

Thank you for purchasing our 3D printer

Before any manipulation with the printer please carefully
read this user guide

U S E R ' S G U I D E
T Y P E : P R O F I 3 D M A K E R



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1. IMPORTANT SAFETY NOTICE

1. CAUSING DAMAGE A 3D PRINTER DUE TO FAILURE OF FOLLOWING INSTRUCTION IN THIS USER MANUAL, EXPIRING THE WARRANTY VOID.
2. SECOND MATERIAL FOR DAMAGES AND PERSONAL INJURY CAUSED BY THE PRINTER MISAPPLICATION IN VIOLATION OF THIS USER'S MANUALS OR FAILURE TO SAFETY REGULATIONS IS FULLY RESPONSIBLE USER OF THIS DEVICE.
3. RISK OF A POSSIBLE BURNS CAUSED BY THE ACCIDENT! BE CAREFUL!
4. THIS DEVICE IS NOT TOY! KEEP AWAY FROM CHILDREN!
5. NEVER LEAVE EQUIPMENT WORK WITHOUT SUPERVISION!
6. CAUTION HOT ITEMS ABOVE 70 ° C! RISK OF BURNS!
7. PERSONS WHO ARE NOT ABLE TO MENTALLY OR MOTORIZED EQUIPMENT FULLY OPERATE, MAY OPERATE THIS DEVICE ONLY UNDER THE SUPERVISION OF A COMPETENT PERSON.
8. BEFORE USING MAKE SURE THAT THE PRODUCT IS COMPLETE.
9. RISK OF ELECTRIC SHOCK.
10. DEVICE MAY OPERATE AT LEAST 18 YEARS OF AGE, OTHERWISE UNDER ADULT SUPERVISION.
11. DEVICE MAY NOT BE DISPOSED OF VIA STANDARD WASTE.

PRINTER CAN BE ONLY IN A PLACE THAT IS:

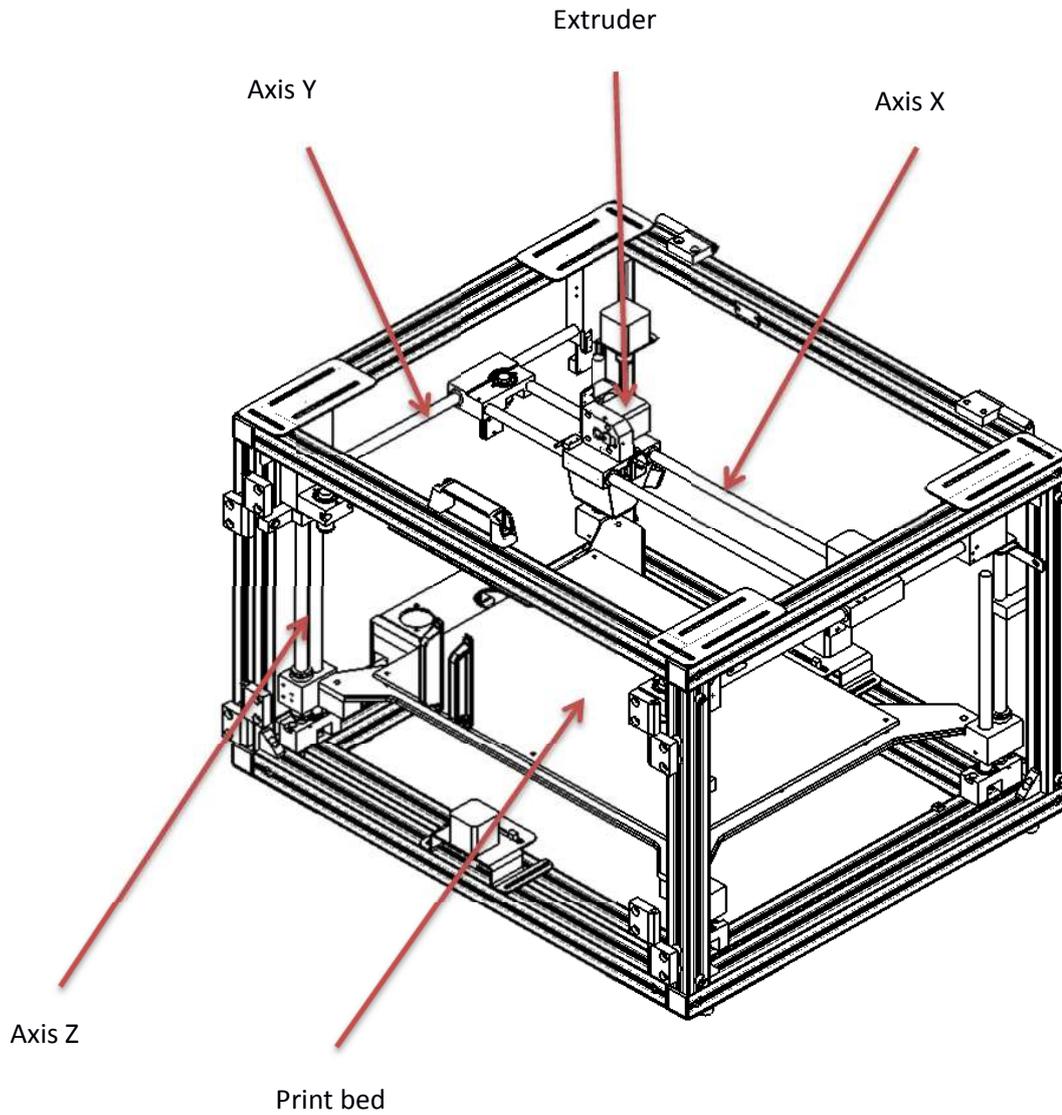
- DRY WITHOUT DUST
- STABLE
- GOOD VENTILATION
- NEAR AN EASILY ACCESSIBLE POWER OUTLET
- AWAY FROM OBJECTS THAT MIGHT BLOCK THE VENTILATION HOLE OF THE PRINTER AT A SAFE DISTANCE FROM FLAMMABLE OBJECTS (EG CURTAINS) AWAY FROM SPLASHING LIQUIDS, AWAY FROM ORGANIC GASES (SUCH AS AMMONIA)
- AWAY FROM DIRECT SUNLIGHT
- SEVERE TEMPERATURE FLUCTUATIONS
- AWAY FROM OUTLETS HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS



2. PACKAGE CONTENTS

<p>1X 3D printer PROFI3DMAKER</p> 	<p>1X CD</p> 
<p>1x Allen key</p> 	<p>1x 3D glue</p> 
<p>2X power source</p> 	<p>1x Spatula</p> 
<p>1X USB</p> 	

3. DESCRIPTION OF PARTS



4. MINIMUM COMPUTER REQUIREMENT

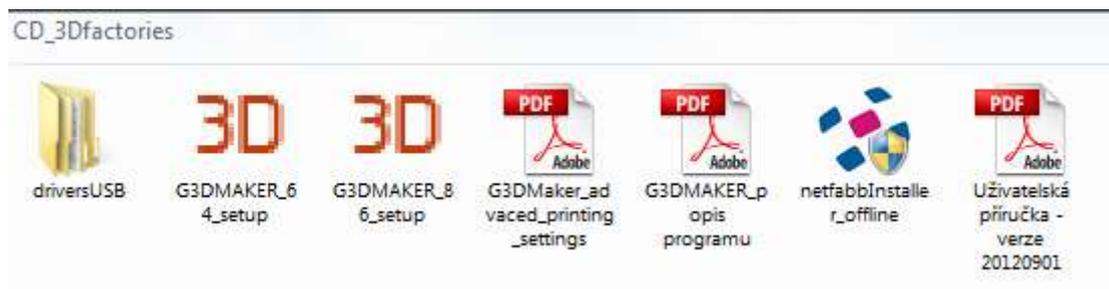
- CPU 2,8Ghz
- RAM1GB
- Intel HG Graphics or better
- HDD 50GB
- CD ROM
- USB port
- Windows XP and newer
- Screen resolution 1200x800

5. INSTALLATION OF G3DMAKER

Put CD into CR ROM and open it.

