

UPM Formi 3D printing recommendations



When using UPM Formi 3D for 3D printing, experimental approach is recommended in order to find the best possible print parameters.

1. General info for UPM Formi 3D 20

Print bed:

Compared to pure PLA, UPM Formi 3D has extremely low tendency to warp or lose its dimensional stability during printing. Due to these features UPM Formi 3D has very good adhesion to print bed.

Tips:

- *When using glass bed, use 50-65C temperature for small surface area prints and no heating for large surface area. If print sticks too much, you can remove it with water.*
- *Do not use glue for build plate or BuildTack*
- *UPM Formi 3D sticks well on paper or cardboard*

Print temperature:

UPM Formi 3D cools fast due to fine cellulose fibres. Because of this property it is recommended to print with 10 to 30 degrees higher temperature compared to PLA and adjust the print speed according to melt flow.

Note: *Like other wood filled composites, cellulose fibers are sensitive to heat. When printing small parts with low speed, print may get darker. This can be avoided by changing temperature settings to lower level especially for small parts.*

Heated chamber:

Not needed but heated chamber can be used in order to keep the printed part warm during printing for improving the layer adhesion. However, it is important to keep the chamber temperature under 65 °C.

Cooling:

It is recommended to keep fan speed as low as possible to keep printed surface hot enough for the next layer.

Material flow:

Recommended material flow between 100-200% depending on used nozzle diameter, print speed and temperature settings.

Print speed:

Adjust the print speed according to your print temperature and printed model.

UPM Formi 3D printing recommendations



Retraction:

Due to shear thinning flow properties and soft surface of UPM Formi 3D keep retraction distance as low as possible and lower retraction speed compared to PLA.

Layer thickness:

Recommended layer thickness 0,2 mm-1mm depending on your nozzle size.

For large scale filament printing (e.g. 1,5-2mm nozzle) best adhesion between layers have been obtained by using layer width/layer thickness ratio of 1.5-2.5 where line width is 1.5x nozzle diameter.

Feeding the filament:

UPM Formi 3D filaments have soft surface. it's important that the tension on the feeder is set correctly. If the tension is too high, the feeder will flatten the filament and it gets grinded. To prevent grinding of the filament it is important to set the tension on the feeder as loose as possible.

Bowden extruders:

It is recommended to use feeder and print settings adapted to print flexible filaments with slippery Bowden tube.

Cleaning the nozzle:

It is recommended to clean the nozzle between prints time to time e.g. by using Atomic Method, especially when using small nozzles.