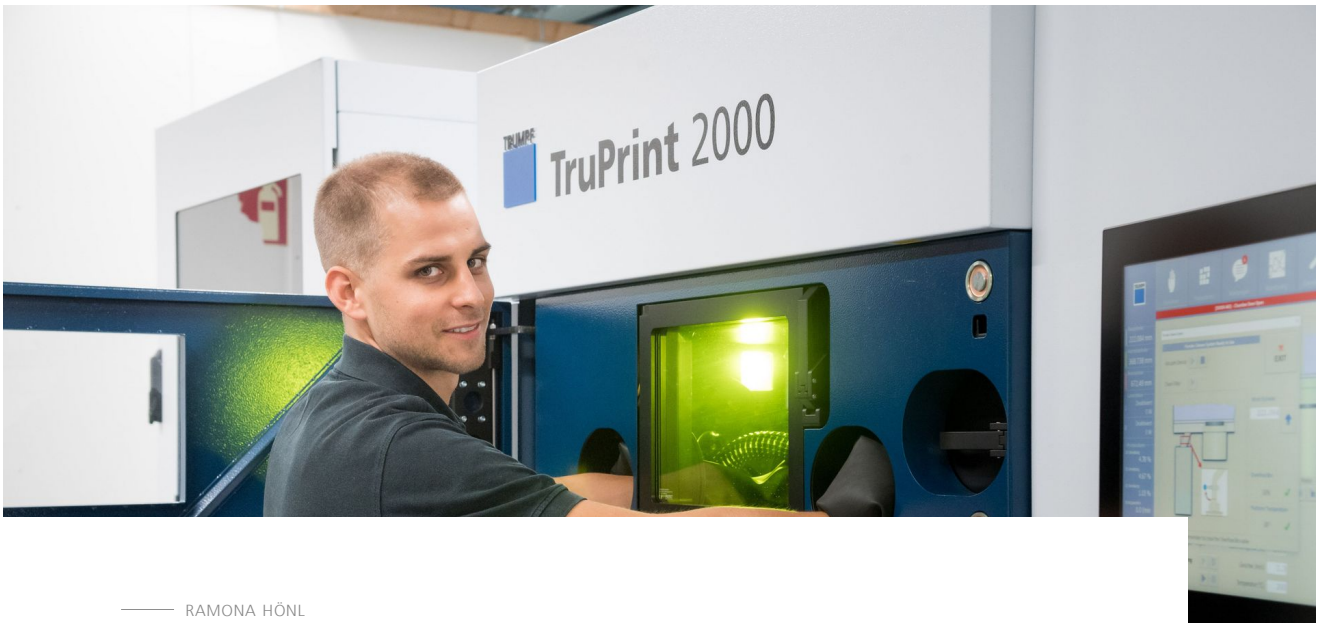

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3 indications that 3D printing could be a smart alternative for the manufacturing of a part

In principle, any part can be manufactured using 3D printing. But it doesn't always make sense. So how do you know whether a part can benefit from the advantages of additive manufacturing? Inspect your range of parts with a fine-tooth comb, and check whether any of the follow prerequisites hold true.

When constructing a prototype, it is rarely worth buying an extra tool or mold. The same applies if you want to produce either customized parts in small series or a replacement part for which there are no longer any tools. In this instance, 3D printing saves time and money. The only questions that arise are: does the part fit into the 3D printer, and, is the right material available?

You don't have to work in aircraft construction to know that light-weight components are essential in many areas. So, if you want to reduce the weight of a part, you should consider using 3D printing. In this case, material is only applied where it serves a purpose, to safeguard the functionality of a component.

3D printing may also be a viable option if you are looking to optimize the flow of fluids or gases in one of your parts. Due to the design freedom you have with additive manufacturing, you can usually forgo the use of straight lines and rectangular structures in which flowing air may swirl around. You can use the powder to construct organic shapes, i.e. roundings and cambers, which don't block flows anywhere. Do you have a part that takes a lot of time to cool down? Interior cooling channels could perhaps be a viable solution. And using 3D printing, they can be integrated easily into small components.

A significant advantage of 3D printing is that it allows you to produce highly complex parts. This is because, unlike with conventional procedures, you are considerably less restricted when manufacturing the parts. Golden rules such as "you can't cast hollow spaces" or "you can't drill around corners" don't apply in 3D printing. This design freedom opens up the possibility of merging two components into one, for example, or enables you to integrate additional functions. If your design is suitable for 3D printing, you can realize almost any idea you come up with.

With conventional methods, 90 individual parts are required for this turbine blade wheel. Thanks to 3D printing, it can be produced in one piece. This saves time, material and costs.

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