MAKERS MONTHLY

May 2024

Written by Makers Monthly

Photo courtesy of Bondtech
A nozzle with an orifice size of Ø1.8mm is larger than standard Ø1.75 mm filament.

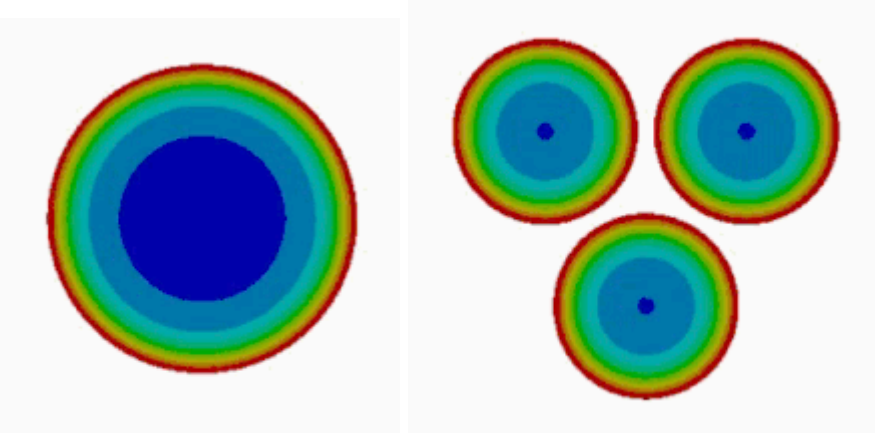
“Spaghetti Printing”

3D printers allow you to change many variables in the print settings which alter the resulting part you create. One item that is often overlooked is the nozzle. Using a small nozzle can increase the detail in the model which is convenient for text on models. Increasing the diameter of the nozzle orifice on the other hand can drastically reduce the print time. A new nozzle on the market has an orifice size of Ø1.8 mm, surpassing the standard filament diameter is Ø1.75 mm.

A Bondtech Ø1.8 mm CHT nozzle printing beads with a width of at least 2 mm wide.

Above a 3D printer extrudes a massive 2 mm bead compared to 0.6 mm bead achieved with a standard 0.4 mm nozzle. The company that was able to design and manufacture a nozzle that would melt the entire filament strand is Bondtech, an American 3D printing and machining brand. They determined that by splitting the strand into three channels and recombining them at the tip of the nozzle created more surface area to melt which allowed for faster printing. Without this feature, you must print at a slower speed to enable the

entire strand of plastic to become soft. As seen below, an animation comparing the standard nozzle and split nozzle channels melting time.



An animation of the temperature within the filament for standard and Bondtech CHT nozzles

The name “spaghetti printing” was coined due to the fact that the prints look like they are made of spaghetti noodles. This look is desired in more decorative parts but also provides a stronger part due to its thick layers.

The unique look that a large nozzle can give to a print. Photo courtesy of Kowafatcompany

A downside to this method is that it burns through material very fast. For every meter of plastic the nozzle extrudes, an entire meter of filament is consumed. In standard nozzles the ratio of 1 meter of extruded plastic is 0.4 meters of filament. I am planning on experimenting further with this technology by designing and printing a waste bin that is strong enough for everyday use.

Thank you for reading our article!

We would like your input for our future article topics **HERE**. Get your own laser cut contour map **HERE**

You can also check out our website at **www.makersmonthly.tech** to order custom 3D printed parts of your own! See our products **HERE**.

SINCERELY MAKERS MONTHLY TEAM