There you can find installation for G3D MAKER. Choose installation for your system (32 bit or 64 bit).

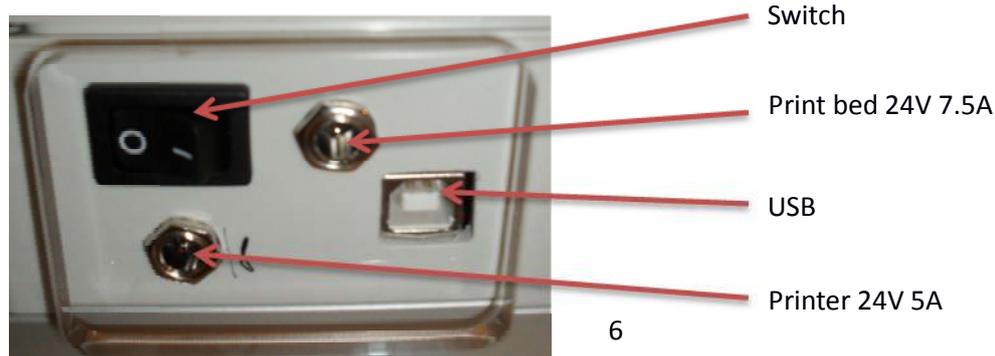
Double click and follow instruction. Together is G3DM installed windows visual studio. If you have newer version installation will tell you and you can skip this part of installation.



CD contents NetFabb studio, this is power instrument for repair of STL files. Install it also for check and repair STL.

6. CONNECTION

The printer is connected to computer via USB cable (included in the package). The printer has two adapters 24V 7.5A for heating bed and 5A for printer. The higher jack is for heating bed. The lower is for other function of printer.



