How Much Should Your 3D Printer Cost? Understanding the Right 3D Printer Price Range for You

Buying a 3D printer is exciting, but what can you expect a 3D printer to cost?

There are so many affordable options out now it can be difficult to know where to begin.

- How do you set your 3D printer budget?
- What can you expect from a 3D printer that's less than \$300 dollars?
- How much can you expect to spend on a 3D printer to meet your exact needs?

If you don't know where to start, don't worry. That's what we're here for.

Whether you have already have a budget or are deciding on one, we can help you.

How Much Does a 3D Printer Cost: The Quick Answer

An average consumer's 3D printer costs near \$500 dollars on average. You can find quality budget options around \$200 dollars on the cheap end. On the high end a 3d printer can cost multiple thousands of dollars depending on your requirements. Here's the real question. How much should a 3D printer cost you?

H2: Budget, Entry-level 3D Printers: \$100 - \$300

Entry level or budget 3D printers range anywhere from \$100 to \$300 dollars.

Budget printers are built for beginners looking to get started with 3D printing. With a few exceptions you'll find mostly kits within this price range. Even our recommended Ender 3 comes as a partial assembly. It's not really a kit, but requires more assembly than more expensive 3D printers.

The affordable price tag makes them easily affordable for most consumers. There has to be a drawback though right?

If you want to get good prints out of a budget 3D printer prepare to do some tinkering. Calibration is required. For some people this is a con, but if you really want to learn how 3D printing works tinkering is the best way to build your foundation. Most inexpensive 3D printers will come with a very limited build volume too. The Ender 3 has a build volume of 220x22x250mm, which is large for this price range.

Troubleshooting is also a must in this range. Depending on the 3D printer you buy some may have lower quality parts, stability issues, etc. Frequently you can troubleshoot the issue and 3D print yourself a part to fix your problem.

Because of the affordability, and necessity to troubleshoot and calibrate the most popular budget 3D printers have large communities of active members online. This makes learning about 3D printing, and solving your problems ideal.

Why Buy an Entry-level 3D Printer?

So you're interested in 3D printing, but don't want to break the bank? Do you like this option because you don't have the money on hand for something more? Maybe you aren't sure 3D printing is really for you? This might be the price range for you.

Stay away if you need something to be easy, and printing immediately to remain interested in 3D printing. Many a promising maker has been scared off of the hobby because of a bad experience with a budget 3D printer they weren't prepared for. If that's you, save up and look at the next price range and you won't be disappointed.

Entry-level 3D printers were developed for first time users who are interested in what additive manufacturing has to offer. If this is you, then your first 3D printer should be something affordable. This gives you all the leeway needed to tinker, as well as, get introduced to the nuts and bolts of 3D printing. If you are a student, DIYer, or a young creative maker, this is the recommended starting point for you.

Here's a Brief Recap

The Pros of Entry-level 3D Printers:

- Easily affordable 3D printer
- Large and supportive online community
- Encourages learning from errors and tinkering
- Can 3D print your own community made printer upgrades

The Cons of Entry-level 3D Printers:

- Final print quality does have a limit even with careful calibration
- Some bargain parts may breakdown with extended use
- Companies with only kit options often have poor customer service
- Don't expect out of the box, high quality prints

What's the Best Entry Level 3D Printer to Buy Right Now?

Entry level is often equated with novices, but is that always the case? As it turns out the answer is most of the time yes, but in a few shining cases you can beat the odds. What's the best example of this? The 3D printer that stands out within this price range is the Creality Ender 3.

While the Ender 3 has had some issues out of the box, the quality you can achieve with this printer are far above what we've come to expect at this price range. Recently we put together a new Ender 3 for review, and were pleased to see they are on V3. With no real modification, and some skill putting the machine together the print was phenomenal.

There are some community examples that have achieve near Resin printer quality. Keep in mind those examples required significant upgrades and calibration.

Stay tuned for a link to the review when it's completed.

H2: Budget 3D Printers for Mid-Entry Level: \$300 - \$600

3D printing can be addictive in a good way. With your first successful print always comes the hunger for more. And 3D printer cost within this price range will provide the enhanced quality and affordability you require. The 3D printing industry has come a long way and with \$500, you can accomplish great things. Now, the 3D printers in this range are also geared towards first-timers but the quality they produce also ensnares hobbyists. Therefore, if you are a hobbyist, DIYer, or someone looking for more quality and build capacity, this is the 3D printer price range for you.

