3D and clay simulation in synch for car prototypes

Kolb has been producing and supplying modelling material for more than 100 years. For the last 15 years, the focus has been on industrial plasticine for design model making – particularly for the automotive industry. The problems customers used to be confronted with in the production of the models led the company to develop its own measuring and milling systems. Tools and accessories round off the product range. In 2001 the subsidiary Kolb Technology GmbH was established in order to be able to serve this industrial sector even better.

The company Kolb Technology GmbH, based in the German Hengersberg, manufactures and supplies industrial plasticine and milling systems for producing prototypes in the automotive sector. The specialists at the company supply milling systems worldwide. The systems are equipped with Beckhoff Control Panels as remote operating and visualization units.

A few years ago it looked as if 3D computer simulation would replace traditional shape finding techniques such as design model making. While the computer representation is very efficient and simple, it soon became clear that the powers of imagination are often insufficient for deciding every single detail of a new body design based on a digital model. For this reason, sophisticated models made from plasticine are still used for the development of new car series in order to be able to properly assess the appearance of the final shape.

It often involves many years of development work to go from the first sketch to a new car leaving the assembly line and entering the market. Obviously, the body design is a crucial factor in the success or failure of a new car so it is one of the most important design decisions to make. Designs on paper are followed by 3D computer models, which are then transformed into physical models at a scale of 1:4 or 1:1. In order to make the models as realistic as possible, the prototypes are made from industrial plasticine and are even equipped with metal wheel rims and painted. The executive board of the car company will ultimately base its decision about the shape of the new car series on this kind of model. Based on the computer software, the shape is cut from "SuperClay" and "TecClay" industrial plasticine developed by Kolb Technology. Design studios normally work with components from different manufacturers. The integration of the individual components into a functioning system often causes problems. In contrast, Kolb Technology supplies a modular system that systematically integrates digital and physical shape finding (CAD and clay model), significantly simplifying communication between these two "worlds." Xaver Zistler from Kolb marketing explained: "Subsequent changes, for example, to an edge line in side view or the shape of a roof edge are scanned in and incorporated in the milling software."

One of Kolb's first large customers was Hidea Autodesign in Shanghai, prototype supplier for the Chinese motor vehicle manufacturer Brilliance. Hidea uses the complete Studioline package, including the software. "For this system we used Beckhoff Control Panels as visualization and operating units for the first time," Xaver Zistler said. "We are currently fitting out the BMW research and innovation

Manual measuring machine (StudioLine3 easy) at Hidea Autodesign in Shanghai.

StudioLine3 CNC milling machine at the Kolb studio in Hengersberg with a 1:1 clay model and Beckhoff Control Panel on a mobile trolley.

center in Munich with our integrated measuring and milling system. At present, BMW operates four 16 m long duplex measuring machines – a total of eight CNC machines – each with an option for manual operation." The latest consignment (the milling systems developed for BMW) was also equipped with Beckhoff Control Panels. "As remote control units, the Control Panels enable working directly at the model. The control computer can be visualized on an operating panel that is integrated on a mobile trolley so the user doesn't have to waste time moving between the workstation and the model," Josef Schleipfer from Kolb Technology explained. The PC and the operating panel are linked via Ethernet (remote desktop or wireless via WLAN) or via a DVI/USB connection over a distance of up to 30 m. For Josef Schleipfer the reason why Kolb decided to use the Control Panel from Beckhoff is clear: "It combines good design, robustness and stability in a way that offers numerous benefits for the industrial sector."

→ Kolb Technology GmbH **www.kolb-technology.com**