

Case Study

3D Printed Equipment

In 1997 the production of B-Cut saw blades for the oscillating multifunctional machines began under the name maRoc GmbH. Until 2011, the name changed, and the E-Cut saw blades were produced exclusively for a machine manufacturer. Since then, CORAM TOOLS GMBH has been on the market with today's trademark. Marco Steiger is managing director and the inventor of CORAM TOOLS.



Challenge

Diverse Variants in a Few Productions' lines

The tools have different holders that vary for the respective machine manufacturer, hardness (I, B, H), areas of application (wood, metal, PVC, or combinations). CORAM TOOLS produces 66 different saw blades. The challenge here is to **make production as productive as possible despite the high diversity.**

Solution

Quick Changeover During Retrofitting

Multiple variants are unable to run in one production line therefore the line must be converted repeatedly.

How can this be simplified?

CORAM TOOLS made its first attempt in the field of high-strength, fiber-reinforced 3D printed parts on a gripper. This implementation made it possible to quickly manufacture individual and lightweight grippers.

If you go through the production at CORAM TOOLS, you will notice that multiple parts were made with the 3D printer including the small aids. From the collecting container to the mounting bracket, production equipment, and production line optimizations have been carried out, which is reflected in an increase in speed and a reduction in downtimes.

In the example on the lower left, the step of laser marking can be seen. The recordings are held with designed 3D printed grippers during labeling. The process is that when the laser is used it generates heat to which the onyx grippers have a resistance of 145°C – and more under short stress.

All saw blades are labeled and can be personalized with a customer's logo. Furthermore, incorrectly labeled parts are not thrown away but are put into a bath with liquid paint remover. The bracket for this is printed with onyx. Despite the very aggressive agent, Onyx easily withstands the challenges y!

Briefly

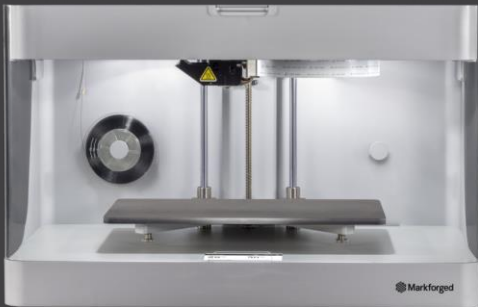
1. Optimized Processes
2. Low Cost
3. Heat Resistant
4. Liquid Enameling



Materials:

1. Onyx
2. Fibre Glass
3. Carbon Fibre
4. Kevlar
5. HSHT Fibre Glass

The Mark Two



The Future

Smart Tools

Originally, the scrap was thrown from the machine into a box that stood on the floor. Sometimes more, sometimes less successful. But Marco Steiger had a better idea: He designed a collecting container that could be mounted directly on the machine. So that it doesn't break off and the parts fall back on, he reinforced the 3D printed containers with continuous fibers. Ensuring everything stays where it belongs.

So far, the rest of the process is still the same: Each scrap part has a routing slip on which all the relevant data can be found. A possible next step would be to build an RFID chip into the container so that the entire process can be digitally recorded and categorized. There are many more examples of how CORAM TOOLS uses the 3D printer. If there are free capacities on the Mark Two, CORAM TOOLS also offers printing services.

3D printing is successfully used in a wide variety of production halls. Additive manufacturing is not a technology of the future.

The future is now!



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