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DIRECT MANUFACTURING

Become a 3D printing expert: Saving money

Guide to rapid prototyping

Today, the pace of innovation in the manufacturing industry is faster than ever before, but at the same time engineers are under increased pressure to get concepts to market quickly. Development teams must make fast and accurate decisions during the conceptual stage of design. These decisions can inform numerous cost factors, such as manufacturing methods and material selection, making fast conceptual and functional prototyping essential to the development stage of the product lifecycle.

Rapid prototyping with 3D printing gives designers the ability to fail fast, produce multiple design iterations quickly and change a product design overnight to meet deadlines. But with a plethora of 3D printing technologies and materials to choose from, variation from one machine to the next, and unique process specifications, it may feel safer to take the traveled road than to pave the way for new technology and innovation—especially when your reputation is on the line.

The future of your industry involves 3D printing, so if you don't get up to speed, you risk being at a disadvantage. Luckily, we have a roadmap to help you navigate adoption quickly.

Start with your design—you know it better than anyone and are the expert in your product and industry. Then turn to the 3D printing experts. Stratasys Direct Manufacturing knows 3D printing technologies and materials better than anyone else. Making your prototype its best requires more than a great machine. It takes tried and true practices and deep industry knowledge and expertise to make a complicated process straightforward and successful.

How to reduce the cost of 3D printing

Prototyping is a key step in design verification and testing, but can pose a potential roadblock to a product launch if not executed quickly and cost-effectively. When development budgets are limited, it's important to make sure you're getting the most bang for your buck.

Here are some ways you can optimize your prototype design to save money:

Select a greater layer height

A part's ideal layer height depends on its intended use. If your prototyping application requires a smooth surface, then you may want to print thinner layers. The tradeoff is that thinner layers cause a longer build time and higher costs. For parts that do not require topline aesthetics, layer height is less of a factor and can be reduced to save on costs.

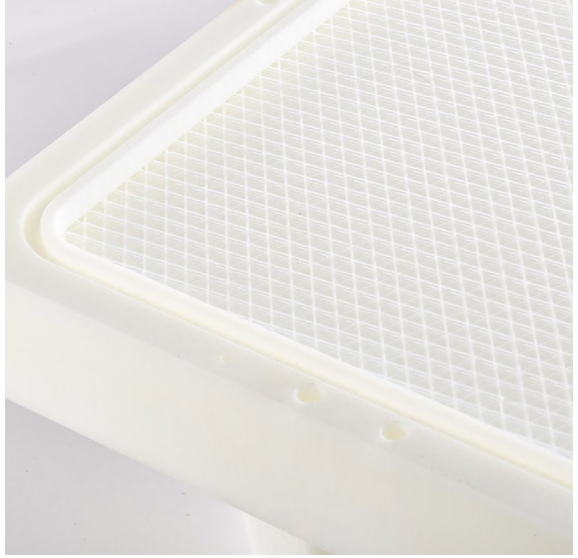
Orientate parts to eliminate support material

The amount of supports a prototype needs is tied to its orientation. To lower costs, parts should be orientated in ways that reduce the amount of necessary supports—thus requiring less material.

Accomplish this from the start by designing a part with self-supporting angles—45 degrees or more. Not only does this design technique use less material, but it also decreases build time.

0 degree angles require support material or significant failures will occur.

Various angles with support material. 45 degree angles do not require support material.



Sparse fill in FDM parts can lightweight parts and reduce required material.

Sparse-fill

Sparse-fill is available for Stereolithography (SL) and Fused Deposition Modeling (FDM) technologies. It is a lattice-like structure inside solid walls to lightweight parts and reduce the required amount of material. This technique results in cheaper, faster and lighter concept models.

Hollow out your model

If there's no need for your prototype to be fully solid or sparse-filled, a simple, yet effective technique to reduce the cost of your prototype is to hollow out the inside of the model.

Diminish additional labor

Typically, post-processing and finishing are for parts that demand pristine cosmetic finishes. If a part must have a smooth surface or look a certain way, both time and expense will likely rise. That's why it's important to analyze a project's requirements beforehand to determine if finishing benefits are worth the cost. Consider that only some sections of a part might require extra polishing and finishing for it to perform as intended.

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Conclusion

The pace of product development isn't slowing down any time soon. It's an exciting and challenging time to be a design engineer.

Those who embrace and understand new technology and techniques will have a competitive advantage. But learning new technologies doesn't happen overnight. That's why it's our job to work with you on your ideas and champion them into real products and parts by identifying ways 3D printing can bring them to life faster and easier.

About Stratasys Direct Manufacturing

You want quality parts, fast – and for a fair price. We have that covered. But building parts demands more than acing the basics. It requires specialized know-how of the materials and technologies. With our problem-solving experts working tirelessly to match to designs and specs, Stratasys Direct Manufacturing is your partner in making that happen. When it comes to 3D printing or other custom manufacturing services, our responsive team isn't satisfied until you are.

With decades of experience and an insatiable appetite for collaboration, we know firsthand the challenges you face – and won't stop until we overcome them, together.

Supported by Stratasys' strong commitments to R&D and innovation, we regularly push processes and materials to their limits. And with ISO 9001 and AS9100 certifications, we ensure your parts meet the standards for any industry, including aerospace, automotive, medical and consumer.

Learn more about rapid prototyping with 3D printing »

Stratasys Direct Manufacturing Locations

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