

Drop-forging: outsourcing the cutting strategy

For many designers in automobile construction, aluminum is the material of the future. It has only about one third of the weight of steel, and so lowers both the total weight of the vehicle and therefore the fuel consumption. The Leiber Group, an automobile supplier company with headquarters in Emmingen, has specialized in the demanding process of drop-forging aluminum components. The molding specialists are in command of the whole process - from production of the necessary tool molds, through the drop-forging process itself, and on to the subsequent milling operations. A large number of aluminum components for automobile chassis are, for instance, made like this. The manufacture of die molds includes indexable insert tools from LMT Kieninger. LMT's experts for die and mold-making were able to offer their customers a special service in order to optimize Leiber's cutting strategies.

Drop-forging aluminum is a tricky business. Aluminum reacts very sensitively, and does not easily forgive errors in the production process. The Leiber Group rises to this challenge at, for instance, the company's own materials test laboratory, where extensive strength calculations and material analyses are carried out before production starts. In this context, the two-piece die molds also play a particular part. The Leiber Group makes up to 550 tool-halves each year. Every tool for the forging press has to be cut with great precision from high-strength tempering steel. The relief forms hollowed out of the mold determine the shape of the finished forging. The tiniest surface fault will therefore impair the quality of the automobile chassis components that are to be made with the mold.

"We are, of course, extremely familiar with this challenge in drop-forging" explains Hanjo Gißler, LMT Product Manager for Die and Mold Making. "The cutting tools are subjected to extreme stresses in the course of the 5-axis cutting operations performed here on the steel. In order to be able to ensure the necessary quality of detail, while at the same time achieving high efficiency in our customer's production departments, we generally have to consider the entire cutting process first. And that was exactly what happened here again," explains Gißler.

Leading Metalworking
Technologies

**BELIN
FETTE
KIENINGER
ONSRUD**

in alliance

**BILZ
BOEHLERIT**

Adapted for the customer's machine tools

Developing a cutting strategy for customers on the company's machining center in Lahr – a service that is available at any time from LMT Kieninger. In fact the company concentrates quite specifically on the challenges that this presents: "For instance, we regularly change the machine that we use for this work. This gives us a very high level of expertise, and we are therefore not stuck with one particular machine. We can therefore adjust ourselves to whatever type of machine the customer has, and develop the strategy for that customer specifically," adds Gißler.

Tool costs lowered by 50 per cent

The result of these tests and calculations had been clear to see on two machine tools at Leiber since the middle of last year – and soon there will be other customers. At present, Leiber's tool makers are still using up the remaining solid carbide cutters that were employed in the past. As time goes by, cutting die molds of the sizes involved here can be completely converted to the LMT indexable insert tools. The design manager at the Leiber Group is already convinced: "On the one hand, the indexable insert tools have the same advance rate figures as the solid carbide tools used before, while the quality of the surfaces is in some cases even better. On the other hand, our tool costs are about 50 per cent lower," says Harald Leiber. The explanation is simple: the solid carbide cutters used before at Leiber were reground twice. The entire tool then had to be exchanged and replaced. The indexable inserts are now changed just as often: "But their unit price is quite different. We therefore save enormous costs every time we use a tool," concludes Leiber.

Your contact person at LMT

Mr. Volker Reinsch
Phone: +49(0) 41 51 12 498
Fax: +49 (0) 41 51 - 12 77 498
E-mail: vreinsch@lmt-tools.com
www.lmt-tools.com

Leading Metalworking
Technologies

**BELIN
FETTE
KIENINGER
ONSRUD**

in alliance

**BILZ
BOEHLERIT**