The Harz region is a place for nature lovers and people looking for adventure. With a national park and geological park, Brocken peak and Bode canyon, as well as the Karst caves, the northernmost low mountain range in Germany not only offers impressive encounters with nature, but also many outdoor activities, such as mountain biking, climbing or hiking. That makes it surprising to find a company here in the “Augustenhöhe” industrial area in Harzgerode which has specialized in the manufacturing of foaming molds.

The explanation is simple. “Mold manufacturing has a long tradition in this region,” says Ulrich Lambeck, one of the two company founders. Even back in the days of the former German Democratic Republic, pistons and pressure-die-cast parts were manufactured for the Eastern European countries. Furthermore, a foam part manufacturer produced packaging parts, made of styrofoam in Harzgerode. The needed tool-making was managed by the other company founder, Jürgen Kersten. Till today, there are very well-trained toolmakers in this region; which is a major reason for production to take place at this site, far away from the industrial urban centers. In addition to using CNC machines, part of the final machining still involves some handicraft work.

The molds are exclusively made of aluminum and are used for the styrofoam and polypropylene foaming in a wide range of applications. Products made by the foaming technology include, for example, styrofoam chips and packaging material for electronic devices. Furthermore, the company produces molds for load carriers, which can accommodate entire car doors.

Since its foundation in 1994, Lambeck + Kersten GmbH has been making molds for packaging, carriers and functional parts made of styrofoam and other plastics. While every mold is unique, customers still expect quick time-to-market, in addition to problem-solving capabilities and high quality. With the integrated process chain, consisting of SolidWorks, SolidCAM and various CNC machining centers, production of up to five foaming molds per month is now the standard.
or other impact and/or scratch-sensitive parts, such as side-view mirrors. In addition, there are molds for functional components, e.g. for sanitary engineering such as insulating elements for fittings and pumps or line distributors and insulating plates for house fronts, as well as shock absorbers. In these segments, the mold parts must exactly fulfill the functional requirements.

All molds, manufactured for foam parts producers such as Storopack, Fagerdala, Ohiro, Dieckhoff, Fapack, Illbruck Sanitärtechnik and Primanit in Austria, are unique. They are usually manufactured once for a certain product and have to meet specific requirements. Packaging molds must, for example, reliably protect the product during its entire trip from the production site to the end user, which is often around the globe. In addition, packaging is increasingly becoming a success factor. Unattractive packaging can often make a top-quality product a shelf warmer, or products could become damaged due to low-quality packaging.

This fast delivery is mainly due to the integrated solution SolidWorks + SolidCAM, including various CNC machining centers. The process chain already begins with the direct import of the customer's CAD data, includes the mold design as well as the order calculation and continues up to the generation of the optimized G-Code for the cutting of the mold parts.

Today, 80 to 85 percent of the customers send their CAD data in formats like IGES, VDA-FS, Parasolid, Step, SAT, DXF and DWG, which can be directly imported very efficiently. SolidWorks offers around 20 import interfaces for the direct import of CAD data from external systems. "This way, we can directly take over the design data from all our customers very quickly. That saves a lot of time when calculating the quotation and eliminates sources of error,"

Ulrich Lambeck: „The various automatic foaming machines are no problem for us. With our machine park, we can produce tool sizes up to a clamping surface of 1800 x 1300 mm and up to a weight of 600 kg."

Jürgen Kersten: „An important criterion for the success of our company and one of our major strengths is the quick processing of orders. Depending on the complexity, not more than a week goes by from accepting an order to the delivery of the finished mold."

Enrico Reiprich, Manager of the SolidCAM branch office in Zella-Mehlis: „Lambeck + Kersten GmbH was one of our early customers in Germany, and since then has been following the powerful development of the SolidCAM software."

"An important criterion for the success of our company and one of our major strengths is the quick processing of orders," emphasizes Ulrich Lambeck. Depending on the complexity, not more than a week goes by from accepting an order to the delivery of the finished mold.

Lambeck and Kersten realized how important a continuous integrated process chain is when, in 2004, shortly before the construction of a new production hall, 80 percent of the orders were cancelled because a portion of their customers started sending their orders to lower-wage countries. Thanks to quality, flexibility and reliable delivery times, which ultimately depend on the integrated process chain, they could quickly win back a large portion of the orders.

