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Introduction to laser technology

Zimmer&Kreim present the introduction to automated laser technology

Most recently Zimmer&Kreim presented the new *genius* 900 Nova eroding machine at the AMB in Stuttgart. A machine that convinces in stability and precision, thanks to its modular design and the thermosymmetrically mineral cast construction. It is precisely this well-considered construction that enables developers to now also put other technologies on the existing foundation.

Here the engineers' focus lies on laser technology. With technological support of INDEL AG (for the control engineering) as well as ARGES (for the laser technology) Zimmer&Kreim now presents at the FORMNEXT a new prototype construction with a possible laser application to remove the supporting geometry of generatively manufactured components in the SLM technique. The 'ingenious' about this idea is that the machines do not need a standardized production, but can specifically be built for the costumers' requirements, or the component, respectively.

ZK builds your laser machine

Zimmer&Kreim always looks at the whole process chain and has set the course early on to integrate this technology into automation. "We strongly believe that laser machining just like a other technologies in the area of tool and mold making, and production must be an integral part in the automated process chain," Armand Bayer, managing director of Zimmer&Kreim, explains the company strategy. "With our longstanding experience of automation across different technologies we have integrated laser technology for a long time in our systems in terms of software. With this new step, we can also provide the hardware," Armand Bayer emphasizes.

State of the art

While machining components with time losses of time of up to 50% still occur at the processing of G-codes. In this area, Zimmer&Kreim, together with the technology partners, achieved a significant increase in performance. For the machining (3D-ablation) of ceramic coated Inconel® components, one application has already successfully running.

A concept that "holds water" – for time saving and efficiency

As exhibitor at the FORMNETX ZK presents now a possible digital workflow in post-processing of generatively manufactured components using a SLM-component. The post-processing of SLM-component requires currently approx. 70% of the production time as whole for components.

As the post-processing is divided into many work steps and technologies, the conditions must be met first, to create all work steps digitally and give to the component digitally. All work steps are then saved and processed on a database with the standardized software tools of the Zimmer&Kreim "Alphamoduli" software solution. The existing job management software for the respective technologies then controls all work steps for each component individually, fully automated or manually.



Fully automated and / or manually. The starting point is the respective CAD / CAM system of the customer, also in combination with the customers' own ERP system. Zimmer&Kreim can therefore rely on its long-standing competency in automated control and processing of components in tool and mold making starting with lot size 1.

The opportunity, which will be presented at the exhibition to separate supporting geometry with a laser close to contour or to simply revise building panels, in order to be re-used in a SLM-system, is part of an innovative overall concept. Next to the fully automated post-processing of generatively manufactured components, wire-eroding machines or band saws for separating components from building panels, can also be automatized with the ZK "Chameleon" automation system.

With its known foresight, Zimmer&Kreim faces the challenge of eliminating the "bottleneck" in post processing of generatively manufactured components, and thus moving technologies like SML a considerable step toward the synchronized and reproducible mass production (beginning with lot size 1).

We encourage all interested users to visit us at the FORMNEXT hall 3, booth C 70

Caption
Example of diverse precise engravings on an egg.