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Reasons to add a
Markforged 3D printer
to your CNC shop

Why add a Markforged 3D Printer to your CNC Shop?

If you have a shop full of CNC machines there's a clear, distinct benefit to be gained by adding a 3D printer to your portfolio of machines. The ROI is quick, readily found and sustainable.

As well as offering new or additional services to customers, printers allow you to reduce your internal engineering costs for each job substantially and they can help by taking some load off your current plant too, giving you some capacity back.

So, if you've ever thought about buying a 3D printer for your business Mark3D has come up with 15 reasons why it makes business sense and it's very straightforward to achieve.

On average 3D printing is 10x less expensive than CNC machining, so here are 15 reasons, why you should add a 3D printer to your CNC shop.



01

Low capital cost, huge savings

“Even for a small CNC machine, which you can't get for less than £100,000, you still need tools and a trained skilled worker – that all falls away with 3D printing technology. Here, the 3D printer is operated by the design engineer.” – Hubert Reiter, Boehringer Ingelheim Pharma

Markforged 3D printers from Mark3D start from as little as £200 per month and come with all the items needed to start printing, straight out of the box.

The low entry level costs mean huge savings are possible when using a 3D printer for end use parts, jigs, fixtures and other production aids – it's now very popular to print parts using Onyx and Carbon Fibre which were previously made from metal.

PRIMETALL GmbH saves £1,060 per fixture

Dunlop Systems & Components Ltd saves £30,000 per year

Wärtsilä saves £100,000 within 8 months

Siemens saves £7,000 per tool



02

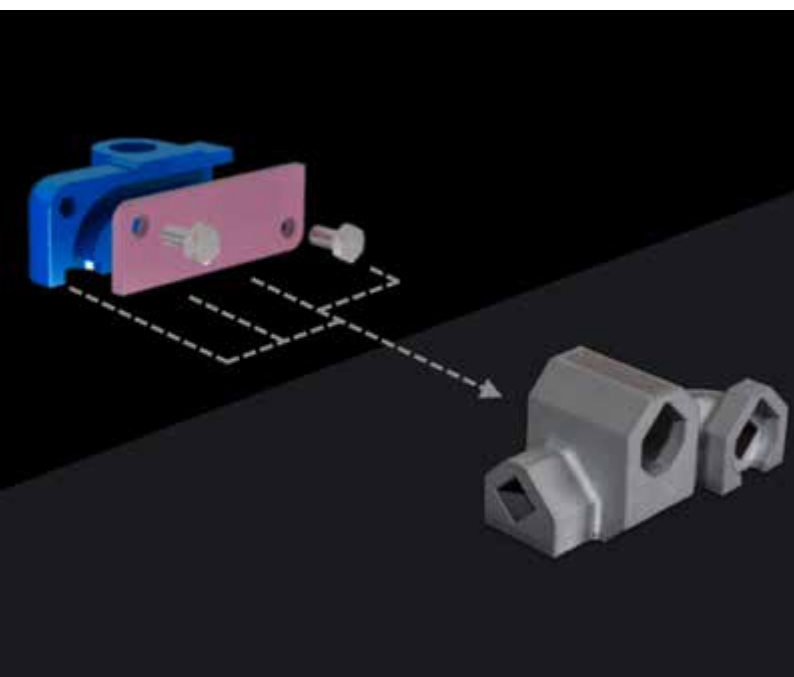
Complexity is free

“The original drive housing consisted of four components: a cast and machined main housing, a laser-cut cover plate and two bolts that held the assembly together. Instead of the four-piece assembly, the newly designed part is 3D printed as a cohesive unit with no support material, resulting in huge savings in manufacturing and design time.” – Stanley

The end-to-end production cost is in no way affected by complexity, so multiple machining operations are a thing of the past!

Parts are divided into layers and constructed one layer at a time, so things that were previously impossible to make with subtractive technology are now a reality.