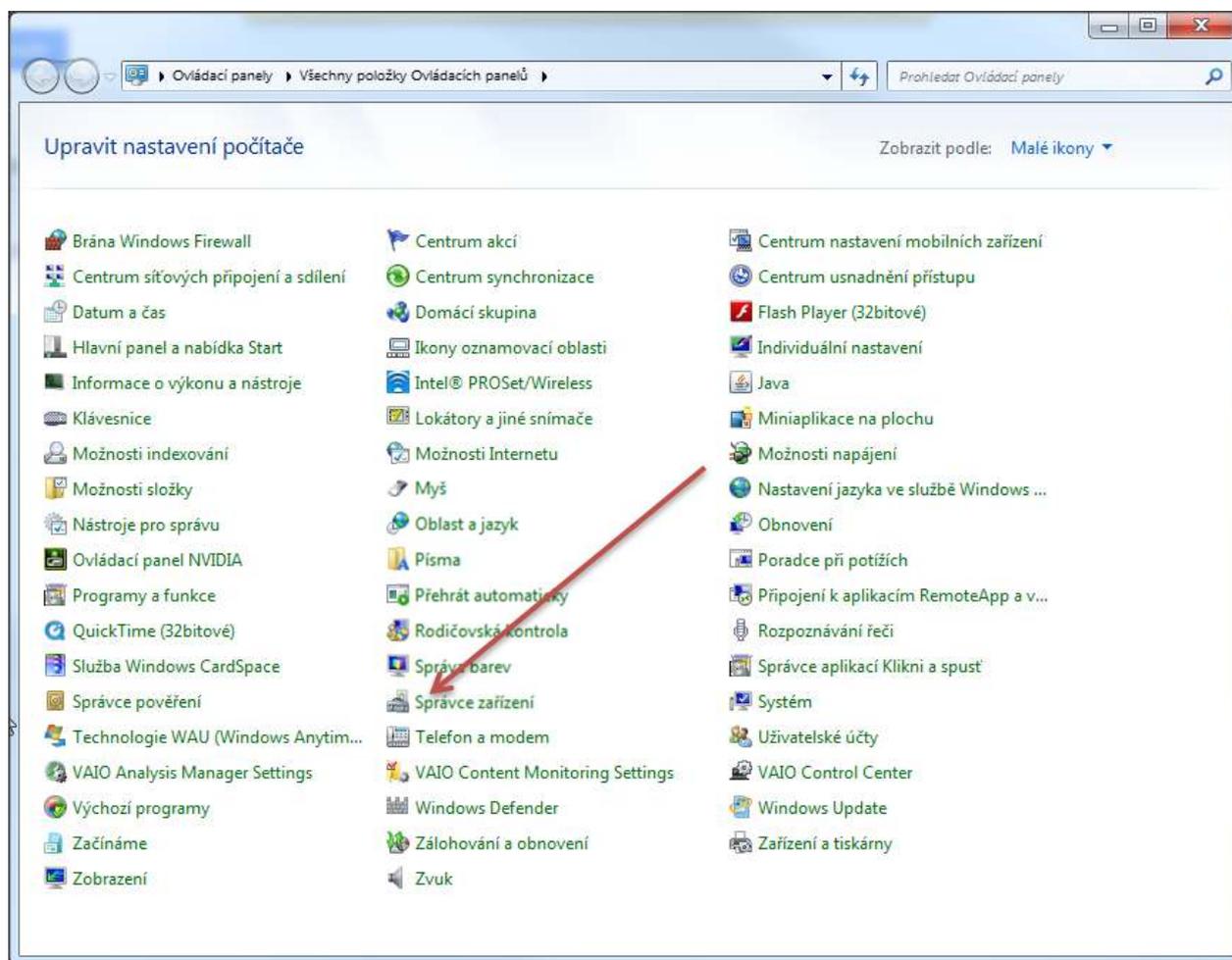
7. USB DRIVER INSTALLATION

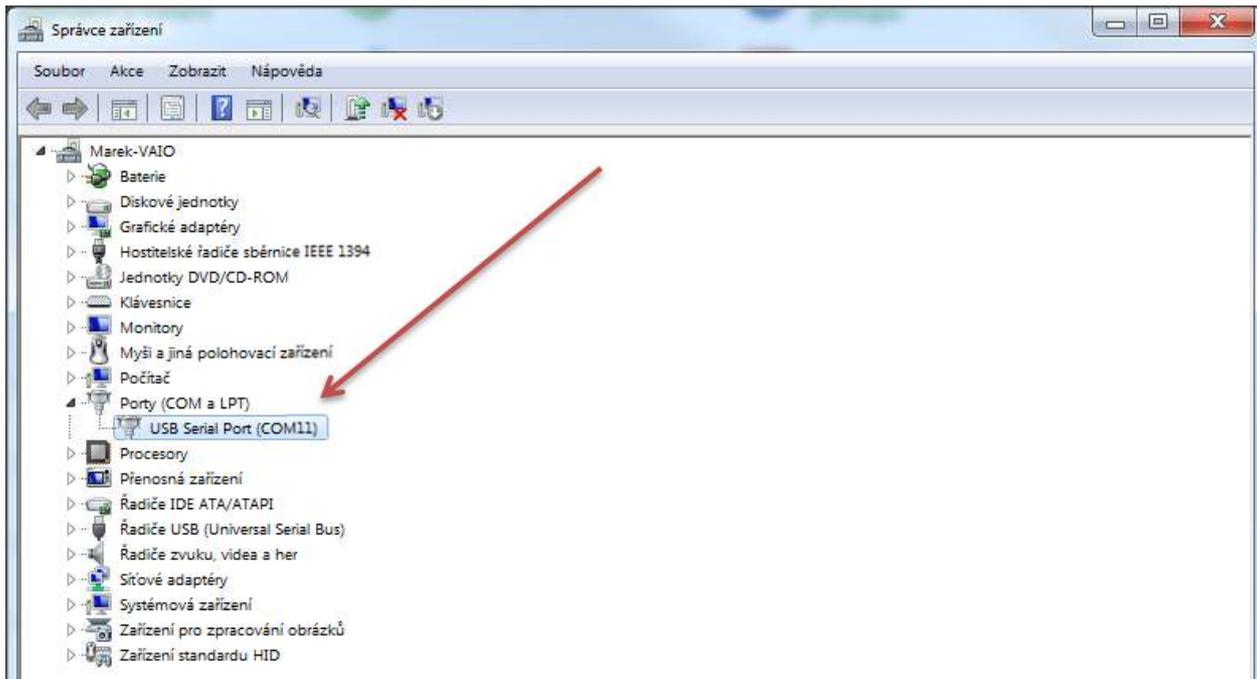
Connect the printer to the computer and switch printer on.

Some operation system will install USB driver automatically. Or ask you for driver. Than link the OS to the folder on CD "`../drivers USB/FTDI USB drivers`".

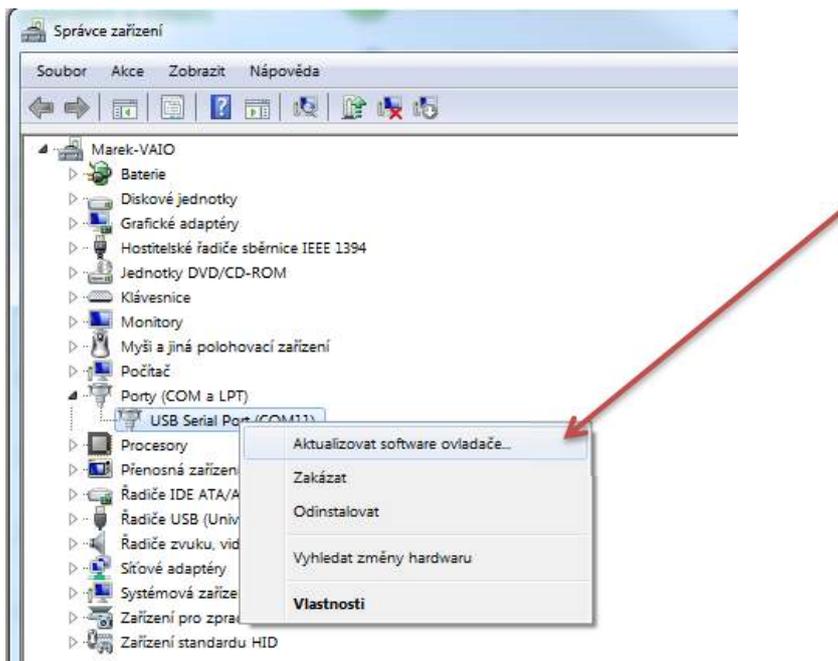
If the driver is not installed automatically or OS does not ask you for link of the driver install it manually.

Windows:

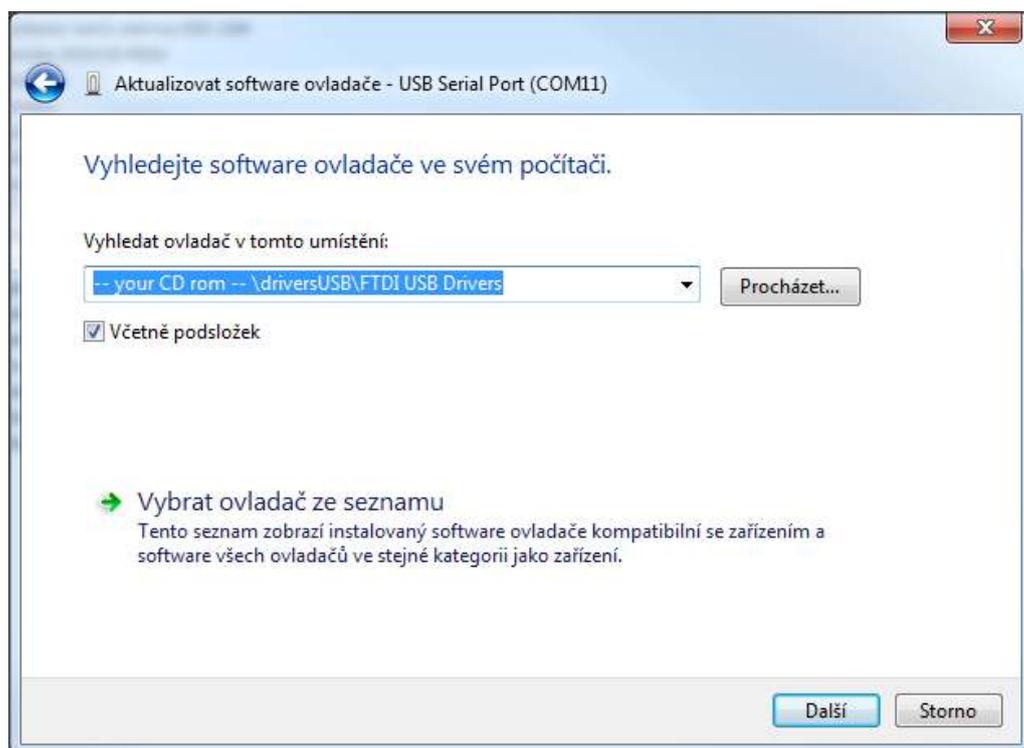
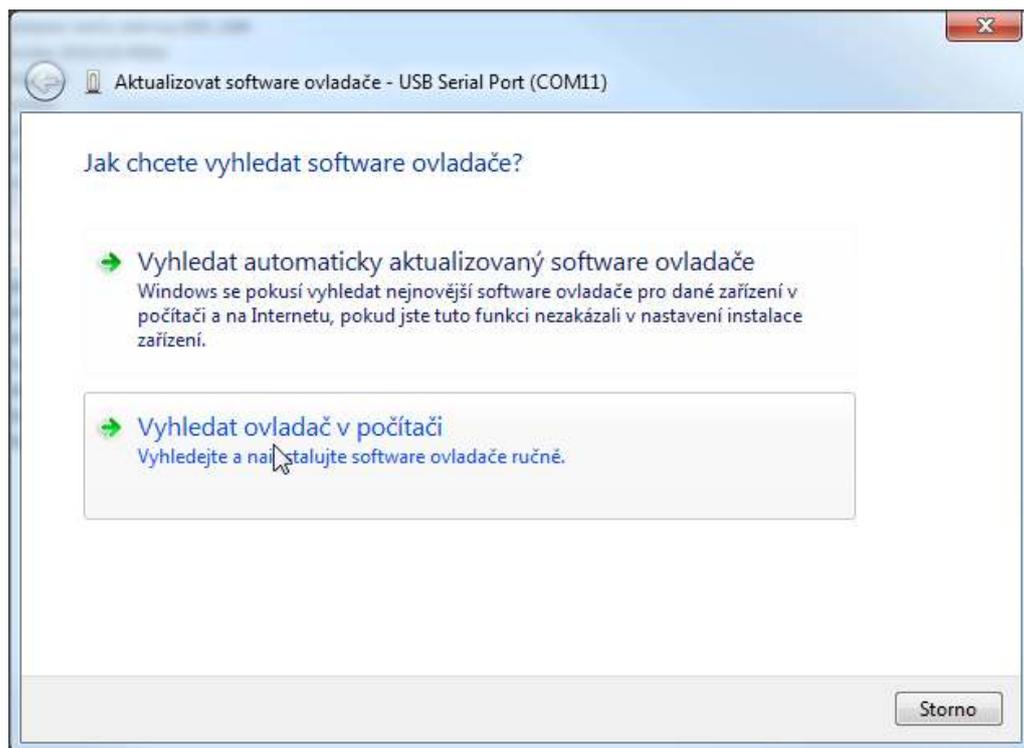