At this price range, the 3D printers are definitely bigger than your average entry level option. One 3D printer to look forward to is the Creality3D CR - 10S. This 3D printer can serve as the poster boy for 3D printers in this category. In terms of build size, you can accomplish bigger tasks with ease as its 300*300*400mm capacity is great for experimentation. 3D printers in this price range are also semi-assembled kits. Allowing you tinker and increase your knowledge base of 3D printer parts, their functions, and replacement procedures.

I'm guessing the next question on your mind is with respect to print quality. Mid-entry level 3D printers provide relatively more versatility than its predecessor, as well as, higher precision levels. . At this stage, you can start your experimentation with different material types. A couple of examples are nylon, enhanced PLA, and plastics mixed with ceramics or even metal! If you are the adventurous type—and most hobbyists are—your experience with any of these printers would pique your interest I other 3D printing technologies like resin printing.

Why Buy a Budget 3D Printer?

3D printing experience always demands a 3D printer that matches it. This means as you become more assured with managing your 3D printer settings, print quality, and eliminating errors, you will want more quality. And the next logical step to take without breaking your bank is a 3D printer within this range. These 3D printers are also recommended as <u>3D</u> printers for beginners.

Here is a Brief Recap

The Pros of mid-entry level 3D Printers:

- Quite affordable to continue your 3D printing education
- Delivers more quality than entry-level 3D printers
- Provides material versatility which makes them great for experimenting
- Relatively more build capacity or space for larger projects

The Cons of Mid-Entry Level 3D Printers:

- Final print quality is definitely better but may need some finishing touches
- Semi-assemble 3D printer kits may come with difficulties which require customer care assistance.

• You are still in the learning phase and some calibration and user-related frustrations should be expected.

What's the Best Mid-entry Level 3D Printer to Buy Right Now?

If you are willing to spend \$600 dollars or a couple of hundreds less, your options are extensive. This could lead to some confusion when making a choice. To ease the responsibility that comes with this choice, we have two great recommendations for you. The Creality CR – 10S and the Anycubic Photon are great options with some technological differences. These 3D printer offers enhanced quality and the Anycubic Photon adds that excitement that comes with learning a new <u>3D printing technology</u>.

The Anycubic Photon is an LCD 3D printer. This means you will be working with resins and reap the high-precision, benefits associated with resin printing. The Anycubic Photon has been extensively reviewed by us. You can read about the enhanced quality it offers in this post discussing its features and use cases.

H2: 3D Printers for Hobbyists: \$600 - \$1000

Once you have gained the experience that comes with constant use or practice, the next step is enhancing your creativity. Taking on harder or more detailed projects require 3D printers that can achieve enhanced quality, and provide long-term stability. 3D printers within this price range generally have the features that guarantee these. Therefore, if you already own a 3D printer but are interested in a more powerful option, this is your price range.

As expected, the more you spend on a 3D printer the better your task becomes. And with the right tweaks, a 3D printer approaching the one thousand dollar-mark can deliver industrial-grade quality.

Why Buy a Hobbyist's 3D Printer?

3D printer prices above \$600 dollars are equipped with features that directly impact print quality. This is the most important reason for purchasing a 3D printer that costs a thousand dollars. So, if you need a durable 3D printer that can withstand wear from constant use while delivering quality, your budget must be increased. Some of the upgrades you can expect are; a larger build-size, even more material versatility, and great quality. Let's take a look at these upgrades from a maker's perspective. Hobbyists' 3D printers such as the WanHao Duplicator 9 and Creality CR – 10 S5 are great examples. Imagine what you could accomplish with a build capacity of approximately 500*500*500mm? Quite a lot and at greater precision and quality too! Even when using an FDM 3D printer within this range, producing resin-quality prints is the norm. And this quality levels will be reached with the extensive calibrations that comes with cheaper FDM options. It is worth noting that most of these FDM options are still semi-assembled kits. Therefore, some assembling/tinkering will be needed to get started. But if you need an enclosed chamber, great options exist within this price range. You can now start taking advantage of the ambient temperature stability Dremel, Da Vinci, and BIBO 3D printers have to offer.

Resin 3D printers at this level are also something to take advantage of if you have the required user knowledge. These 3D printers deliver the quality of resins printing in a much larger format. At this level, you will definitely be working with an enclosed resin printer. This eliminates the need for executing difficult assembling tasks.

Here's a Brief Recap

The Pros of Hobbyists 3D Printers:

- Durable 3D printers that can accommodate regular use
- Enhanced 3D printing quality for detailed projects even with FDM 3D printers
- You can take advantage of fully-enclosed 3D printers that require no assembling.