Parts are also much lighter because of the internal honeycomb structure, which can be set by the end user.



03

Minimal programming

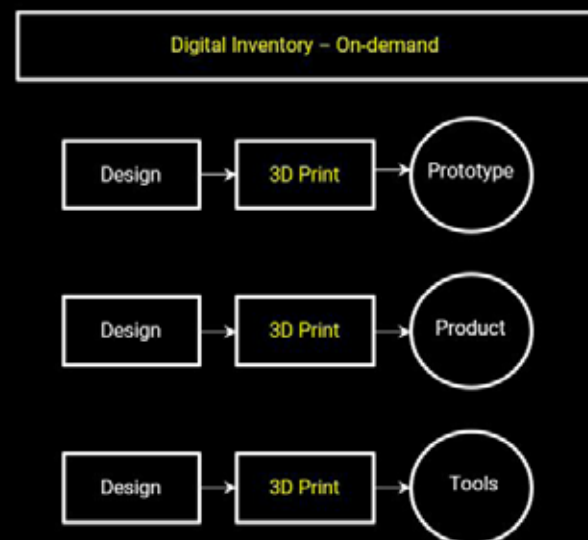
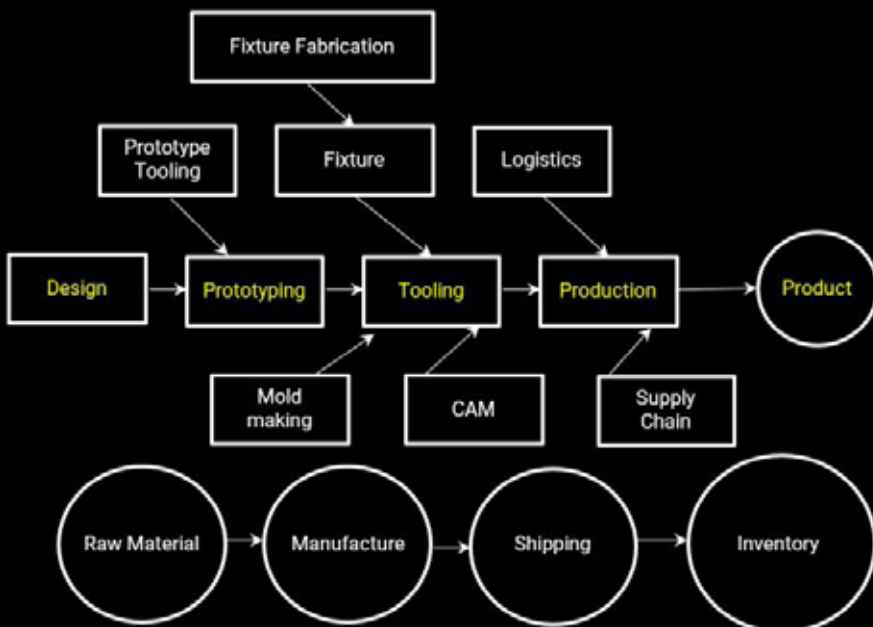
“Even though the Eiger software was new to us, we found it really easy to use.” – Matthew Smith, Corin Medical

You can be printing parts within 5 minutes of them being completed in CAD. There’s no toolpaths to consider, no thoughts about fixturing, tooling offsets or collisions either.

The simple process of loading the file in to the Markforged EIGER software and creating a print file means complex programming requirements are a thing of the past.

You also avoid the hefty salary bill associated with this activity too!

