

WHAT IS THE FILAMENT FAN

The filament fan is the large one to the left of the extruder. It has a nozzle that blows air onto the layer just printed to set PLA filament rapidly for higher quality prints. (Fig 1.1)

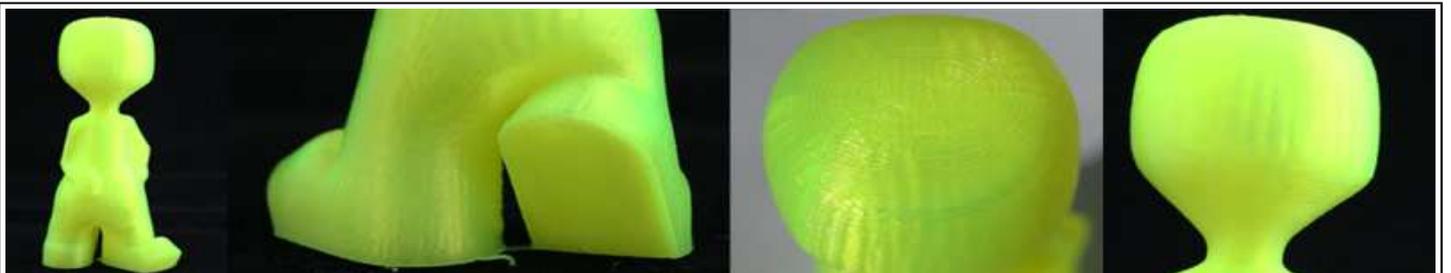
WHY DO I NEED A FILAMENT FAN?

The filament fan blows air onto the layer of filament just printed. This rapidly cools the filament to set it in place almost immediately. In setting PLA quickly it allows a machine to print overhang and curved surfaces more readily without support material. It also improves print resolution by reducing the visibility of the layer heights. The Replicator 2 can contribute a lot of its success in print resolution to its filament fan. During comprehensive testing the filament fan proved itself to be a great asset. (Fig 1.2)



1.1 Filament Fan and nozzle attachment

Fig 1.2 printed on Replicator 2 (PLA) Fill 10%, Layer height .20mm, 4 Shells : Time and time again this machine printed this file perfectly. We used the filament fan from the third layer up, and you will note in all 5 assessment areas it performed perfectly. In fact we believe it would be just as perfect with no fill, however you really do need the 4 shells to provide the smooth finish on the steep gradient edges.



1.2 Print quality attributed to the Filament Fan. Notice the perfect raised foot, no droop on the chin, superb finish all round.

Fig 1.3 printed on Replicator 2 (PLA) Fill 10%, Layer height .20mm, 4 Shells : This figure was printed without using a filament fan resulting in the PLA not being cooled and set rapidly. The results are obvious in the tummy overhang which contains some droop, as does the chin and head. The most glaring fault however is evident in the top of the head, where you will notice gaps in the shell.



1.3 Print quality impaired without filament fan. Notice the slight droop on the foot, chin, thigh and stomach, and the hole in the head!

WHAT YOU NEED TO KNOW.

This nozzle clips in on the underside of the fan and the nozzle can become unclipped if your print lifts off the bed and knocks into the nozzle. It can also wear overtime so that the clip no longer holds.

The nozzle can unclip partially or completely and then bumped into your print and caused the machine to be unable to move in the x axis correctly. This results in a staircase print; often seeing this happen 2-3 times until at last the Fans nozzle is ripped from the unattended machine or the print is shoved off the bed.

Also, if the bed was not properly levelled or the first layers did not lay down correctly, the print can begin to lift off the bed. This can in turn cause the fan nozzle to bump into the print and cause the same event.

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