The Cons of Hobbyists 3D Printers:

- AT close to a thousand dollars, these 3D printers cost too much for entry-level users.
- Parts that breakdown are more expensive to replace.
- Using a new technology like resin 3D printing requires you to learn the bolts and nuts associated with its usage.

What's the Best Hobbyists 3D Printer to Buy Right Now?

At this stage, it is definitely right to assume you already know what you are looking for. This includes the 3D printing technology, brand, and materials you intend to work with. Therefore, recommending a particular 3D printer is redundant. But a couple of options exist and they

include: the Prusa i3 MK3, Creality CR – 10 series, WanHao D7 series. These 3D printers offer the stability, durability, and quality you desire as a hobbyist.

H2: Consumer-Grade 3D Printers: \$1000 - \$2000

Consumer-grade 3D printers are built for users interested in the rapid prototyping and industrial design capabilities of 3D printers. Therefore, this 3D printer price range is for serious application in manufacturing firms, research labs, and prototyping. Users are expected to have garnered a thorough understanding of the 3D printing process. An understanding of how a 3D printer can be calibrated to execute different projects is necessary. An understanding of different material properties will also be essential to the success of a project.

Consumer-grade 3D printers offer even greater quality than what we have previously discussed. The quality enhancements cut across FDM 3D printers and resin printers within this range. For the FDM 3D Printers, you can choose to go large in terms of build capacity. Therefore, you can take advantage of the Modix BIG – 60 build capacity of 610*610*610mm. This includes printing with resin-sharp precision at that size.

Resin printers at this range also helps you make the quality statement you have always wanted to make. You can also choose to move your expertise with LCD printing to DLP and SLA 3D printing technology.

Why Buy a Consumer-grade 3D Printer?

If you intend to 3D print models that will be tested in the real-world, a consumer-grade 3D printer is needed. These models can be prototypes for engineering, or even commercial purposes. Consumer-grade 3D printers cost a bit more than other options in the market. This makes it an investment of some kind. Therefore, before purchasing one, it is important you consider your use-cases and the potential of receiving some returns on the investment made.

Here's a Brief Recap

The Pros of Consumer-grade 3D Printers:

• High-precision 3D printers with larger build capacities

- Ability to 3D print diverse materials at a really high level. This also goes for FDM/FFF
 3D printers.
- Durable and sturdy 3D printers that can be used extensively to manufacture consumer goods.

The Cons of Consumer-grade 3D Printers:

- Adequate experience needed to operate consumer-grade 3D printers
- Consumer-grade 3D printer prices are out of the range of hobbyists and beginners.

H2: Prosumer Grade 3D Printers: \$2000 - \$5000

Prosumer grade 3d printers are for professionals who intend to go the commercial route with 3D printing. In this 3D printer price range, the build spaces are bigger, precision is enhanced, and material options are bountiful. In terms of aesthetics, prosumer-grade 3D printers are candy to the eyes. These devices generally spot enclosed print chambers to negate the effects of ambient temperature. Some also integrate air-purifying systems to manage the 3D printing fumes that come with regular use.

Aesthetics aside, prosumer-grade 3D printers also spot some mass manufacturing features that are enticing. This includes software applications that support clusters or 3D printing farms. Cameras that can be attached to diverse screening devices are also integrated with many prosumer-grade 3D printers. And as you can see, the 3D printer's cost reflects the added features you will be working with. Lastly, the 3D printers in this price range use diverse 3D printing technologies such as: SLA, LCD, SLS, and DMLS etc.

Switching to Other 3D Printing Technologies

At the prosumer level, you may need to work outside the box to achieve your goals. In a situation where you intend to create a functional yet aesthetic metal print, FDM, or resin printing wouldn't cut it. This will be the time to try powder deposition technology and see what it offers. An example of a powder deposition 3D printer that falls under this category is the Iro3D metal 3D printer.

This 3D printer offers a modest build volume of 285*248*97mm. This enables you develop prototypes for industrial applications with a limited budget. Yes, metal printing at \$5000 is still relatively cheap when compared to other metal 3D printing options.

Why Buy a Prosumer 3D Printer?

Prosumer-grade 3D printers are for professionals who are interested in manufacturing highlydetailed prints that can function in certain environments. This professional does not intend to trade-off quality prints for functionality, or functionality for quality. Therefore, a prosumergrade 3D printer that can guarantee versatility, high-precision, and material versatility is needed. Prosumer-grade 3D printers are for industrial-designers, prototyping, creatives, engineers, and budding manufacturers.

Here's a Brief Recap

The Pros of Prosumer-grade 3D printers:

- Higher-precision and enhanced quality prints. Includes the ability to 3D print metals.
- Extensive 3D printing and manufacturing features integrated into these 3D printers.
- Ability to 3D print industrial-grade products continuously due to durable parts.

