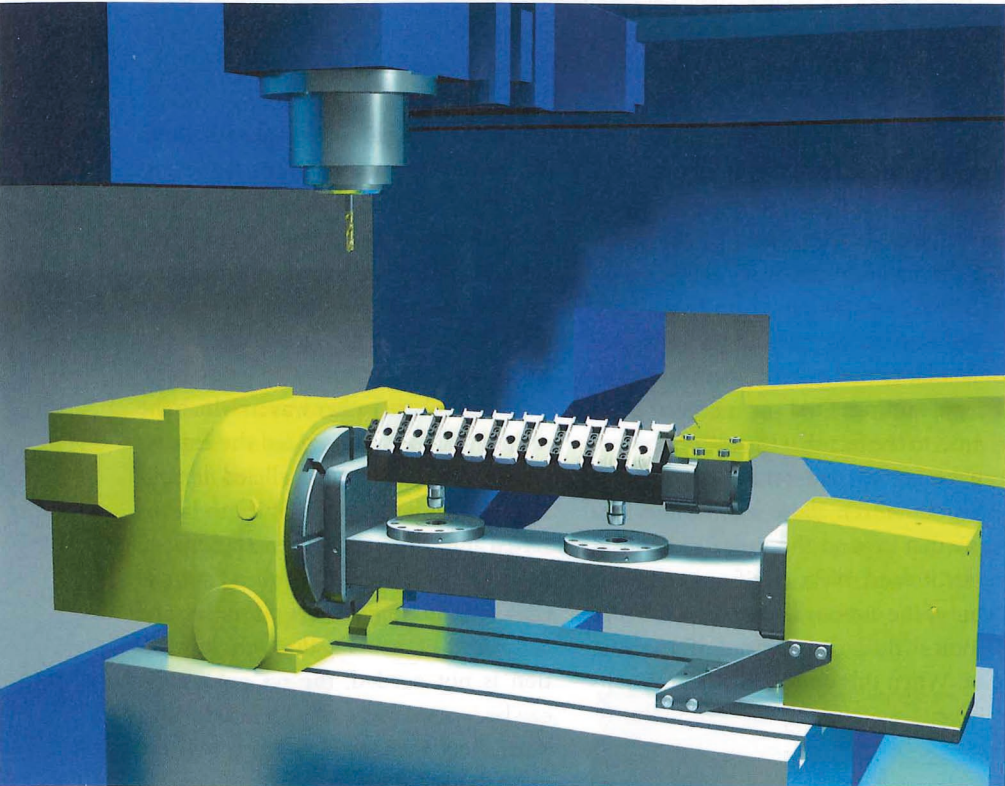




Workholding

Trusting in-house quality

When quality parts are clamped in the component production department of Tribur Invent using products from the company's own sister enterprise Triag International, this could be called a clamping system "clamping itself". And the results are impressive.



ROBIN JÄGGI

→ To allow the Swiss-based company Triag International AG to concentrate on its core field of competence, the international sale and development of high-quality clamping systems, after moving to its current location in Hünenberg, the company outsourced the production of components for its clamping systems to its sister enterprise Tribur Invent GmbH. It calls for a high level of production flexibility to enable the wide array of different clamping jaw, rail and module variants for its universal modular clamping systems, such as the power-

Clamp and microClamp series, to be made available as required with a rapid turnover. Achieving this means ensuring minimal throughput times and the greatest possible degree of productivity.

To address these demands, after moving into its new production premises, Tribur Invent invested in an automated vertical machining centre, the VP400 from the manufacturer OKK. This al-

1 Multiple clamping and automatic pallet changeover: Using clamping systems from Triag, a sister company is able to achieve productive, economical manufacture of components for the powerClamp (Photo: Triag International AG)

lows the production engineers to significantly increase the degree of unmanned operation achieved in partial areas of the plant using a chaotic component sequence. The production cell is also used to exemplify not only the clamping systems produced in-house, but also the company's own trade portfolio.

New cell used for production and demonstration purposes

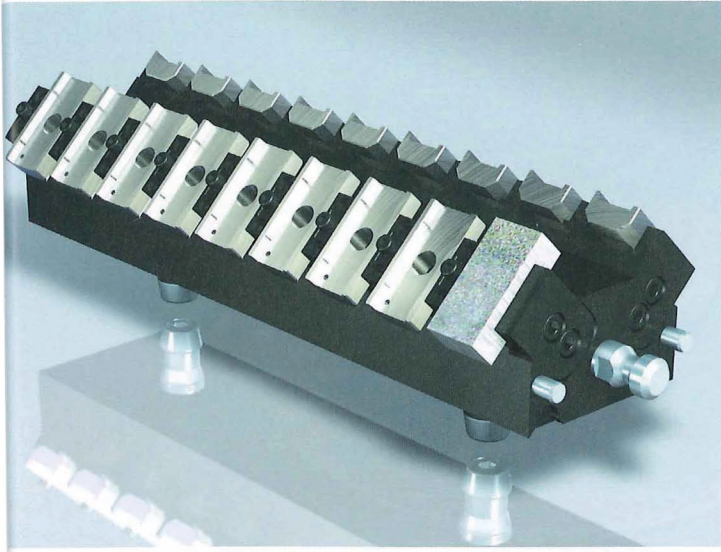
This includes tilting rotary tables from the manufacturer Nikken (4th and 5th NC axis) and automation cells from Erowa. So by working in association with partners, the company is able to demonstrate an automated production solution of interest to a large number of other potential users. The components contained in the production cell are globally available: The different manufacturers offer an impressive standard of quality alongside a competent and reliable service back-up around the world.

