around the X axis.

Lay Flat
The Lay Flat button will ensure that the flat portion of your print is securely attached to the bed. It is highly recommended to use this option after rotating your model in the Z direction, as it will help prevent adhesion issues during the print.

Reset
The Reset button will return your model to the original orientation as defined by the CAD program used to create the model.

USING CURA

Scale

The Scale button displays the model dimensions, along with the ability to scale along the X Y or Z axes. Anything below the number 1.0 will reduce the objects size, while anything above the number 1.0 will increase the objects size. As a default, it will be set to uniform scaling. This will cause the X Y and Z axes to be scaled by the same amount when you make a change to any of them. To disable this, select the lock in the lower section of the scaling window.

View Mode

This mode allows you to view your model in a variety of different ways.
This can be helpful for spotting issues before the print even starts.

Normal
This is the standard view and shows the solid outer surfaces of the model.

Overhang
Overhang mode shows where your model may need support material. Red highlighted areas show overhangs and more severe angles and areas where support material is recommended. Refer to page 38 for information on how to add support material to your model.

Ghost
Ghost view mode makes the model translucent to allow you to see what is behind it.

Xray
Xray is very similar to Ghost mode. It will allow you to see into objects, ensuring that inner details are correct.

Layers

To view the toolpath of your print head and to ensure no skipped layers or gaps, use this option. Use the slide bar on the right hand side of the window to move up and down through the toolpath layers.

USING CURA

Enable Retraction

Retraction tells your printer to pull filament out of the Extruder upon travel moves. Travel moves are when your print head moves from one area of the print, to another without laying down filament. We recommend keeping this on for all filament types, and adjusting the retraction length and speed for the specific filament.

FILL
Bottom/Top Thickness (mm)

Also known as Surface Layers; this will determine how thick the top and bottom layers are. A larger number here will create a thicker top and bottom which can be helpful for strength, bridging, and quality purposes. We recommend using a number which is a multiple of your layer height.
Eg: If using a layer height of 0.2mm, set the thickness to 0.4, 0.6 or 0.8mm

Fill Density (%)

This number is expressed as a percentage. 0% will give a completely hollow print, while 100% will give you a completely solid object. We recommend 20% to 40% fill density as it is functional for most prints.

SPEED AND TEMPERATURE
Print Speed (mm/s)

Your overall printing speed can be adjusted here. If no other speeds are determined in the later sections your printer will automatically default to this speed. This speed will be different, depending on what type of filament you are using. We recommend setting speed to 30mm/s.

Printing Bed Temperature ($^\circ$C)

When using different filament materials, you'll need to update the desired Extruder and Heated Print Bed temperature. Any temperatures specified here will be used to automatically set both the
Extruder and Heated Print Bed. Your print will not begin until these temperatures are met. As a guide, refer to Table 3.1 on page 27 for temperature settings.

USING CURA

SUPPORT

Support Type

Some models will require support material in order to print properly. This will usually occur when an object has an angle in relation to the Heated Print Bede between 0 to 45 degrees. It is highly recommended to orient your object so that it minimizes or eliminates the need for support.

> **Touching Buildplate**
>
> This causes the support material to build up between the Heated Print Bed and the object. The red example is 'Touching Buildplate'
>
> **Everywhere**
>
> This prints support material between the Heated Print Bed and object as well as between the object and itself. The green example is 'Support Everywhere'.
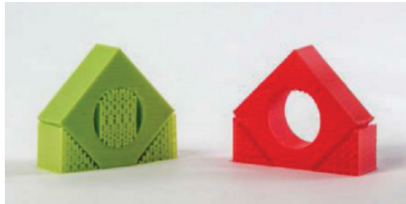
Platform Adhesion Type

Some models have a small surface area contacting the plate. This can create adhesion issues causing your part to pop off at some point during the print. To fix this, use either 'Brim' or 'Raft'. Raft is better used when a model has small contact points with the Heated Print Bed and overhangs.

> **Brim**
>
> Brim will create a single layer of filament, contacting and surrounding your model. This will increase the surface area of the part contacting the build platform thereby preventing it from popping off the Heated Print Bed. Brim will also help in situations where you are seeing corner lift.
>
> Brim settings can be adjusted by selecting '...' next to the tab.
>
> **Raft**
>
> Raft will generate a layer of material underneath your object. Raft was more often used before the addition of heated plates to increase surface area. Raft settings can be adjusted by selecting '...' next to the tab.

ASSEMBLY VIDEO

CUBICON

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 distance between 20cm the radiator your body: Use only the supplied antenna.