The Cons of Prosumer 3D Printers:

- Relatively more expensive when compared to the cheaper options out there.
- Extensive experience is needed to manage the new features associated with 3D printers in this price range.
- If taking on a new technology, patience is required to grasp the 3D printing techniques associated with it.

What's the Best Prosumer 3D Printer to Buy Right Now?

Although at this stage, your choice of a prosumer-grade 3D printer is determined by having an understanding of your peculiar needs, recommendations are still helpful. Therefore, the best reviewed options in this price range are: the Formlabs Form 2, WanHao Duplicator D9, and CreatBot F430, Iro3D Metal 3D printer.

H2: Professional, Semi-Industrial 3D Printers: \$5000 - \$10,000

It is worth noting that 3D printers in this price range can also be termed prosumer-grade 3D printers or industrial 3D printers. This due to the features, durability, size, and quality of work they offer. When shelling out approximately \$10,000, you know you are ready to compete with the big boys in manufacturing. A semi-industrial 3D printer has the features needed to 3D print objects that can compete with products of CNC machining or laser cutting fabrication. In terms of quality, you are clearly close to the top of the food chain when using a professional 3D printer.

3D printers in this price range are also equipped with extensive manufacturing features. These features could be customized software applications, cameras, mobile apps, and even IoT capabilities. As expected, professional 3D printers are always enclosed thereby creating an environment that supports the highest quality prints.

Why Buy a Professional, Semi-Industrial 3D Printer?

If you intend to develop your own maker community, manufacturing lab or prototyping outfit, these 3D printers are for you. The semi-industrial 3D printer is strictly for industrial and commercial applications. Therefore, if you also intend to bid for outsourced manufacturing jobs, getting a printer in this category is highly recommended.

Here is a Brief Recap

The Pros of Semi-Industrial 3D Printers:

- Industrial-grade precision levels can be achieved
- A plethora of materials to work with including metals
- Great for healthcare and paediatric applications
- Highly durable and built for extensive use in industrial environments

The Cons of Semi-Industrial 3D Printers:

- An expensive 3D printing process
- Exceptional experience with 3D printing
- The 3D printers are obviously out of the price range of many

What's the Best Semi-Industrial 3D Printer to Buy Right Now?

There are many great 3D printers within this price range. Therefore, the driving force behind choosing one is application. The industry you intend to build for may favour a 3D printing technology over another. That being said, the remarkable options you have are; the Airwolf 3D Evo, CreatBot D600 etc.

H2: Industrial 3D Printers: \$10,000+

Industrial 3D printing is the zenith of additive manufacturing as we know it. At this level, the aim of your 3 printing exercise is to produce actual prototypes or objects for specific industrial use. Many leading firms that engage in manufacturing have integrated industrial 3D printing at some level. And these 3D printers are becoming permanent fixtures in automobile, aerospace, and reverse-engineering firms.

Industrial 3D printers bring truly enhanced quality to the table. You can compare the quality of an industrial 3D printer to the clarity a 10K high-definition television. The build capacities are also humongous and are capable of producing really large prototypes. This is why industrial 3D printers are used for machining and tooling manufacturing processes.

Why Buy an Industrial 3D Printer?

If you intend to develop a business that manufactures parts for highly technical industries, you will need an industrial 3D printer. 3D printers in this price range are capable of working with hundreds of materials it a very high level. The speed of 3D printing compared to other manufacturing processes also gives manufacturers an edge. If you require this edge for your industrial applications, then an industrial 3D printer is for your business.

Here's a Brief Recap

The Pros of Industrial 3D Printers:

- Exceptional quality prints for use in healthcare, aeronautics, and automotive industries.
- The largest build capacity 3D printers you can ever use. These build volumes make it possible to build large tools and components at a go.
- Helpful features and functions for discrete manufacturing

The Cons of Industrial 3D Printers:

- Really expensive and built for industrial use
- Technical 3D printing experiences are needed

Stratasys and the range of industrial 3D printers they offer a4e currently the standard for industrial 3D printers. Some research is also needed before choosing the industrial 3D printer that meets your needs.

Conclusion

Here you have it, the 3D printer price range and where your printing requirements fall under. Throughout the discussion on the cons of the 3D printers within some price ranges, the cost of printing was listed. This is because the materials used with some printing process and printers exceed others. Therefore, 3D printing cost is an important parameter to factor into your purchasing decisions. Finally, you can <u>learn about printing costs here</u>, before making a purchasing decision.