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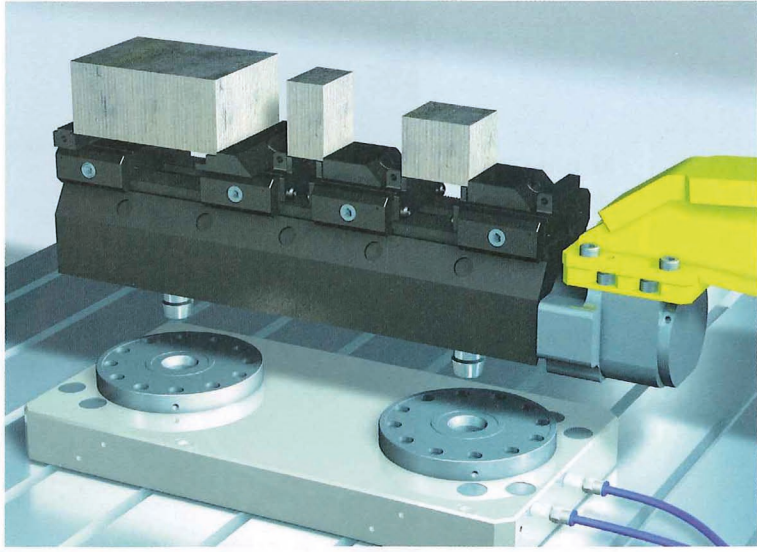
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2 Special-purpose fixture for clamping a maximum of 18 components using the universal clamping system microClamp on an automatically exchangeable pallet (Photo: Triag International AG)



3 PowerClamp modular clamping system with end and clamping modules for multiple clamping of different components in chaotic production sequence (Photo: Triag International AG)

The plant is able to exchange optional components with edge lengths of up to 100 mm made of high-strength tools steel, corrosion-resistant steel alloys and aluminium. To realize the required degree of productivity, in particular when working with smaller components, it is equipped with multiple clamps, including those from the powerClamp clamping system. These achieve multiple clamping by working in combination with the fourth NC axis to enable machining of workpieces on three sides.

The automation solution using a pallet system and an automatic pallet changer (Erowa) enables the production cell to carry on producing independently without interruption and unmanned for up to 24 hours. Thanks to flexible, universal special-purpose fixtures from Triag International, it is possible to clamp up to 18 workpieces per pallet and machine them completely in a single machining operation.

The innovative, modular clamping technology used ensures the degree of flexibility needed to fix and produce the entire component spectrum for small and large clamping modules and clamping jaws in quick succession for the sister company. The pallet store accommodates 32 pallets with clamping fixtures for multiple clamping, ensuring that the cell is provided with a sufficient supply of blanks to enable automatic production over several hours.

The minimal space requirement, large tool storage facility and high level of productivity provided by the plant made a big impression on the production team at the company Tribur Invent. The tool storage facility in particular, with its 156 tools, was one of the deciding factors in favour of opting to invest in this machine, predominantly due to the chaotic production system customarily used by the company. After all, this can only be achieved if there is a large quantity of tools available.

Compared to previous machining centres, the automatic production cell cuts throughput times per workpiece by around 30 per cent. Overall, it works up to 50 per cent more productively than the previously used solution, which was only partially automated.

As it is now able to offer customers exceptionally efficient component deliveries, Triag International considers itself to be ideally positioned to make its modular, high-quality clamping systems available to manufacturing companies around the world at short notice. The clamping modules, which are arranged in a modular 2 mm grid formation, enable a wide number of blanks and workpieces made of metal and plastic to be clamped. To help minimize set-up times, operation of the clamping modules requires only a central screw. Radial placement of the modules in any optional positions on the clamping rails is equally

simple. Here too, secure clamping is possible using a central screw.

Using quick-change clamping jaws, the clamping modules can be precisely coordinated in each case to the components and materials being fixed – for instance swivelling, self centering, serrated or smooth, hardened or soft. Direct stamping using suitably designed clamping jaw inserts helps to reduce preparatory time, minimizes the required workpiece machining allowance and so improves energy efficiency.

Suited für small batch sizes but also for series machining

The Swiss manufacturer's modular clamping systems are ideally suited for contract and piece work producers who need to machine small batch sizes and one-off components. They also lend themselves to highly productive series machining, as their facility for multiple clamping means they allow large quantities of identical workpieces to be produced within a short period of time. A particular advantage is the ability to use the modular clamping fixtures not only for multiple clamping of small components, but also for larger ones with several clamping points. ■

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