**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), is 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 less 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) filament 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)

**More Details**

**Pros**

* Superior quality to PLA filament
* 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/>)

Polyethylene terephthalate (PET) filament is a variant of one of the most used plastics in the world. It is 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 PLA and ABS filaments
* Clearer, less brittle, flexible, durable, and temperature resistant
* Great for layer adhesion

**Cons**

* Sticky when printed
* Scratches 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 elastomer (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, and medical supplies.

**Printing Details**

**Print temperature**: 210 – 230°C

**Heated Bed**: Not required

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

**More Details**

**Pros**

* Withstands physical stressors that ABS and PLA 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 3D printing and is 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, and 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, PC filament is durable and temperature resistant. It is 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)

**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 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

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

**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: Best for beginners and drawing in mid-air

PLA: Best for drawing directly onto flat surfaces