With many innovations, the injection molding machine manufacturer, ENGEL, has emerged from Schwertberg, Austria (near Linz) as a global market leader. When equipping your production, ENGEL focuses on an optimal cost/benefit ratio. Deliberate care is taken to invest in powerful machine technology.

The INDEX R300 enables full re-feed machining as well as parallel processing with identical sequences. Both heavy-duty roughing operations and highly accurate finishing operations can be performed simultaneously on the main spindle and counter spindle. Convincing qualities. After visiting INDEX in Esslingen, and intensive discussions, the team around Gerhard Aigner developed a good deal of trust in the machine. The R300 from INDEX-Auerbach, which – like ENGEL faa – is also a system supplier. They were one of the first customers to decide on the purchase of an R300, enhanced with a Promot workspace handling system integrated into the machine. The Head of Production does not beat around the bush with the results: “Our early decision to procure this machine has paid off. It allowed us to reduce our manufacturing costs and gain ground against other suppliers.”

Reproducible signs of quality Since December 2012, the INDEX R300 has been located in mechanical manufacturing 1, where a multitude of parts are machined continuously. The spectrum stretches over numerous components of the injection side as an Engel machine. These, particularly chromium-nickel steel in most cases, that are designed to transfer forces and motions and also assume seal functions and hydraulic components. The requirements with regard to concentricity, parallelism, and surface quality are correspondingly high. To Josef Büchsenmeister, Head of Manufacturing, the investment in the R300 was a direct hit: “The INDEX machine is a perfect fit for us and our machining philosophy: it brings with it a high, reproducible base level of precision, that is the basis for being able to adhere to tolerances of 1/1000 mm with repeat accuracy in a reliable process.” The high power density, with two motorized spindle axes and work spindles each in the smallest space, also fully met his requirements. There is also automation integrated into the machine, including the 15-workpiece pallet circulating system, which made it possible to establish multi-machine operation at ENGEL. His enthusiasm also extends to the large number of tools. “The turning center that we replaced was a turn-mill machine on which we had to setup the tools with every part. With the R300, we can cut hundreds of parts without having to perform even a single tool change. This has increased the spectrum of parts enormously, and the setup times decreased considerably at the same time.”

Added to that are the fixed to the tool strips of both milling spindles, for Josef Büchsenmeister, that is an element that gives the INDEX R300 another competitive edge. “Together with our programming department, we worked out the optimal configuration for these fixed tool strips so we can easily use them to perform heavy roughing operations and internal machining on the counter spindle.” Christian Leitenberger, Head of the CAM department, is very happy with the new turn-mill center and the INDEX support: “We design our parts completely in 3D, and use the Siemens NX CAM system for programming and simulation. The simulation provides all of the important data before the part is manufactured. This brings us a step closer to production 4.0. It was important to preserve this process chain without diversions. The fact that INDEX was able to provide us with a special post processor was natural – an important argument for the INDEX R300.”

ENGEL’s programming department had to adjust to the new dual spindle machine in the process. For some parts, the cutting times had to be updated, the machining forces had to be distributed differently, and the cutting speeds had to be adjusted. The result, however, made the Head of Production, Gerhard Aigner, very happy: “We were able to reduce the machining time per part by up to 50%.”

Handing over the production machine

Gerhard Aigner, Head of Production