3D Printer Recommendations 02-2025

Functionality

Multicolor

You can save $200 to $300 by foregoing multicolor which opens up more printer options, however you will have to paint everything.

I strongly recommend investing in multi-color.

Color Management System vs Tool Changer

Color Management Systems (AMS, CFS, etc.) work by swapping the filament on the fly. They are slow and wasteful but simple, cheap and effective.

Tool changers work by swapping between multiple hotends on the fly. They are fast and efficient, however there's only one viable tool changer on the market (Prusa XL) and it's very expensive.

Printer Size

256mm x 256mm x 256mm minimum, maybe even 300mm x 300mm x 300mm. Larger printer size means you can print large objects like helmets as a single print or more smaller objects at one time. A smaller printer size will take up less space and be cheaper, but you'll have to split larger prints into pieces and assemble. This is tedious and annoying.

I strongly recommend a larger printer size.

CoreXY vs Cartesian

CoreXY printers tend to be better engineered and make better use of space. They tend to have fewer problems and can print faster. They are however more complex and harder to fix when something breaks.

Cartesain printers are simpler and cheaper. They are easier to fix, but they also tend to be much less reliable and slower. They introduce more printing artifacts and can struggle with tall or thin parts because of the moving bed.

I recommend paying the premium for a CoreXY printer.

Enclosed vs Open

This really depends on your use case. Are you going to keep your printer in the garage all winter long? Are you going to print more advanced materials that require proper ventilation or higher temperatures? Then you absolutely need an enclosed printer.

If on the other hand you are going to keep your printer in your basement and mostly print PLA/PETG an open printer would be sufficient and save some money.

I recommend enclosed (or upgradeable to enclosed). It gives you more flexibility down the road.

Linear Rails vs Carbon Steel Rods vs V-Wheels

V-wheels are very cheap and easy to replace, however they leave a lot to be desired. They wear down over time which can lead to rubber gunk clogging up you printer, and uneven wear can lead to printing artifacts.

Carbon steel rods supposedly sag over time and can be tedious to replace if broken.

Linear last a long time, but require regreasing and can be tedious to replace.

I recommend avoiding any printers with v-wheels in favor of linear rails or carbon steel rods.

Major Brands

AnkerMake

Known brand, they make two decent and reliable printers, but they aren't pushing any boundaries and aren't the best bang for your buck.

AnyCubic

A Chinese company who makes a number of different printers of varying price and quality. Most printers are passable, nothing special.

Bambu Labs

Bambu Labs makes high quality printers that provide the most Apple-like experience (they tend to just work). They forced the entire industry to step up it's game in terms of features, cost and reliability. They are however a Chinese company with a very closed culture. They do not play well with open standards and there are concerns about the security of their devices routing everything through servers in China.

Creality

Creality is the most prolific 3D printer company. They have probably sold more 3D printers than anybody else and there's a lot of community knowledge supporting their printers. Unfortunately most of their printers are rather lackluster. They are starting to get their act together with the K series.

Elegoo

A Chinese company who makes a number of different printers of varying price and quality. Most printers are passable, nothing special. They have made some very large format printers.

Flashforge

A Chinese company who specializes in cost-effective CoreXY printers. They don't have a lot of models but the ones they do have are well regarded.

Prusa

Prusa is a Czech company that produces very high quality, well supported, and community friendly printers. Unfortunately this comes at a cost, as they tend to be among the most expensive printers. They are however very reliable and Prusa has demonstrated a committment to supporting all of their printers over long periods of time.

Qidi

A Chinese company who specializes in enclosed CoreXY printers. The've had some growing pains but they have made some compelling printers. Worth considering if you are serious about printing with more advanced materials.

Sovol

A Chinese company who makes a number of different printers of varying price and quality. Most printers are passable, nothing special. Their SV08 is an interesting printer, more below.

More exotic brands

Peopoly

They make a very cool printer that uses linear rails based on maglev technology. Unfortunately the printer is quite expensive and unproven.

RatRig

Very high qality printers, pushing the boundary of what technology is available for home use, but they are pricey and the company is small. Based out of Portugal.

