Flexible clamping system secures domestic production

KL Megla GmbH manufactures high-quality glass door fittings in small and medium lots extremely economically in Germany with the modular and flexible clamping systems from the Swiss company Triag International AG. Multiple clamping enables the user to manufacture unsupervised with a minimum of clamping space. *Author: Konrad Mücke*

////// The production of rather simple to manufacture components is being relocated more and more to the eastern European and Asian regions, where companies can calculate with much lower costs for manpower and production facilities. A manufacturer of high-quality door fittings, KL Megla GmbH of Eitorf, shows that this can be avoided. The fittings for all-glass doors are usually made of brass or similar non-ferrous metal alloys, including corrosion-proof steel alloys. They are milled from drawn profiles and drilled. Two different components need to be manufactured for each door fitting. These are joined with a bolt during installation. The manufacturer from Eitorf produces these door fittings in particular for high-quality, individually designed room decorations. Therefore, only small and medium lots are manufactured, ranging from several hundred to a few thousand workpieces. Individual variants often need to be repeatedly manufactured in several lots. As an option, the door fittings are provided with different engravings and visually appealing surfaces – for example matt, highly polished or chromium-plated.

Some months ago, the manufacturing technicians in Eitorf were forced to compare their manufacturing in competition with so-called low-wage countries. They had to justify the higher specific costs for production facilities and personnel in this country. Not only that, they had to tap additional advantages in order to be able to hold their own against the competitors. Only in this way were they able to prevent the relocation of the door fittings production to other regions of the world.

Flexibility convinces

The technicians in Eitorf won the competition. To do so, they realised a trend-setting manufacturing concept. It replaces the former continuous production on a larger number of manually operated drilling and milling machines. To enable this, the manufacturer in Eitorf invested in three vertical machining centres from Hurco. One VM20i machine and a smaller VM10i variant are equipped with a clamping table, while a second VM20i is equipped with a clamping bridge as a fourth NC axis. On the recommendation of the technical advisor and regional specialist machine dealer Horst Mumper, these machining centres are equipped with clamping systems from Triag International AG as original equipment. The final concept for the clamping of workpieces was realised in close cooperation with Floßbach + Berger GmbH + Co. KG as the regional representative of the Swiss clamping equipment manufacturer. In particular the Power-clamp clamping systems contribute to the ability to manufacture competitively and cost-effectively, because they ensure very short tooling times. They enable different variants to be manufactured in small lots as needed with rapid changes. Several base rails of the modular clamping system are located on the workbenches or clamping bridge respectively. The clamping modules can be placed radi-

Securing the German production location with a flexible, modular clamping system (l to r): Michael Wolf, Head of Technology and Sales Germany of Triag International AG, Thomas Berger, Managing Director of the regional dealer Floßbach + Berger and Konstantin Steffen, Production Manager at KL Megla.
Photo: Konrad Mücke/MachPR

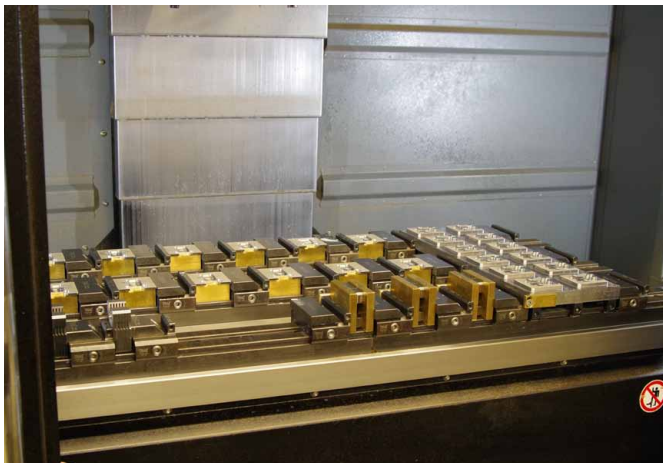
ally in any position on these rails. They can be prepositioned in steps of 2 mm on a precision-milled grid serration. Just one central screw is sufficient to fasten them via the side clamps.

Shifts without operators thanks to multiple clamping

Multiple clamping can be realised in a very small clamping space with the flexible, modular system from Triag International. The rear sides of the clamping modules each serve in turn as a stop for the subsequent clamping. With little effort, the clamping modules can be retooled on the base rails for different variants of profiles for door fittings.

In the normal case, the technicians in Eitorf use linear clamping modules. They are currently using 48 and 94 mm-wide, ribbed clamping jaws. The latter can be exchanged rapidly for a large number of other variants. As Konstantin Steffen, Production Manager in Eitorf, reports, he and his employees have come to highly value the simple to operate, fast and flexibly tooled clamping system within a very short time. In particular the multiple clamping of components ensures the cost-effective manufacturing of the door fittings. Depending on the variant, the blanks for up to twelve door fittings can be clamped in parallel on one workbench. The machining centres can then manufacture them in a single process without supervision. On the one hand, this enables one operator to operate several machines.

On the other, the employees can leave the machines to produce without supervision. Konstantin Steffen remarks: „It was mainly the unsupervised production and multi-machine operation that convinced us that we can produce competitively in this country in comparison with low-wage countries."



Productive thanks to multiple clamping: following a short tooling procedure, a large number of individual parts for glass door fittings can be manufactured without an operator. Photo: Konrad Mücke/MachPR

Positioning with exact repeatability

The base rails with the clamping modules placed on them are proving to be much more precise in comparison with the vices that were generally used previously. The repeated determination of the zero points for the NC programs when clamping and retooling is thus unnecessary. This also helps to shorten tooling times and allows more flexible working. As Konstantin Steffen says, the three machining centres have to be retooled three or four times a week. The modular principle of the clamping systems from Triag International minimises effort and the costs for the clamping elements. The individual modules are compatible and exchangeable with one another.

„Thanks to the modular principle and the high accuracy of the components, the clamping modules can be positioned on any of the base rails with exact repeatability," says Michael Wolf. He is responsible at the Swiss clamping equipment manufacturer for technology and sales in Germany. Konstantin Steffen adds that the modular concept additionally increases the flexibility.

„We usually manufacture a different variant of the door fittings on each machine. But if there is a much larger need for just one version, we can manufacture just this variant in parallel on two or three machines," he says. The easy exchange of the clamping modules also ensures that the production is continuously able to deliver and promised delivery dates can be kept to. If a machining centre is down, its production can simply be transferred to another machine. This allows the technicians to manufacturer smaller lots of different door fittings as needed within a few days.

Tooling times minimised: thanks to the compact structure of the clamping modules, several components of the door fittings can be completely machined in a single process on the front and rear side on the clamping bridge.
Photo: Konrad Mücke/MachPR