Click right mouse on USB serial port or on icon with warning triangle.



Choose actualize driver software and link to the CD driver folder.

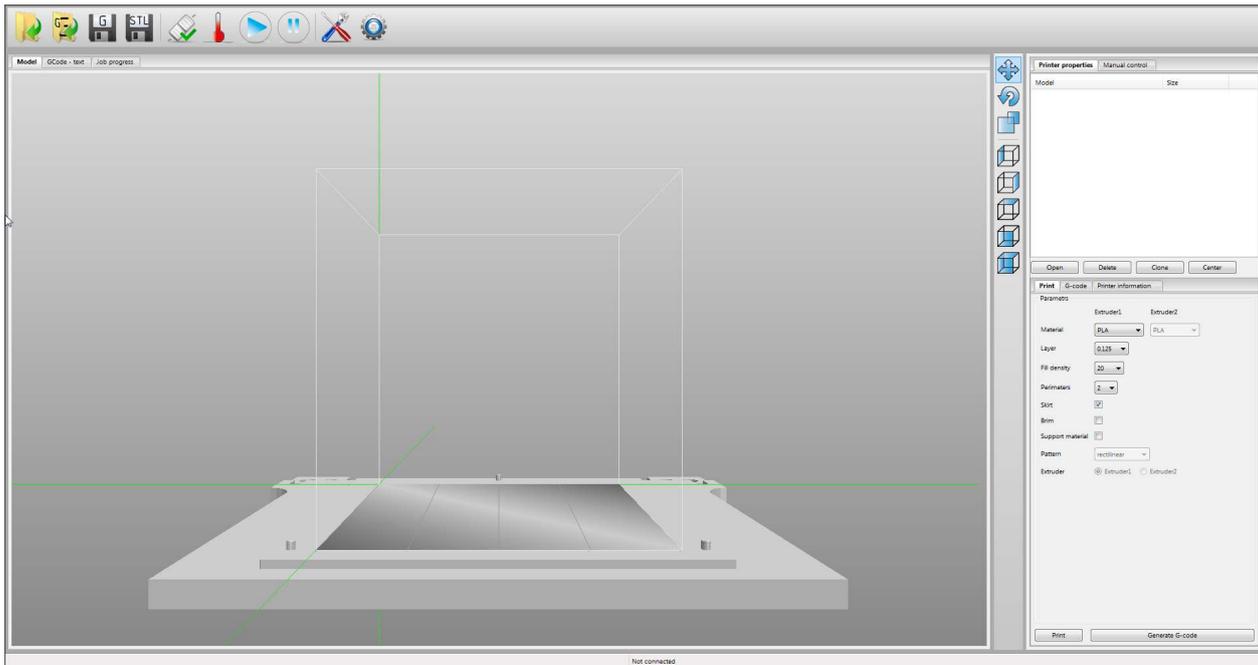


8. G3DMAKER settings

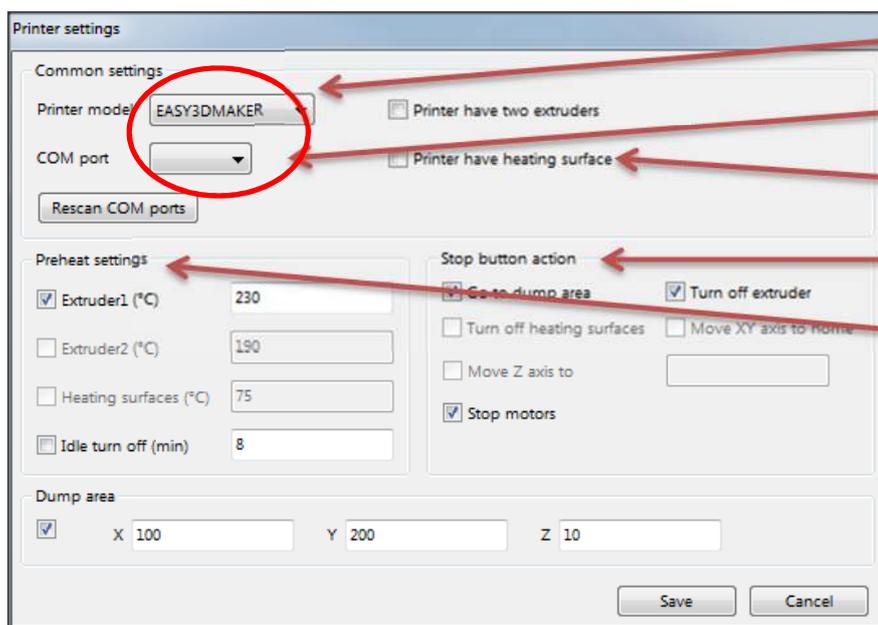
Start G3DMAKER. First time the software will control if is on server some actualization. If is, download and installation will run automatically.

After this the program will start and you can configure it.

You will see this window:



Before first start of printer click on printer setting icon.



Choose COM printer

Choose COM port **TOP point**

Heated print bed yes/no

Stop button actions

If have printer heated bed you can set preheat temperature.

9. BEFORE FIRST PRINT

9.1. Few steps before first print

Before print is necessary to do this few steps. Please pay attention to this.