Build Your Own (Voron, Kingroon, Tronxy, etc.)

There's a ton of these, mostly Voron kits provided by companies such as LDO. Only go down this path if you are a masochist like me and decide that making your own 3D printer is a hobby you would enjoy.

Others

There are a ton of 3D printer manufacturers outside of the main list. Some are big, some are small, some make nice printers, some make garbage, some are cheap, some are expensive. What they don't have is a large community of experienced users to draw on for help, so YMMV if you go off the beaten path.

Actual Printer Recommendations

Buy < $1000

Brand	Printer	Cost	Type	Enclosed	Multicolor	Notes
Bambu	A1 Combo	$510	Cartesian	🔴	🟢	Possibly the best multicolor system outside of a toolchanger
Bambu	P1P + AMS	$830	CoreXY	🟢	🟢	
Bambu	P1S	$520	CoreXY	🟡	🟡	AMS sold separately
Creality	K1 series	$400+	CoreXY	🟢	🔴	Creality CFS (color system) currently only available for K2, supposedly coming soon for K1
Creality	K2 Plus CFS Combo	$1500	CoreXY	🟢	🟢	Unfortunately this blows out your budget, but it's one of the printers I am strongly considering for myself
Flashforge	AD5X	$450	CoreXY	🟡	🟢	
Flashforge	Adventurer 5M	$280	CoreXY	🟡	🔴	
Flashforge	Adventurer 5M Pro	$470	CoreXY	🟢	🔴	
Sovol	SV08	$570	CoreXY	🟢	🔴	Neat printer based on Voron 2.4 for a good price. It's one of the printers I am considering for myself, but there's unfortunately no multicolor options
Qidi	Plus4	$800	CoreXY	🟢	🔴	Heated build chamber, another printer I am considering for myself

New printers worth keeping an eye on

Brand	Printer	Cost	Type	Enclosed	Multicolor	Notes
AnyCubic	Kobra 3 Combo	$400	Carteisan	🔴	🟢	New and unproven
AnyCubic	Kobra S1 Combo	$630	CoreXY	🟢	🟢	New and unproven
Creality	Hi Combo	~$500	Cartesian	🔴	🟢	Not released yet, unproven but looks sound
Elegoo	Cenatauri Carbon	TBD	CoreXY	🟢	🟡	Not released yet, unproven but looks sound. Supposedly as a color management system coming out at some point.

Do Not Buy

- Any Creality Ender series printer. This is a trap. They are old and outdated, you can get much better for your money. The only exception are the Ender V3 and Ender V3 Plus (NOT the V3 KE or V3 SE).
- Any Ultimaker or MakerBot printers. They are overpriced and falling behind the industry.
- Any Resin printer unless you are serious about the hobby and going to make a lot of miniatures. Resin printers are challening to use and resin is highly toxic.

Alternate Color Management Systems

There are 3rd party color systems such as the ERCF or Boxed Turtle. I recommend avoiding these unless you decide that building 3D printers is a hobby you would enjoy.

Final Recommendation With Color

Bambu A1 Combo, Bambu P1P + AMS, Flashforge AD5X

Now What

Starting Advice

Buy multiple roles of PLA filament from *different* manufacturers. A bad role of filament can quickly lead you astray. Figure out which brands actually work for you.

Try a different brand of filament first before going down a rabbit hole and changing all of your printer's settings.

Get comfortable printing with PLA before trying other materials. Once you are comfortable with PLA, move on to PETG and TPU. After you are comfortable with PETG and TPU you can branch out into more advanced materials such as ABS, ASA, PCTG, or glass/carbon fiber reinforced materials.

Learn about nozzles (particular brass vs hardended steel vs diamond tipped, etc). Some filaments are abrasive and will quickly wear down the wrong type of nozzle. Buy a spare!

Stick to 0.4mm nozzles until you are comfortable.

Small things are challenging to print. Start with medium to large sized objects.

Expect some failures. This is a complex hobby and these machines can be fussy. They will challenge you and there's a lot to learn but the upside is worth it.

Have fun!