SolidCAM, seamlessly integrated in SolidWorks, ensures efficient CNC programming of the individual mold parts and guarantees powerful machining with an extensive range of Milling strategies.
saying production specialist Ulrich Lambeck, SolidWorks easily reads CAD files which were created with other systems, such as Inventor, SolidEdge, Pro/E or Unigraphics. There are also interfaces available for CATIA V4 and CATIA V5.

Ulrich Lambeck: “SolidWorks as a 3D CAD system has been a very good choice. It is a well-engineered 3D CAD system and almost an industry standard. The SolidCAM software, seamlessly integrated in SolidWorks, ensures the efficient CNC programming of the individual mold parts and guarantees high-quality and fast manufacturing on our CNC milling machines, thanks to a variety of milling strategies.”

It wasn’t always like that, Lambeck remembers: “Before the introduction of the systems installed today, we produced molds mainly based on drawings or patterns, which was a lot more time-consuming.” Since product life cycles are getting shorter and shorter, and molds for new products are always being demanded, the company introduced relatively early CAD/CAM technology for mold manufacturing.

Ulrich Lambeck started working with the SolidCAM predecessor system CADtool/NCtool in 1991 and used it efficiently for 2.5D machining. Enrico Reiprich, Manager of the SolidCAM branch office in Zella-Mehlis: “Lambeck + Kersten GmbH was one of our early customers in Germany, and since then has been following the powerful development of the SolidCAM software.”

Whereby Lambeck emphasizes that “Enrico Reiprich has proven himself to be a recognized CAM specialist for many years. If there’s a problem, usually one call is enough to fix it. Many questions can be solved via remote diagnostics.” Also in the case of SolidCAM for SolidWorks, introduced to the market in 2002, the company again was one of the first users in the country. One year later, a mold designer specialized in SolidWorks has been hired. Since 2006, two CAD/CAM specialists are constantly utilizing the combined solution SolidWorks + SolidCAM.

The company’s machine park consists of two vertical machining centers, Hurco BMC 64 and BMC 4020, as well as two CNC bed milling machines, Pegasus KNC-Q 1250 and a Sachmann ARAKOS 521, and also conventional milling, drilling and turning machines. “Especially for older CNC machines, SolidCAM’s HSM module can be used to improve the productivity with reduced air-cutting and smoothing arcs that maintain continuous tool motion”, explains Jürgen Kersten.

The HSM module offers unique machining and linking strategies for generating high-speed toolpaths. It smooths the paths of both cutting moves and retracts wherever possible to maintain a continuous machine tool motion – an essential requirement for maintaining higher feed rates and eliminating dwelling.

With SolidCAM’s HSM module, retracts to high Z-levels are kept to a minimum. Angled wherever possible, smoothed by arcs, retracts do not go any higher than necessary – thus minimizing air-cutting and reducing machining time. The result of High-Speed Machining is an efficient, smooth, and gouge-free toolpath. This translates to increased surface quality, less wear on the cutter tools, and a longer life for the machine tools.

“For large CNC programs needed to cut very complex molds, we can substantially improve our competitiveness with the SolidCAM

**Founded in 1984 by its Managing Director Dr. Emil Somekh, SolidCAM provides manufacturing customers with a full powerful suite of CAM software modules for 2.5D Milling, 3D Milling, High-Speed Machining, Multi-sided Indexial 4/5 axes Milling, Simultaneous 5 axes Milling, Turning, Turn-Mill up to 5-axes and Wire-EDM. SolidCAM is the leader in integrated CAM and provides the highest level of CAD integration, with seamless, single-window integration and full associativity to the CAD model. The integration ensures the automatic update of tool paths for CAD revisions. SolidCAM powers up the user’s CAD system into the best integrated CAD/CAM solution. SolidCAM has today more than 14,000 seats installed. The company has been on a very rapid growth path since it implemented its CAD integration strategy. SolidCAM is sold by a worldwide reseller network in 46 countries.**

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HSM module,” emphasizes Lambeck. The CNC programs are reliable and, in addition, associative to the part geometry. For complex molds with tough requirements for surface quality, NC programming could quickly become a bottleneck in the manufacturing process, if you do not utilize the power of an integrated CAD/CAM-system. Ulrich Lambeck is optimistic about the further development of the company. Due to the ever shortening product life cycles, new foaming molds will constantly be needed. By offering a recognized high quality standard in its market segment, Lambeck+Kersten can compete successfully long-term against the competition from the low-wage countries.

Packaging parts must fit exactly along the contours of the product. This is the only way the product can be protected during prolonged transport. A precondition for an exact fit is that the foaming molds must be manufactured with high precision.