- Double check if the print bed is clean
- Remove all debris and rests of material
- Double check if the print bed is put in the right way and strongly attached
- Double check if the nozzle is clean
- Double check and correct height of nozzle over print bed
- Double check if the filament is correctly put into extruder and spool is correctly put in printer

9.2. Z axis calibration



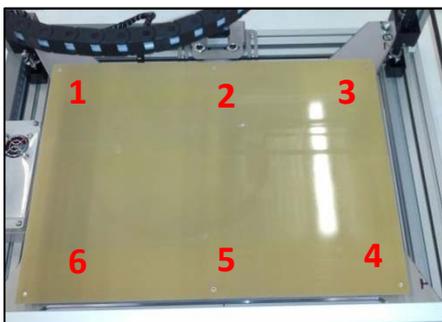
- Connect printer click on .
- Go to "Manual control" panel and press "Home Z" button.
- Put common office paper under nozzle (pic 9.2.1) and with screws (pic 9.2.2) set proper position of table. **You have to feel that nozzle is touching to the paper and a little hold it but paper have to move under cannot be hold too much.** Do this in all positions (pic 9.2.3)



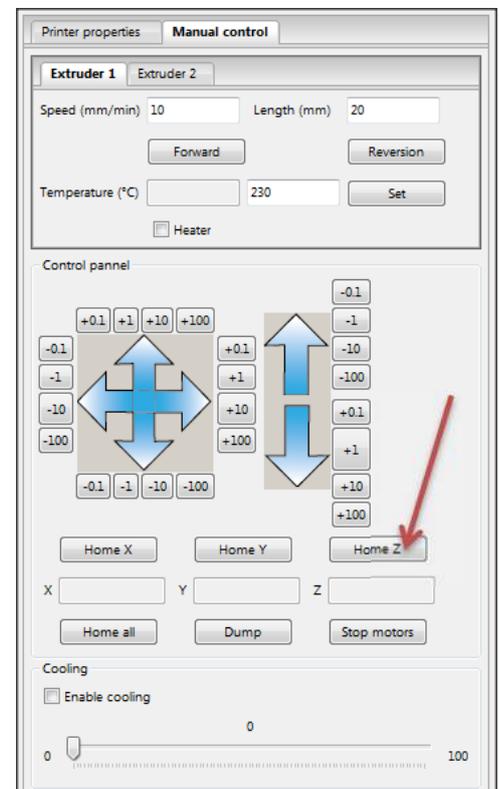
Pic 9.2.1



Pic 9.2.2

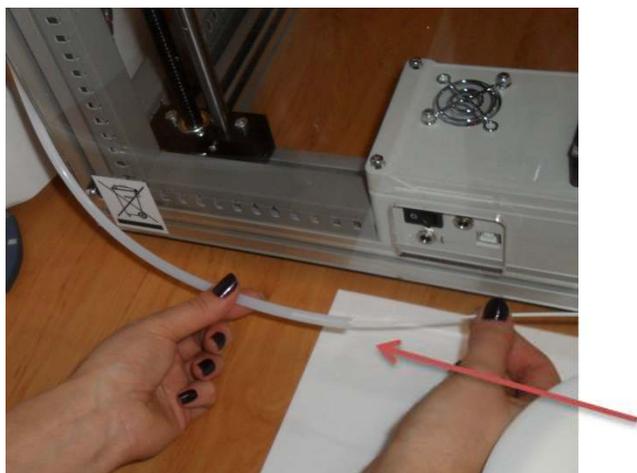
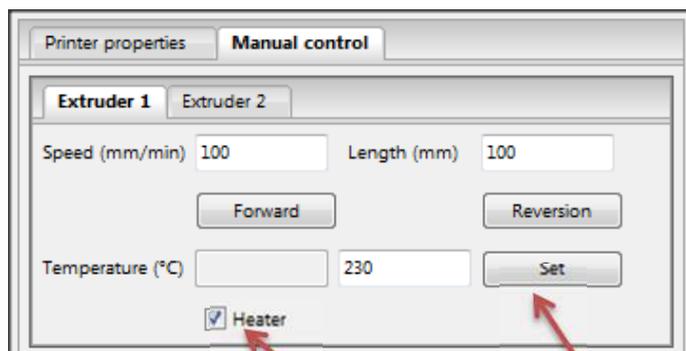


Pic 9.2.3

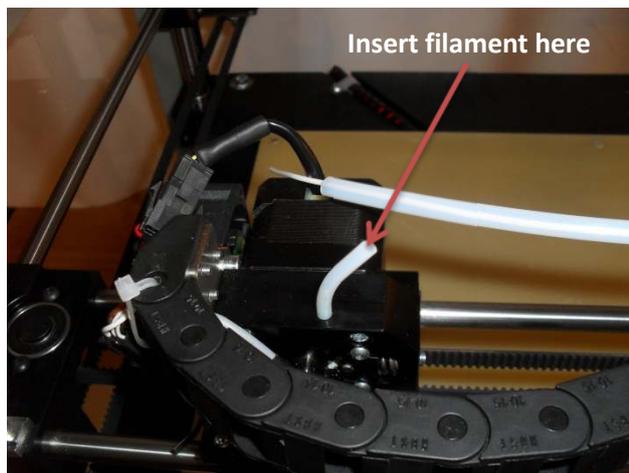


9.3 introductions of filament

- a) Insert the filament into the white tube (pic 9.3.1)
- b) Set temperature of extruder in control panel (1a).
Be sure that heater is on (2a)
- c) Set speed on 100 ad length 50-100.
- d) After temperature is reached, press forward button and put filament into the extruder (pic 9.3.2) be sure that filament is going between wheels and is going into the small hole under wheels (pic 9.3.3)
- e) Wait for extrusion is started.



Pic 9.3.1



Pic 9.3.2



Pic 9.3.3



End of filament has to be flat!!!

Small hole under wheels Filament between wheels

9.4. How to use 3d glue

3DGlue is holding model on the platform. Use it before each print on area where you will print.



If is on platform too fat layer of glue remove it with spatula or scraper.



10. REMOVING MODEL FROM THE PLATFORM

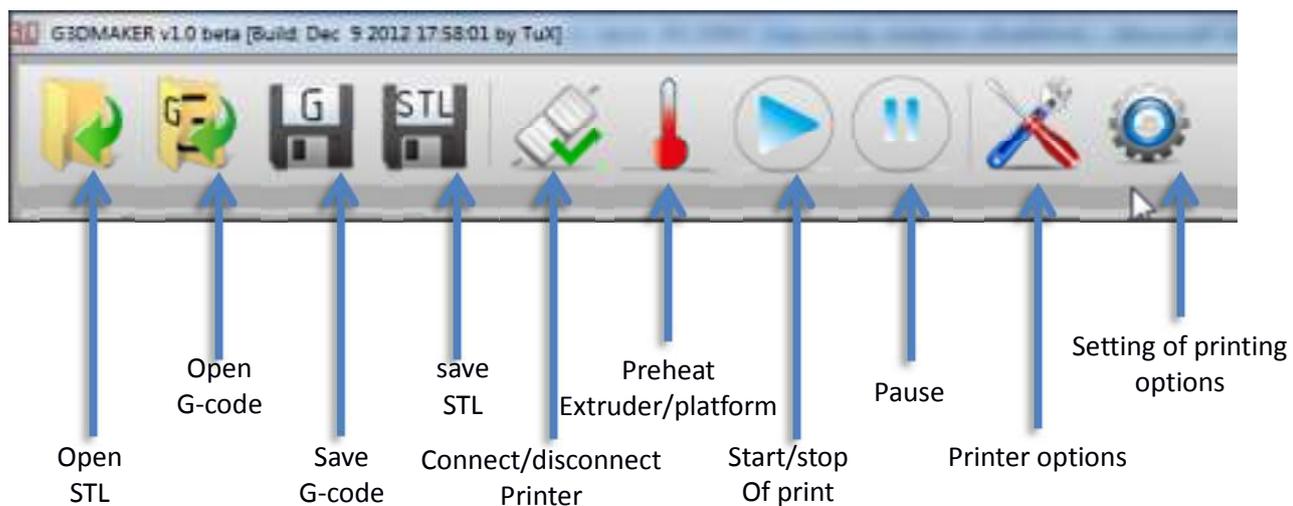
If print is ready remove model from the platform with spatula.

