

What filament should I choose for my 3D printing project?

XYZ printers use either ABS or PLA filament. Both are Thermoplastics. Thermoplastics become soft and malleable when heated and solid again once cooled. This allows you to mold and sculpt them into different shapes prior to cooling. You can repeat this process without the quality of the material becoming affected. Both ABS and PLA require storage in a dry area without moisture.

Each model of 3D Printer is designed to work with one diameter of filament, the most common being 1.75mm and 3.0mm. Check your printer's documentation to ensure you are getting the right size filament.

XYZ 3D Printers use either ABS or PLA filament or can accept both. See below for an overview on how to choose the correct filament for your 3D printing project.



ABS - Acrylonitrile Butadiene Styrene

ABS is a very long-lasting and strong material, usually slightly inflexible and relatively resistant to heat.

Printing Temperature:

ABS is an oil-based plastic which can be used to print at 210-240° C with a heated bed at 80° C or more. A heated bed is necessary when using ABS. ABS has a glass transition zone (the temperature that the plastic starts to soften at) of 105° C, and this matters because if you aimed to print something that will be exposed to heated environments such as a hot-drink coaster, you don't want it to start getting soft and droopy.

Performance:

Its strength, flexibility, and higher temperature resistance make it often a preferred plastic for more professional applications. Due to the nature of the plastic, ABS tends to be very easy to print with from a hot-end point of view – as in it'll extrude beautifully from most hot-ends without fear of jamming or clogging. However it's a little more difficult to deal with once it has been extruded, since it loves to shrink as it cools. For this reason it's an absolute must to print ABS on a heated bed, and preferably within an enclosed-case printer. At the very least, print in a room that's not too cold and one that is without drafts which might accelerate the cooling and therefore the shrinkage.

ABS can be printed very quickly and is very forgiving of large and/or rapid retraction settings, it resists stringing so very little retraction is usually necessary.

Strength:

ABS is a rather strong plastic with great plyability and if printed at sufficient temps gets a great layer bond. ABS has a decent amount of flex to it and it tends to bend rather than snap when put under pressure.

Uses:

ABS is the best filament for objects that might be dropped, put in hot environments or used in a rough manner. These can include cutlery, tools, handles, phone or tablet mounts, device cases, toys and most other objects.



ABS – 3D printer filament
Prints at temperatures of 210-240°C
Heated bed required
No extra cooling required
Sticks well to polyimide tape
Liable to splitting, delamination, distortion
Pliable
Smells like melting plastic while processing
Petroleum-based

PLA - Polylactic Acid

PLA is a biodegradable thermoplastic that is derived from renewable resources, which makes it more environmentally friendly than others plastic materials. It is also significantly more shatterproof and flexible than the others.

Printing Temperature:

PLA is best used for printing at 180-200° C and is suitable for printing applications with or without a heated bed. PLA has almost no shrinkage. While you can still print incredibly strong objects with PLA, it tends to be a little more brittle than other plastics. It's a bioplastic that can be recycled or composted. PLA's glass transition temp is probably it's biggest downside and at only 60ish° (yes that's a scientific value) it limits how you can use this plastic. If making something that needs to hold up in 60° C temperatures, avoid PLA. Compared to ABS, PLA demonstrates much less part warping. For this reason it is possible to successfully print without a heated bed.

Performance:

In almost the complete opposite to ABS, PLA users sometimes have difficulties with jamming in the hot-end (especially all-metal hot end users) due to the sticky and expanding nature of PLA as it melts. This doesn't mean you should shy away from printing with it, just a drop of oil added to almost any hot-end when you put a roll on will give you smooth, jam-free, jam-smelling prints till the cows come home.

The real joy with PLA comes as it lays on the print bed. With almost no shrinkage, you can print massive prints in open framed printers with little fear of lifting from the bed, warping or cracking, it's a great filament to use when showing off your printer in a public setting.

Strength:

While you can still print incredibly strong objects with PLA, it tends to be a little more brittle than other plastics. Rather than bouncing when dropped or struck, some printed parts may just shatter or chip. Thin parts are more likely to snap than bend very far.

Uses:

It's a bioplastic that can be recycled or composted. It's perfect for boxes, gifts, models, prototype parts and more. Can be used outdoors and is insoluble in water.