You can test EIGER for yourself here:
<https://www.mark3d.com/en/eiger-software/>



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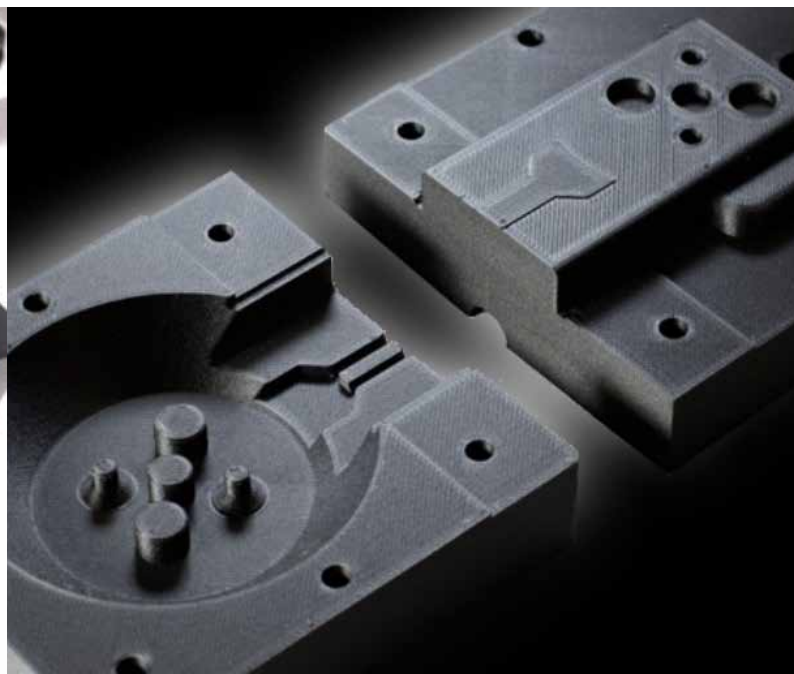
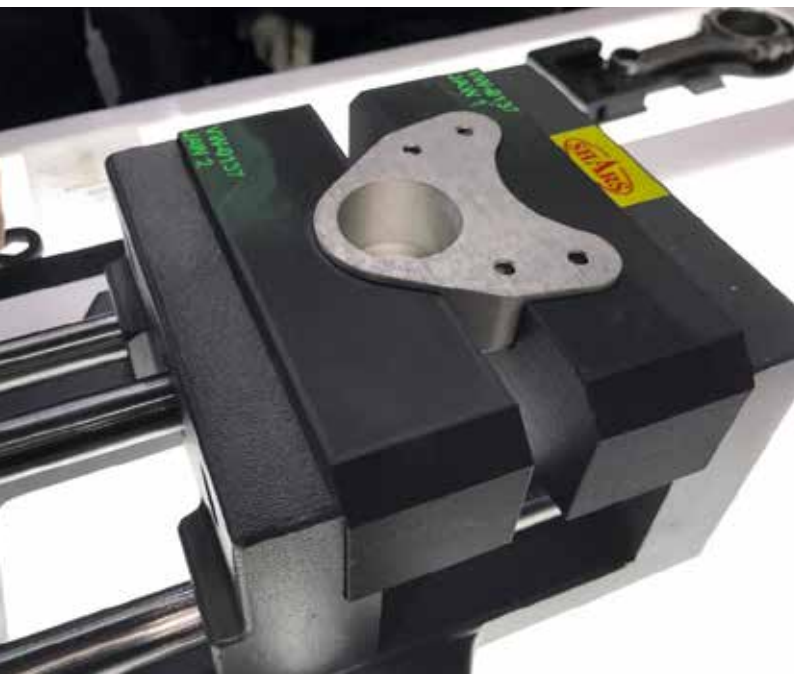
No tooling costs

“The metal 3d printer enabled us to prototype those parts which we weren’t in a position to be able to do before.”

– Caldwell Manufacturing

There’s no need to buy any more expensive tools or holders for one off jobs, that sit on the shelf gathering dust afterwards.

Print complex internal geometry, create any hole size, contour or shape, simply and quickly, and then change it in an instant if you need to. With a 3D printer you have one tool that does everything – no more loading the tooling carousel either!