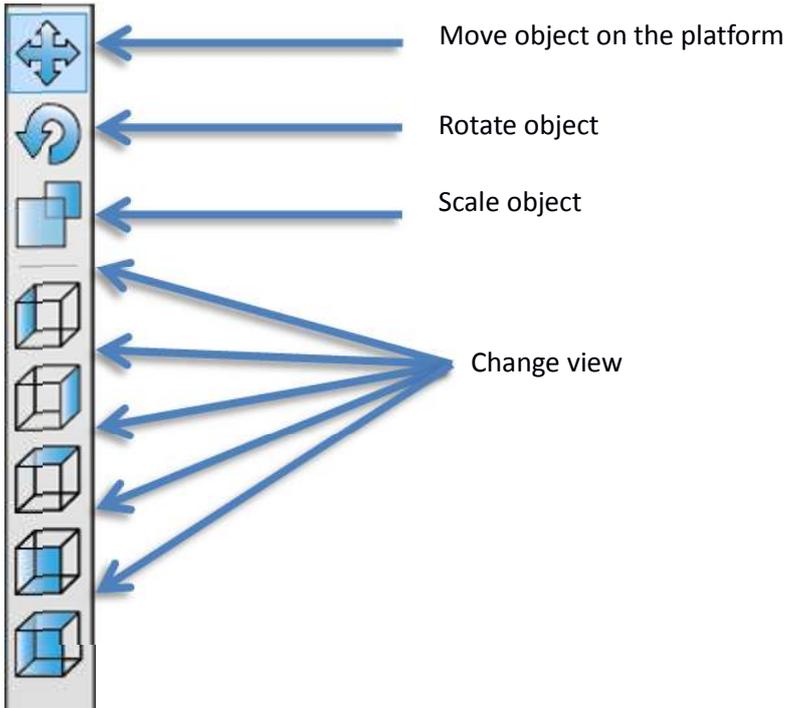


11. G3D MAKER PRINT SETTINGS

11.1. Functions

G3Dmaker icons





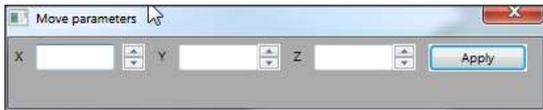
11.2. load model

- a) Start the program G3DMAKER and connect to the printer.
- b) Click on folder icon in left top Corner
- c) Load model from your directory

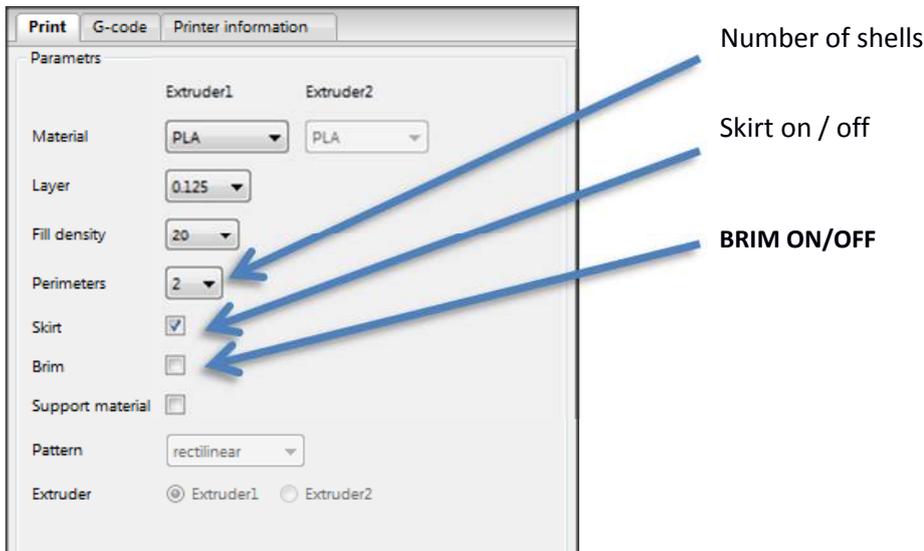


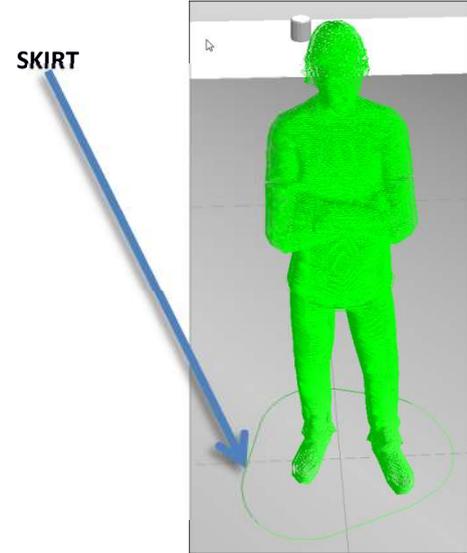
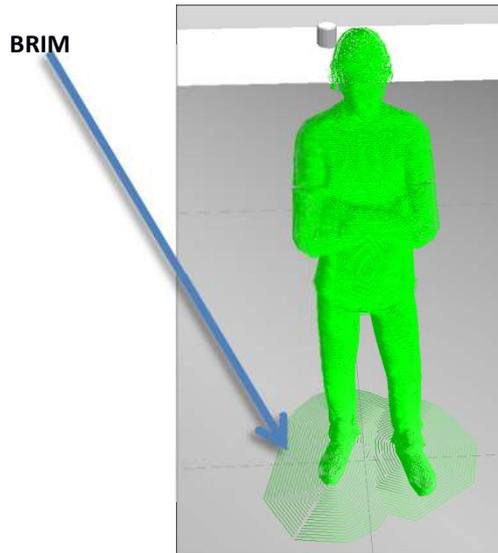
11.3. Work with model

Model you can moving on platform, rotate or scale. You can do it with mouse or set the numbers.



11.3 Print parameters





Skirt is for properly extrusion start

Brim for hold small models on platform

Set your desired print options and press “Generate G-code” . After generation press “print button.

12. ADVANCED PRINTING SETTINGS

12.1. Common settings

Click on icon  for open setting window.

Select layer thickness: the options bellow these fields are managed by these options. For each layer thickness separately.

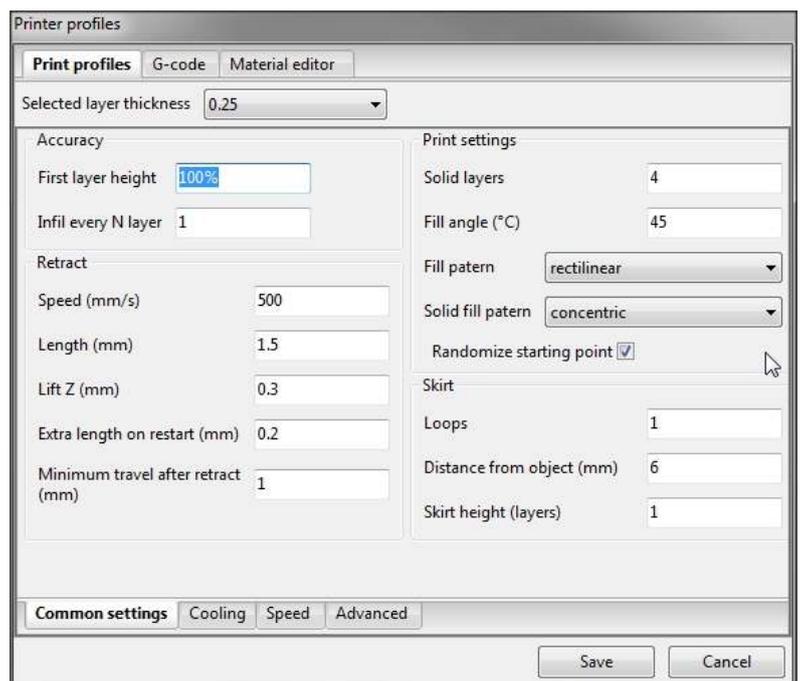
First layer height: first layer can start on 100% of layer thickness or higher or lower. **For 0.08 thicknesses** would be better to decrease this number for example 50%. Other let 100%.

