**1,75mm PLA Filament** (<https://all3dp.com/1/3d-printer-filament-types-3d-printing-3d-filament/>)

The popular and easy to use 3D printer filament, polylactic acid (PLA), available in a wide range of colours.

**Difficulty Level**: Beginner

**Strength**: Medium

**Flexibility**: Low

**Durability**: Medium

**Shrinkage/Warping**: Minimal

**Soluble**: No

**Food safe**: Yes

**Perfect for**: Non-mechanical prints like toys and figurines.

**Printing Details**

**Print temperature**: 180 – 230°C

**Heated Bed**: Not required.

**More Details**

**Pros**

* Easy to use.
* No off-putting odor.
* More environmentally friendly (as compared to other 3D printer filaments).

**Cons**

* Brittle, avoid using for projects that will be bent, twisted, or dropped.
* Deforms above temperatures of 60°C.

**1,75mm PLA Filament (Glow-in-the-dark)** (<https://all3dp.com/1/3d-printer-filament-types-3d-printing-3d-filament/>)

The popular and easy to use 3D printer filament, polylactic acid (PLA), in a glow-in-the-dark variation! To activate, leave your print in the light for a while, then bring it into the dark to experience the glow.

**Difficulty Level**: Beginner

**Strength**: Medium

**Flexibility**: Low

**Durability**: Medium

**Shrinkage/Warping**: Minimal

**Soluble**: No

**Food safe**: Yes

**Perfect for**: Halloween projects, wearable prints like jewellery, toys, figurines.

**Printing Details**

**Print temperature**: 180 – 230°C

**Heated Bed**: Not required.

**Printing recommendations**: Print with thick walls and little infill for a stronger glow!

**More Details**

**Pros**

* Easy to use.
* No off-putting odor.
* More environmentally friendly (as compared to other 3D printer filaments).

**Cons**

* Brittle, avoid using for projects that will be bent, twisted, or dropped.
* Deforms above temperatures of 60°C.

**1,75mm ABS Filament** (<https://all3dp.com/1/3d-printer-filament-types-3d-printing-3d-filament/>)

A durable and great material for general purpose projects, acrylonitrile butadiene styrene (ABS) is available in a wide range of colours.

**Difficulty Level**: Intermediate

**Strength**: High

**Flexibility**: Medium

**Durability**: High

**Shrinkage/Warping**: Considerable

**Soluble**: In esters, ketones, and acetone

**Food safe**: No

**Perfect for**: Frequently handled projects that may be dropped or heated, like phone cases and electrical enclosures.

**Printing Details**

**Print temperature**: 210 – 250°C

**Heated Bed**: 80 – 110°C (required)

**Printing recommendations**: Print with thick walls and little infill for a stronger glow!

**More Details**

**Pros**

* Superior quality to PLA.
* No off-putting odor.
* Strong, durable, and temperature resistant.

**Cons**

* Difficult to print.
* Harsh fumes.
* Prone to warping without the use of a heated bed.

**1,75mm PETG Filament** (<https://all3dp.com/1/3d-printer-filament-types-3d-printing-3d-filament/>)

A variant of one of the most used plastics in the world, Polyethylene terephthalate (PET), available in a wide range of colours.

**Difficulty Level**: Beginner

**Strength**: High

**Flexibility**: Medium

**Durability**: High

**Shrinkage/Warping**: Minimal

**Soluble**: No

**Food safe**: Yes

**Perfect for**: Functional objects that may experience physical stress, like mechanical and protective parts.

**Printing Details**

**Print temperature**: 220 – 250°C

**Heated Bed**: 50 – 75°C (required)

**Printing recommendations**: Use a low print speed for a higher quality result.

**More Details**

**Pros**

* A happy medium between PLS and ABS filaments.
* Clearer, less brittle, flexible, durable, temperature resistant.
* Great for layer adhesion.

**Cons**

* Sticky when printed.
* Scratches more easily.
* Susceptible to moisture.

**1,75mm TPE Flexible Filament** (<https://all3dp.com/1/3d-printer-filament-types-3d-printing-3d-filament/>)

A soft and stretchable plastic, thermoplastic elastomers (TPE) flexible filaments are available in a wide range of colours.

**Difficulty Level**: Intermediate

**Strength**: Medium

**Flexibility**: Very High

**Durability**: Very High

**Shrinkage/Warping**: Minimal

**Soluble**: No

**Food safe**: No

**Perfect for**: Prints that will experience a lot of physical wear and tear (bending, stretching, compressing) or harsh weather conditions. Great for toys, phone cases, wearable bands, household appliances, medical supplies.

**Printing Details**

**Print temperature**: 210 – 230°C

**Heated Bed**: Not required.

**Printing recommendations**: Tight filament path and slow print speed recommended.

**More Details**

**Pros**

* Withstands physical stressors that ABS and PLE filaments can’t tolerate.

**Cons**

* Can be difficult to extrude.

**1,75mm Nylon (PA) Filament** (<https://all3dp.com/1/3d-printer-filament-types-3d-printing-3d-filament/>)

A popular synthetic polymer, nylon or polyamide (PA) is a go-to filament material for powder-fusion 3D printing. Available in a wide range of colours.

**Difficulty Level**: Intermediate

**Strength**: Very High

**Flexibility**: High

**Durability**: High

**Shrinkage/Warping**: Considerable

**Soluble**: No

**Food safe**: Yes

**Perfect for**: Creating tools, functional prototypes, mechanical parts like hinges or gears.

**Printing Details**

**Print temperature**: 240 – 260°C

**Heated Bed**: 70 – 100°C (required)

**Printing recommendations**: Use a high nozzle and heated printer bed for best results.

**More Details**

**Pros**

* Can be dyed before or after the printing process.
* Strong, flexible, durable.

**Cons**

* Must be stored in a cool, dry place to avoid absorbing moisture.

**1,75mm Polycarbonate (PC) Filament** (<https://all3dp.com/1/3d-printer-filament-types-3d-printing-3d-filament/>)

One of the strongest 3D printer filaments, this material is durable and temperature resistant. Available in a wide range of colours.

**Difficulty Level**: Intermediate

**Strength**: Very High

**Flexibility**: Medium

**Durability**: Very High

**Shrinkage/Warping**: Considerable

**Soluble**: No

**Food safe**: No

**Perfect for**: Projects that need to retain their strength and shape and may be exposed to high temperatures. PC material is clear which makes it great for projects that leverage transparency.

**Printing Details**

**Print temperature**: 270 – 310°C

**Heated Bed**: 90 – 110°C (required)

**Printing recommendations**: Use a high nozzle and heated printer bed for best results.

**More Details**

**Pros**

* Very strong, durable material that is resistant to high temperatures and physical stress.

**Cons**

* Must be stored in a cool, dry place to avoid absorbing moisture.
* Requires a very high print temperature.

**3D Pen** (<https://learn.the3doodler.com/about/what-is-a-3d-pen/>)

Create 3D projects without software or files, with a 3D pen! With a 3D pen you can draw and create 3D doodles on any flat surface. Draw and connect material in mid-air to create unique 3D master pieces.

**Difficulty Level**: Beginner

**How does a 3D pen work?**

The plastic printing material is pushed through the pen, heated to the appropriate temperature, and leaves the pen in a soft, melted state. This malleable plastic hardens within a few seconds, taking the shape of your structure.

**Filament Type:**

ABS: Use ABS filament material with your 3D pen, best for beginners and drawing in mid-air.

PLA: Use PLA filament material with your 3D pen, best for drawing directly onto flat surfaces.

**Perfect for**: Kids, beginners, artists, and educators.