05

No operator costs

“We evaluated two different options: One was to purchase a CNC milling machine for aluminium and POM, and the other was to get into additive manufacturing. In this way, costs, quality, production times, flexibility, innovation and personnel were compared” – Michael Müller, erler

3D printers run day and night unattended. With the Markforged range of machine the superior reliability means that printing all weekend and throughout the night is common place.

Markforged 3D printers are cost effective to purchase, install and maintain leaving you to run unmanned production without involving (those hard to find) skilled operators!

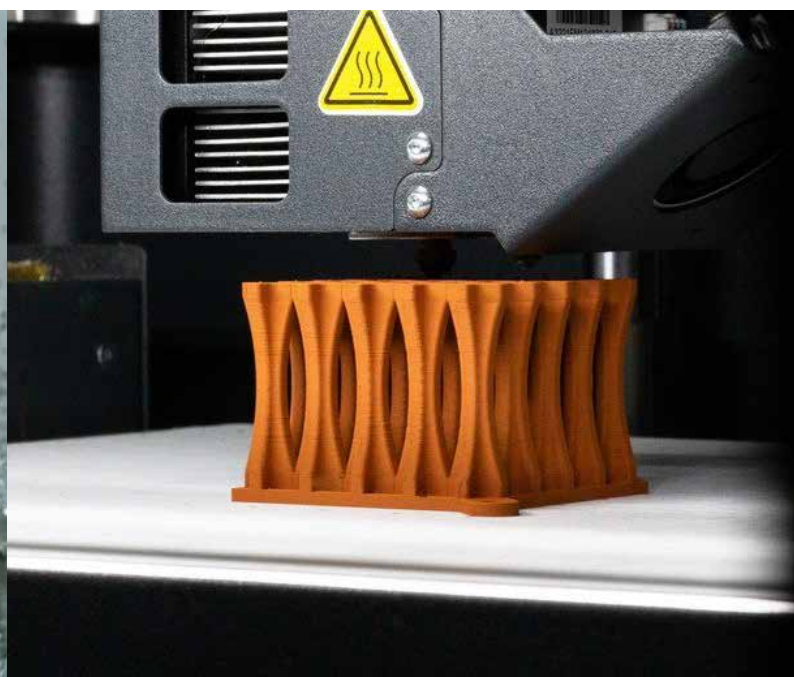


06

No coolant or swarf

Machine coolant is expensive, messy and can be a health & safety issue too, whereas Markforged printers run in your office right on the desk next to you, and never need mopping up after or emptying of swarf.

The subtractive approach of CNC machines means that they produce a lot of waste that has to be disposed of by the operator. So you have to pay for more material than you need and pay for the stuff you cut off to be disposed of as well! As a consumable, the cooling fluids have to be disposed of regularly too. 3D printing with a Markforged machine is a clean process from start to finish, with minimal or no waste production.



07

Power consumption is very low

Markforged printers plug in to a 3 pin plug and use as much energy as a 100w light bulb.

There's no need for 3 phase power and huge electricity bills can be a thing of the past. You can print from home if you want, too (like many of our customers do)!

If you're a service engineer staying overnight it's also possible to print parts in your hotel room, ready to fit the next day. So, no matter where you are, you can always have your stock (stored on the spool) with you, you just need a plug to make it.

Did you know Wartsilla, for example, print parts on their cargo ships!



08

Offer new services to existing customers

“We wanted to expand the design and production capability with the introduction of additive manufacturing technology. Our aim is to better serve existing markets and open up new ones.” – Ian Eaves, Neos Technologies Limited

It's now possible to generate new revenue streams for your business without adding huge overheads as well. Many of the people Mark3D work with have found a ready made market in their existing customers.

It's common practise to train existing staff to use the machine in a few hours and they can operate it between tool changes!