PLA – 3D printer filament
Prints at temperatures of 180-200°C
Heated bed is not necessary
It is cooled during printing
Sticks well to various surfaces
Liable to curling at edges and overhangs
Fragile
No smell at all
Corn-based, harmless, ecologically friendly

References: <http://3dprintingforbeginners.com/filamentprimer-2> and <http://makezine.com/2014/11/11/abs-or-pla-choosing-the-right-filament/>

View our range of XYZ filaments on our website www.kookaburra.com.au

da Vinci 3D Printer ABS Filament – 1.75mm, 600g

Filaments to suit the da Vinci 1.0A, 2.0A, 1.1 & 1.0AiO 3D Printers.

XYZprinting produces high quality, long lasting, ABS filaments that offer better impact resistance making it suitable for external components or model parts. Additionally, you can easily use common modelling tools to decorate, assemble or connect different parts to create your next big project. XYZprintings filaments have been tested to ensure no distortion in colour or form for a perfect print every time. All filament cartridges are easy to install and come in many vivid colours.

- **XYZprinting Filament Cartridges** have versatile materials allowing you to make quick models or detailed products with your da Vinci 3D printer.
- **Put to the test.** XYZprintings filaments have been extensively tested on our da Vinci 3D printers and XYZware for high-performance 3D printing.
- **Colour & Form.** XYZprinting's vividly colored filament is engineered and tested to make sure that there is no distortion in the color and form of the filament.
- **Easy to replace filament.** The XYZprinting filament has been designed to be easy to install and replace. The da Vinci will also notify you when the filament is running low so you don't run out.

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173DDV10FN
Nature



173DDV10FB
Black



173DDV10FSW
Snow White



173DDV10FSBL
Steel Blue



173DDV10FR
Red



173DDV10FYN
Neon Yellow



173DDV10FCY
Cyber Yellow



173DDV10FBG
Bottle Green



173DDV10FGP
Grape Purple



173DDV10FNM
Magenta



173DDV10FSO
Sun Orange



173DDV10FY
Yellow

da Vinci 3D Printer PLA Filament – 1.75mm, 600g

Filaments to suit the da Vinci 1.0A, 2.0A, 1.1 & 1.0AiO 3D Printers.

PLA filaments are extracted from biodegradable materials. In addition to being environmentally friendly, PLA filaments also print in low temperatures which greatly reduce the warpage. The translucent texture and finishing will also add a unique look to your finished work. XYZprintings filaments have been tested to ensure no distortion in colour or form for a perfect print every time. All filament cartridges are easy to install and come in many vivid colours.

- **XYZprinting Filament Cartridges** have versatile materials allowing you to make quick models or detailed products with your da Vinci 3D printer.
- **Environmentally friendly material.** PLA filaments are made with polymerized lactic acid, which is extracted from corn, sugarcane or other sugar-containing crops, and is regarded as the most environmentally friendly 3D printing material. Unwanted PLA printed objects can be simply discarded in the soil where it will naturally decompose.
- **Colour & Form.** XYZprinting's vividly colored filament is engineered and tested to make sure that there is no distortion in the color and form of the filament.
- **Extruder Application.** To ensure excellent printing quality, please prepare separate extruders for different printing materials. After changing the extruder and loading filament successfully, please remember to calibrate the print bed before printing. *Extruder upgrade might be needed for some models.

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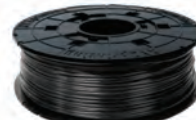
173DDV10PN
Nature



173DDV10PY
Clear Yellow



173DDV10PG
Clear Green



173DDV10PBK
Black

da Vinci Junior 3D Printer PLA Filament – 1.75mm, 600g

Filaments to suit the da Vinci Junior 1.0 and da Vinci Junior 1.0 WiFi 3D Printers.

The same great features as the normal PLA Filaments above, these PLA Filaments just suit the da Vinci 1.0 Junior 3D Printer

NEW

Suit the
da Vinci
Junior 1.0
3D Printers



173DDVJFPB
Black



173DDVJFCB
Blue



173DDVJFPY
Yellow



173DDVJFPR
Red

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Colours shown are for representation only and may vary in the manufacturing process.

Please visit our website www.kookaburra.com.au for the latest pricing.