Retract

Speed (mm/s): speed for pull filament back to prevent oozing. Good parameter is 300-500 mm/s.

Length (mm): Length of filament pulled back. Good is between 1-2.5.

Lift Z (mm): Table is going down this length during retract. This parameter improve print surface and prevent break the model.

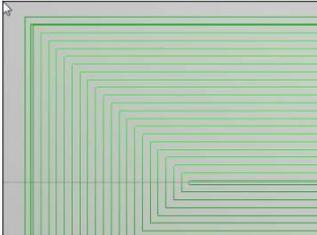


Extra length on restart (mm): filament is going back to extruder after retract (length of retract + this number) Do not put here too high number. Usually is 0 only in some cases use some like 0.1 or 0.2 no more. Filament would be broken in extruder.

Print settings

Solid layers : number of horizontal solid layers. Remember 0.08 layers are 12 for 1mm of thickness.

Fill pattern:
Concentric:



Linear

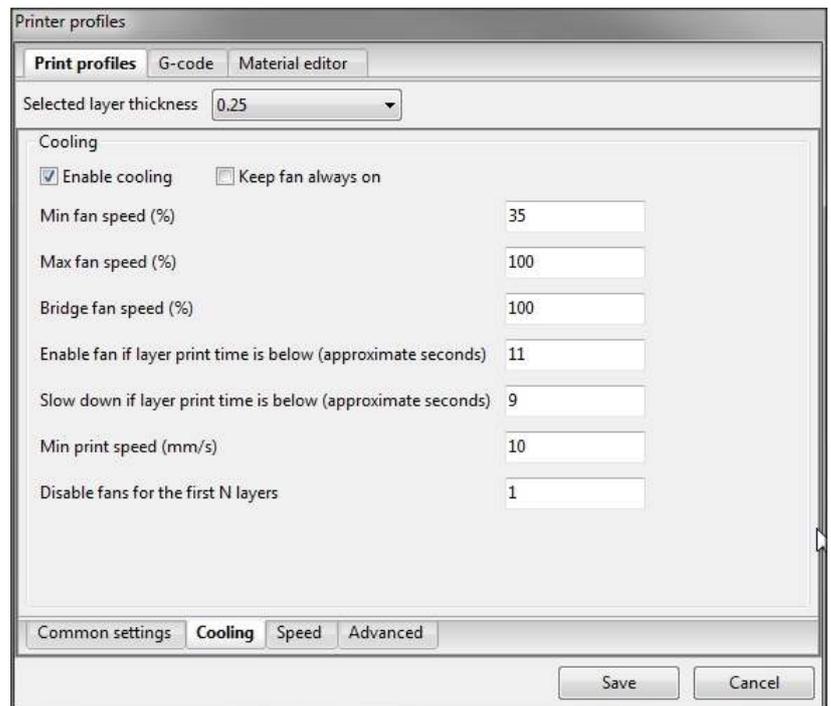


12.2. Cooling

Enable fan if layer print time is below: If approximate time of print of one layer is below time fan will be on from min speed to max speed depend on time.

Slow down if layer print time is below: If layer time is too small and layer is too small it really good to slow down the extruder. This is good for cooling and prevent to melt lower layers.

Tip: ABS print – fan can be switch off all the time



13.3. Speed

Perimeters (mm/s): speed for all perimeters besides the outer perimeter.

Small perimeters: if perimeter is smaller than diam. 6mm printer will print with this speed. Is good let this value lower. Something likes 20 to 30mm/s.

Infill: speed of infill can be higher no problem put here 80mm/s besides layer thickness 0.25mm here let the value 40-50mm/s

Solid infill: speed of solid infill can be higher no problem put here 80mm/s besides layer thickness 0.25mm here let the value 40-50mm/s

Top solid infill: value for speed of top solid layer can be lower. About 40-50 for precision creation of top surface.

Bridges: speed can be 50-80 with 0.25mm layer let here mas speed 60mm/s

External perimeters speed: For precision print of outer perimeter (surface of model) let this number lower the best is 20.

Printer profiles

Print profiles | G-code | Material editor

Selected layer thickness: 0.25

Print speed

Perimeters (mm/s)	40
Small perimeters (mm/s or %)	30
Infill (mm/s)	50
Solid infill (mm/s or %)	50
Top solid infill (mm/s or %)	40
Bridges (mm/s)	50
External perimeter speed (mm/s or %)	20

Other speed settings

Travel (mm/s)	230	First layer speed (mm/s or %)	50%
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Common settings | Cooling | Speed | Advanced

Save | Cancel

12.4. Advanced

Extrusion width : general value for change default thickness of single line from extruder. Default is 0.70. Usually real output is 0.5 or 0.52 but for properly generation of lines put here value about 0.45-47. If you need print wall like for example 0.8 divide this thickness in this options 0.4 than will be generated like two lines.

First layer extrusion width: the same way like before. Only for first layer. Usually is not necessary to change it.

Perimeters extrusion width: you can change parameters only for perimeters by the same way like extrusion width.

Infill extrusion width: the same only for infill.

Support material extrusion width: If support seems to be too strong or too weak you can change it. If you let it 0 will be extrusion of support 0.7mm you can also change it with % or number for example 0.4.

Bridges flow ratio: change of material amount for bridges. Usually is not necessary to change.

Printer profiles

Print profiles | G-code | Material editor

Selected layer thickness: 0.25

Extrusion

Extrusion width (mm or %; leave zero to calculate automatically)	0.47
First layer extrusion width (mm or % or 0 for default)	0
Perimeters extrusion width (mm or % or 0 for default)	0
Infill extrusion width (mm or % or 0 for default)	0.45
Support material extrusion width (mm or % or 0 for default)	0
Bridge flow ratio	1

Support material

Overhang threshold (°)	45
Pattern spacing (mm)	2.5
Pattern angle (°)	0

Common settings | Cooling | Speed | Advanced

Save | Cancel

Support material

Overhang threshold: change of minimum angle for support generation. For example if you put here 40° the support will not be created for angle over 40° like 41° and higher.

Pattern spacing: space between support lines. If you put here higher value the support will be sparser.

Pattern angle: angle in which support will be created. Default is 90° in XY direction.

12.5. Material editor

Material editor allows you to change material properties and add new materials.

Diameter: This is most important value. Because diameter of filament is not absolutely constant and is changed because environmental circumstances like humidity. It is necessary to work with this value often. Before you put material inside please measure diameter and put this number here.

If it seems to be too much material in print increase this number. If it seems to be too small amount of material in the print process decrease this value. Usually we work with 1.65 – 1.8mm. But this is a little individual.

Multiplier: is almost the same like change the filament diameter. Range of this value is 0.9 – 1.1.

First layer bed °C: temperature of print bed for first print layer. ABS 75°C and PLA can be 50°C.

Bed °C: other layers bed temperature. ABS can be 70°C and PLA can be 50°C.