09

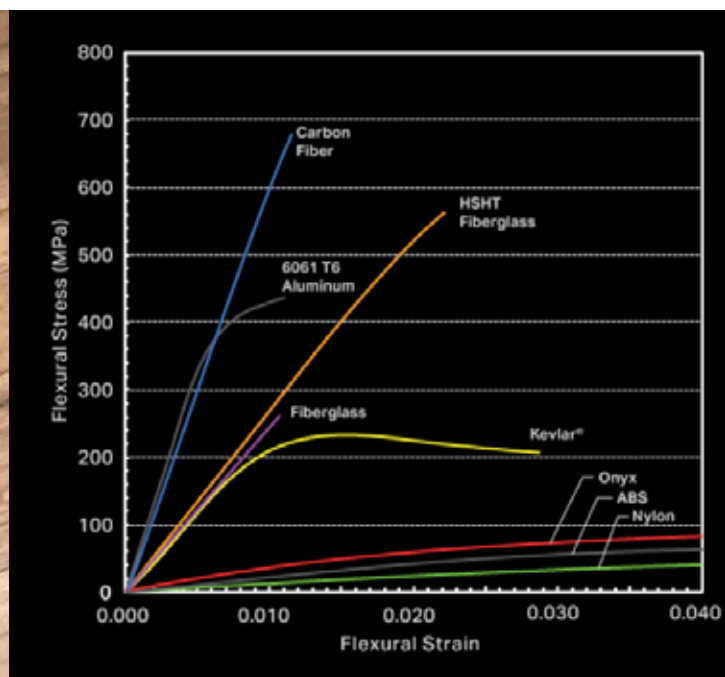
You can print as strong as Aluminium

“Thanks to Markforged Carbon Fibre 3D printers we are now at the cutting edge of what is possible. By letting us push materials and their tolerances to the very limit, we are creating super strong, lightweight 3D printed components that are as strong as aluminium.”

– James Cooper, Robo Challenge

Markforged technology can print composite parts that are as strong as aluminium, in many applications.

This means you can often print low volume, complex parts for your customer and free up time on your CNC machines for other work.



10

Rapid Prototyping and Customer Samples

“For our special project PCD tooling, we send an Onyx part to all our customers for sign off prior to printing it in metal on the Metal X.” – Alan Pearce, Guhring UK

Rapid prototypes are low cost and can be delivered quickly, so you can send customers samples of things you haven't had to make for real and tool up for.

Use 3D prints for form and fit verification and concept approval, which is something that's just too expensive to do on a CNC machine!



11

Machine footprint is minimal

3D printers take up very little room and can be housed in multiple layers of racks if required. They live nicely in offices too, right next to your desk.

The room and infrastructure needed for a moderate sized machine tool is very different!

It's really easy to place the 3D printer on your desk (or in your back bedroom) and start making parts!



