

■ Pelikan Holding AG, Germany

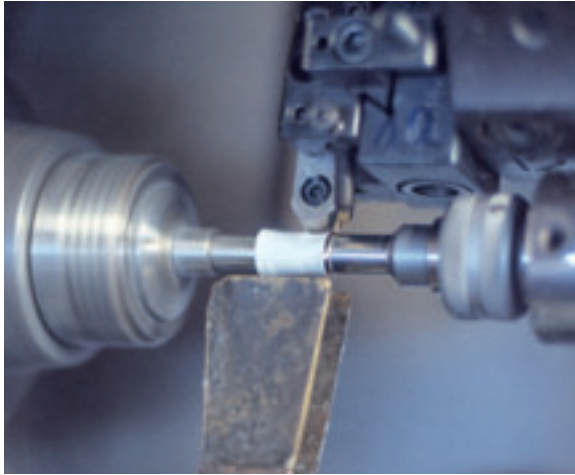
High-Tech Meets Manufacturing

How the production of series and sample parts such as high-grade writing utensils can become highly efficient, all using a single machine.



In many medium-sized companies, the same machine tools are used for both series and piece production of samples and prototypes. Alternative user interfaces and loader automation make production here more flexible and product development more profitable – as well as shortening time to market. This is illustrated by the production of Pelikan high-grade writing utensils. In Peine-Vöhrum in Lower Saxony, all production stages relevant to qual-

ity are carried out in house in a factory-like production culture. Whether a series model or a special model, observance of minuscule production tolerances is key to achieving the exclusive quality that the owner is looking for. Therefore, all important rotationally symmetrical parts are turned at Pelikan from solid metal or from prefabricated blanks. To this end, the writing utensil production facility uses Sinumerik-controlled precision lathes, includ-



Exclusive quality entails observing minuscule production tolerances – such as during contour turning (shown here)

ing ultra-precision lathes from the Spinner machine tool factory. The machine technicians are responsible for programming and optimizing the part programs, with the drawing serving as the template. The latest machine, a full-featured Spinner PD/C-SMC with ShopTurn shopfloor software as an additional user interface, is therefore a huge hit with the employees.

Change on the fly with ShopTurn

“It is like having two control systems on the machine – one for series production and one for piece production – and we can switch between the two whenever we want,” explains Ralf Drefs, Production Manager for “High-Grade Writing Utensils” and “Pens”. “For both jobs, this machine features a user interface that provides optimum support – and it permits us to change between series production and piece production on the fly.” When required, the employees prepare the program for the sample part using the contour path editor from ShopTurn alongside ongoing series production. As the shopfloor software accurately mirrors the technician’s perspective of the workpiece, tools, and machine, program creation from the drawing is achieved significantly faster than with the standard user interface. As soon as the new parts program is ready and tested in the simulation, ongoing series production is interrupted briefly for the production of the sample part. The sample can then be handed over to the development department to be checked a short time later.

Customized loaders

“We are equipping more and more machines with both additional shopfloor software for piece production and customized loaders for unmanned series production,” explains Petra Köhn, Sales Manager at Spinner. Automatic loading and unloading is not

only considerably quicker than by hand, but also gentler and safer. “With a handling module, there is no danger of damaging the sensitive surfaces of ultra-precisely turned parts through contact with the spindle workpiece holder, the tool changer, or the counter spindle,” adds Petra Köhn. “This can never be fully ruled out with manual loading and removal.” Process automation is becoming an increasingly important issue for machine manufacturers, particularly with regard to precision and ultra-precision lathes. The advantage of customized loaders over separate handling modules is that the machine and loader can be tailored as a whole to the requirements of the end customer and automated with the same control system. This results in particularly economical processing solutions by virtue of optimized process orientation, a high integration density and good performance. As Sales Manager Petra Köhn points out, this is another area in which Spinner prefers to use Sinumerik control systems: “A machine that can be simply switched between highly-streamlined series production with integrated loader to shopfloor-oriented sample and prototype production whenever required gives medium-sized companies the flexibility they need. A Sinumerik CNC equipped with ShopTurn provides the ideal support for this operating and automation concept.”

Automation increases productivity

Petra Köhn goes on to explain a further advantage of consistent automation: “Good coordination of control systems, drive controls and motors in a consistent overall system leads to higher productivity and improved lifetimes with the same rated powers. The first machine we delivered to Pelikan is still using the original motors after more than 85,000 operating hours and the motors have never needed a service. Our customers attain shorter cycle times for heavy machining with continuous control and drive technology.” CNC supplier Siemens supports flexible machine and production concepts through automation solutions that are open in both hardware and software. The openness of the man-machine interface, the PLC functionality, the NC core, and the overall system communication significantly facilitates the integration of additional modules such as loader automation, part tracking or NC program management. Installation of shopfloor-oriented user interfaces such as ShopTurn for turning or ShopMill for milling machines turns standard CNC machines into flexible multi-purpose production centers that are instrumental in helping medium-sized companies to react to market conditions. ■

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