First layer °C: temperature of extruder for first layer. Usually is higher than next layer for good stick on the print bed. With heated print bed please use the same temperature like other layers. ABS 240-250 and heated print bed 230°C. PLA 210 and heated print bed 175°C.

Temp °C: temperature for printing ABS 240-270°C PLA 190-220°C.

Raft °C: not use at this time.

Name	Diameter	Multiplier	First layer bed °C	Bed °C	First layer °C	Temp °C	Raft °C
ABS	1.65	1.0	70	70	240	230	0
PLA	1.75	1.0	55	50	210	175	0
PLA Black	1.68	1			210	165	
PLA White	1.65	1	55	50	180	165	0

13. MAINTENANCE

Hold the printer in clean and dry environment.

The body of printer cleans with dry clean cloth.

Hold the belts in right tensions. If tensions are low correct it. Under Y motors are 4 screws loosen them and push the motor backwards. Than tighten the screws again.

13.1. Shaft lubrication

Hold the shafts oiled. Use for this Silicone or Teflon oil.

Oil has to be applied only on shafts, be careful that the bed is not oiled.

13.2. Nozzle cleaning

SAFETY WARNING!

Nozzle is hot, during print si about 270°C If you touch to the hot ednd of nozzle you cyn be burn.

Clean nozzle if heating is on, only with some isolated instrument. Or clean nozzle only if is nozzle cold. Minimum 30 minutes after machine have been switched of.

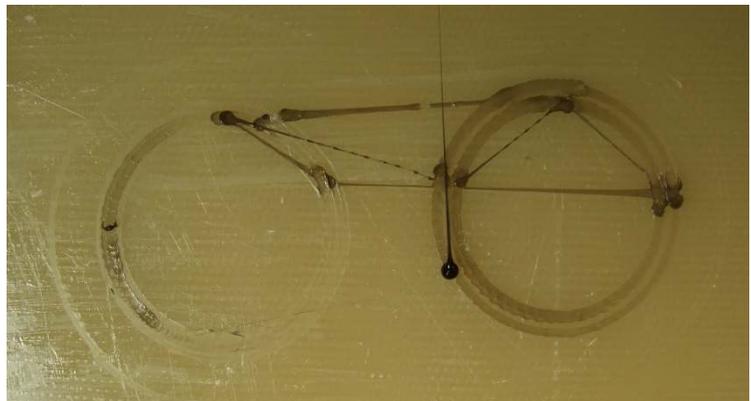
Make sure that nozzle is before printing clean, free of debris.



14. PROBLEM SOLVING

14.1. Nozzle too low

If nozzle is too low filament cannot go out. You can see that extruder is moving but hooting is on platform or on platform you can see some crumbs. Or the first layer is too wide.



14.2. Nozzle too high

If nozzle is too high over table, filament cannot stick on the platform and you can see something like this. Filament is drawing some points like necklace.

Tip: Calibrate the Z axis.



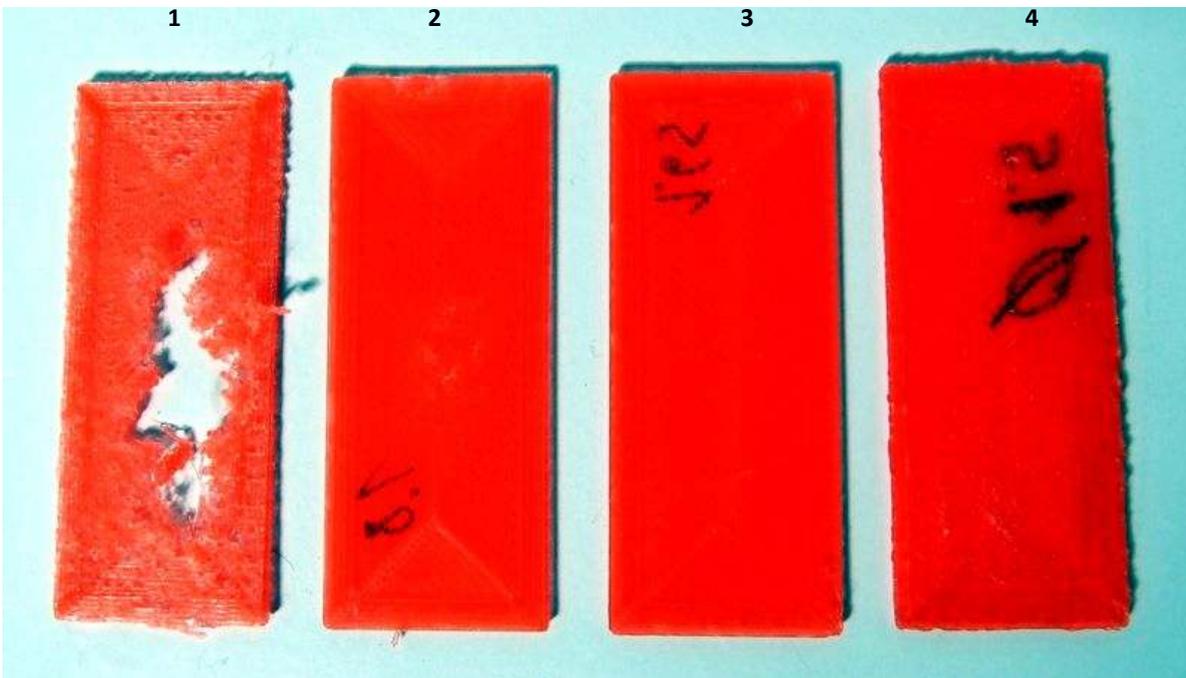
14.3. Low amount of material

If you see the print result like is on the picture, probably this has two reasons.

- a) Too low material. Decrease the filament diameter number in the material editor.

Printer profiles							
Print profiles		G-code		Material editor			
Name	Diameter	Multiplier	First layer bed °C	Bed °C	First layer °C	Temp °C	Raft °C
ABS	1.65	.0	70	70	240	230	0
PLA	1.75	.0	55	50	210	175	0
PLA Black	1.65	1			210	165	
PLA White	1.65	1	55	50	180	165	0

- b) Retract is too long, you can decrease length of the retract or increase the number for extra length on restart.



- 1) Filament diameter is too high and printer give too small material (2.0)
- 2) Here is still low material but result is better (1.8)
- 3) Seem to be good result (1.62)
- 4) Too much of material, you can see debris on the border of model (1.5)



On this picture you can see the low material and too big of retract, material is not properly set back on nozzle after retract.

14.4. Retract

This parameter can have good or bad impact on print result.

Like on the picture higher. Set the extra length on restart. And decrease filament thickness in material editor.

Too big value on Length and Extra length can destroy the filament.

Retract

Speed (mm/s)	<input type="text" value="500"/>
Length (mm)	<input type="text" value="1.5"/>
Lift Z (mm)	<input type="text" value="0.3"/>
Extra length on restart (mm)	<input type="text" value="0.2"/>
Minimum travel after retract (mm)	<input type="text" value="1"/>

14.5. Model accuracy

Accuracy depend on filament diameter options and extrusion width. With this combination you can calibrate perfect accuracy of the print result.

First time make test. Set value for extrusion width or let default and print test model. Measure this model and correct the options for this two values.

14.6. Out of memory

32bit systems or only 32bit G3Dmaker on 64bit system can be out of memory with some bigger models or with small model with high resolution.

This problem can solve only 64bit OS or decrease resolution of model (amount of polygons).