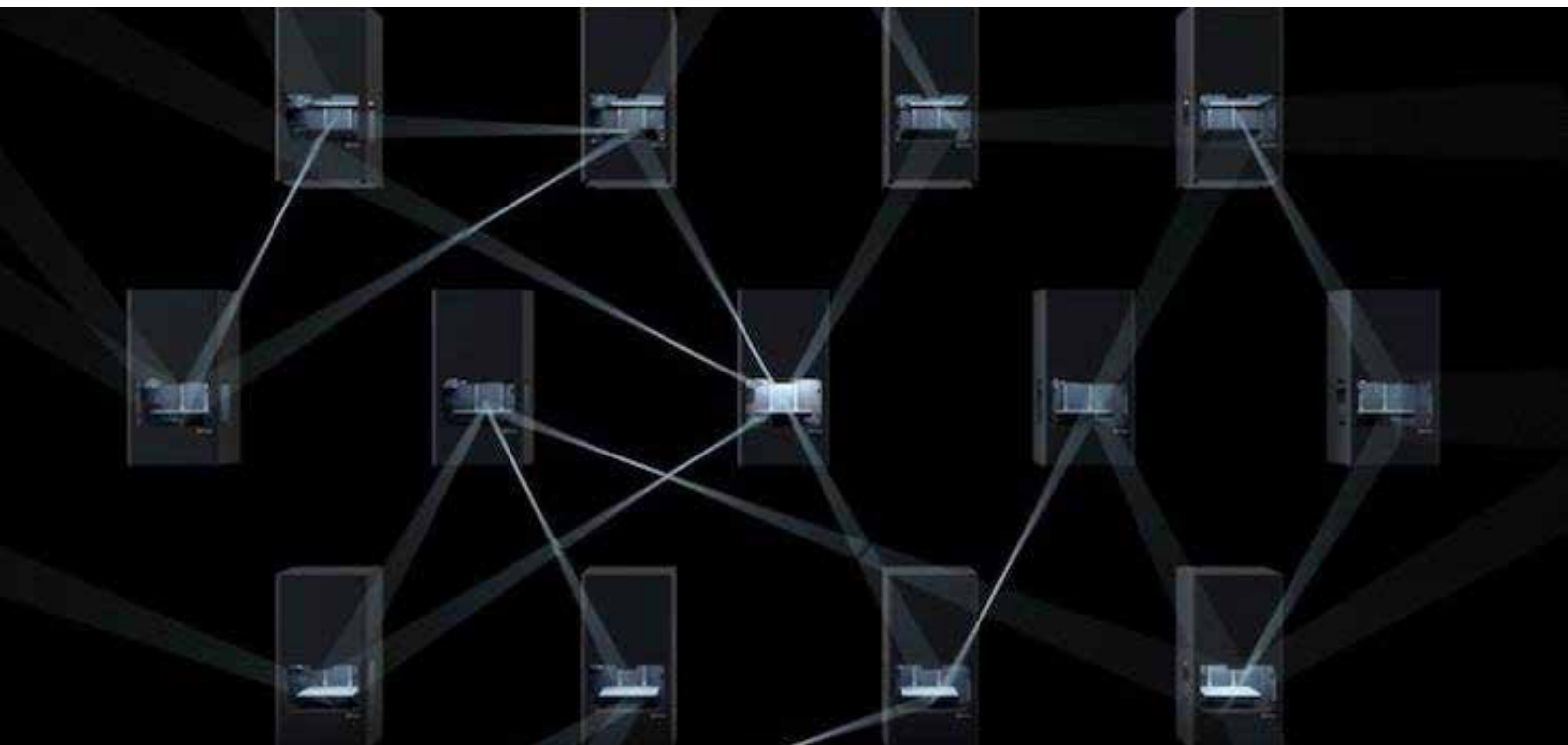
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Use it from anywhere
and take it everywhere

“Imagine a world where centrally controlled engineering departments print critical parts, on demand, to remote facilities throughout the world and local staff fit them directly.” – World Manufacturing Journal

With a Markforged printer connected to Eiger you can print from anywhere in the world.

This means that colleagues can print parts to offices in other locations or countries to help team members visualize a concept. Likewise you can always finish that design at home in the evening and set it printing for the morning meeting!



13

Spare parts don't cost the earth

Spare parts for 3D printers are cheap when compared to those for machine tools. Likewise most of them are self fit too, so there's no expensive service engineer charges.

Gone are the days of worrying about worn or damaged spindle bearings that will break the bank and take weeks to repair!



