

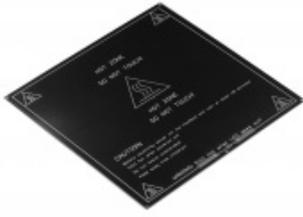


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Located in The Netherlands

*- One to replicate them all -*

## Electronics - Mechanical - Filaments

Welcome to our second newsletter! During the slower holidays we had some time to make improvements to the website's checkout process. Choosing a shipping address and carrier is now much easier. We are planning to offer some 24-hours services as well. If you have feedback regarding the newsletter or you like to share your own news that is interesting for our audience, please feel free to drop a email at: [info@reprapworld.com](mailto:info@reprapworld.com).



A lot of quality improvement on prints can be reached when using a heated bed. This reduces warping of the print a lot. Warping is caused when upper layers of the print start to cool and shrink, resulting in bending the layers below it. This is why ABS tends to warp much more: it shrinks more than PLA. So the trick is to get the filament to stick better to the heated bed. In itself this isn't that hard, the hard part is finding a solution that sticks very good but also allows to remove the print when it's finished. So the community has come up

with a lot of different solutions, which work differently for the different types of filament.

For ABS filament kapton tape or stickers will work ok, but using a spray like 3DLAC on glass greatly improves adhesion and gives a much nicer finish because kapton tends to have bubbles and in the case of tape lines between the lanes of tape. Even when printing at 50-60 degrees C. It takes some time to test the best method of spraying the right amount, so it doesn't stick too much. Also starting the first layer at a high temperature (90 degrees) and after which cooling down to 50-60 degrees can give better result when trying to remove the object. For PLA a heated bed isn't really required. I like to have it on 30 degrees using print stickers, but that had to do more with the controlling the temperature around the print than adhesion.

If you need to heat a larger area than 20x20, you need a lot of power and/or patience. Increasing the voltage on the heated bed allows more current to flow, resulting in more power and less time to heat up the plate. But changes are you are going to above the max current rating (mostly 10A) of the electronics. A heated bed PCB will draw already 8-10A at 12V, that results in about 16-20A on 24V. In most cases you need a different power supply to control the heated bed. Megatronics and RAMPS already have a separate header for powering the heated bed, allowing a different voltage and more current through the header. But for higher currents a separated system using a relay could be a better and safer solution.

### [3D printing for the mainstream consumer less then 10 years away](#)

Research firm Gartner said that 3D printing is about 5 to 10 years away for the mainstream consumer. They also said that it will make huge steps within the medical section.

### [Farmbot 3D printer revolution in farming industry](#)

This is not exactly a 3D printer but it's able to plant, grow and water crops. This is an efficient way of farming with a sort of 3D printer.

### [Student develops his own 3D printed prosthetic hand](#)

Jordan Nickerson was born without a left hand but being a computer science student at the Portland community college made him realise that 3D printing can change all that. He has made his own prosthetic hand which can actually move and act as a normal hand by wrist movement.

### [Candy printer enters the market](#)

The Cheffjet printer announced earlier this year has been released and is very futuristically shaped. It is able to print candy in for of cake toppings or other decorations.

### [3D printed house and pool](#)

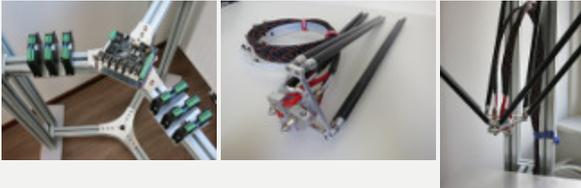
Architect Adam Kushner is going to print his first house and pool. It is going to be a 4 bedroom home with a swimming pool.

## Your project: Large delta printer (Stefan Oosterwold)



Stefan Oosterwold is building a very neat and very large delta printer. It is based on Megatronics V3.0 and has a build volume of 300mm diameter by 600mm height. It will have three extruders cooled with water cooling. By using larger stepper motors with direct drive Stefan expects to be able to reach very high speeds. Other features include:

- Will print at 200mm/s or 500mm/s for rapid prints
- High resolution prints by using different nozzle sizes on three extruders
- Because of the 'DM422C digital drivers' external stepper drivers the noise should be greatly reduced
- Very stiff construction, using high quality materials



### So Stefan, why did you decide to start this project?

A year ago I bought a Leapfrog Creatr, thinking I was getting a plug-n-play 3D-printer so I wouldn't need to do any R&D myself. After a while I decided I wanted to build a new and better printer using my experiences with the Creatr, so I started this project.

### What electronics did you use?

- 3x - 24V 40Watt extruder heaters
- 1x - 230V 500Watt heated bed
- 3x - hall sensor end limits
- 1x - Megatronics V3.0 controller
- 6x - Nema23 1.2Nm motor
- 6x - Leadshine DM422C digital drivers
- 1x - 24V 400 watt voeding
- 1x - 36V 500 watt voeding

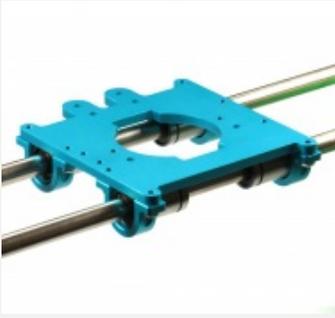
### So what's next?

Once the frame and testprinting is done, I will use hardened glass to close the frame and it should be ready to print.

You can follow Stefan's progress at [CNCZone.nl](http://CNCZone.nl) (Dutch). Good luck with your project Stefan!

Want to share your project with us? Send an email with some pictures and a description to [info@reprapworld.com](mailto:info@reprapworld.com)!

## What's new?



### **Metal carriage v1.0**

[Metal carriage](#), can be used on Mendel Max / Prusa (i3). It can be mounted horizontally or vertically and supports most extruder body's. It's made of anodized aluminum with a cool blue coating!



### **Raspberry Pi Model B+**

Now available on ReprapWorld: [Raspberry Pi Model B+](#) (512MB). This neat little board can be used as HTPC, development board or as 3D printer host controller!

## Highlights



### **ABS - Yellow/Pink - spool of 2Kg - 1.75mm**

We have [ABS pink/yellow 2KG](#) for sale while we are cleaning out the stock. Check the sale section, also for other great discounts!



### **3D Lac (NL,BE,LU,DE only)**

Great for printing ABS directly on glass: [3D Lac](#). Just spray, wait till it dries and start printing without warping! Works even at temperatures as low as 50 degrees C. Unfortunately only for customers in NL,BE,LU,DE, due to shipping restrictions.

\* Prices are excluding VAT and subject to change without notice