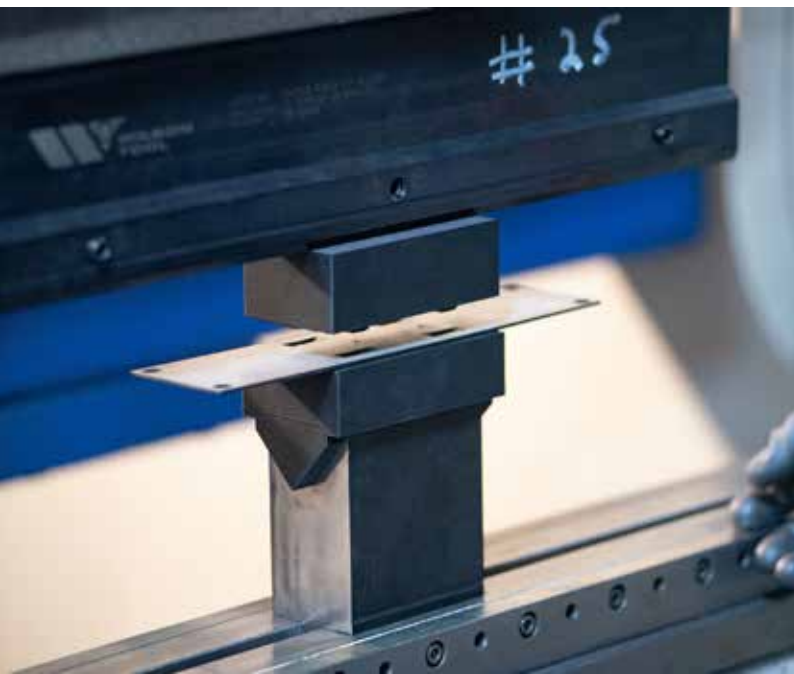
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Print your own fixtures and workholding

“We’re doing all sorts, looking to replace lots of brackets, sensor mounts, awkward machining bits etc to take the pressure off our machine shop.” – Unison Ltd

Don't tie your expensive assets up making their own fixtures and workholding, use a printer to do it quickly and cheaply.

One of the main uses for Markforged printers is to make fixturing and workholding items to support production lines!



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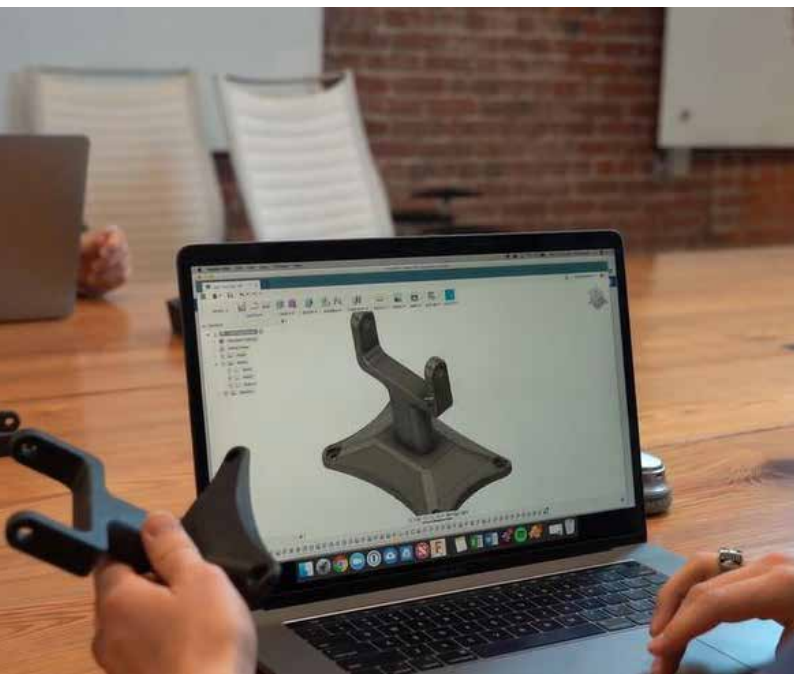
Set up times

“Plug & play on an industrial level plus reliability and process safety, has lead to over 20,000 hours of successful (and above all) unmanned production.”

– ASS Luippold Automation.

A Markforged printer needs the bed cleaned, glued and some material loaded to start to print – this takes approx. 2 minutes.

A machine tool can take hours to set up and often needs two people with a crane just to get the vice on it, so you can then start clocking it up!



We are looking forward to hearing from you!

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