

Maximum precision: Unmanned and 24/7 – Kern Micro machines at Buschor

Precision, reliability and economic efficiency have the highest priority for Buschor Präzisionsmechanik AG. With 10 Kern Micro five-axis machining centres, the Swiss company has improved its performance in all three areas.



Source: Kern

Saving time and space: Kern Micro had to achieve both in Switzerland.

Werner Buschor leaves nothing to chance. In order to manufacture the high-precision parts that he primarily supplies to the optical industry as well as to the aerospace industry, the Swiss medium-sized company has aligned the entire machining process chain throughout with minimum tolerances. The entire production area is air-conditioned, raw material is always annealed 20 times at his company before machining and the manufactured components are checked by Werner Buschor and his team on a high-precision Leitz measuring machine.

Finally, the finished parts are always delivered to the customers directly to ensure that they are not damaged during transport. All this reflects the “joy of precision” that Buschor has also written into his company logo.

Werner Buschor has continuously built up this process chain since he founded his company, Buschor Präzisionsmechanik AG, in Au in eastern Switzerland in 1989. About three years ago, the trained polymechanic wanted and had to increase the process reliability of production once again. Parts with tolerances in the micrometre range were to be produced automatically and unmanned even at night and on weekends. In his search for the right machine, he came across Micro from Kern. After an intensive exchange with Kern sales technician Stephan Zeller and several visits to Eschenlohe in Upper Bavaria, he invested in the first machine.

Buschor explains: “The Kern Micro is the first milling centre that can stand up to our measuring machine, which we had purchased two years earlier. The measuring machine has a measurement

uncertainty of half a thousandth of a millimetre and the Kern Micro offers a positioning accuracy of half a thousandth of a millimetre.

The first Kern Micro was immediately connected to a 3R automation system, with the possibility of adapting a second machine. The large tool magazine with 186 tools and the reproducibility of the Kern Micro are made for autonomous production. "At last, we can produce 50 workpieces requiring the highest precision unmanned," emphasises the company owner and adds: "Only this way can we secure our marketability at our high-wage location. The empty job market is also forcing us to produce autonomously.

"Since we no longer have to stand permanently at the machine to produce good parts, we have time to take care of the other important things at the company. The other 5-axis milling centres already in place are all automated but do not achieve the necessary process stability in unmanned operation," says Buschor.

"It is a real pleasure to be able to produce high-precision parts with such a machine. When we measure, it's always amazing to see how precisely the machine works."

The thermal stability of the machine is a decisive factor for this high process reliability. Kern sales engineer Stephan Zeller explains: "Thanks to a sophisticated cooling management system, we ensure that the cooling circuits of all heat-inducing actuators are kept down to 0.2°C constantly."

In addition, the developers at the machine manufacturer in Eschenlohe attach great importance to installing many elements vibration-decoupled or vibration-damped. Patented light-metal axle beams and Kern software for permanent space compensation round off the performance spectrum of this high-tech machine.

Compact design

Another advantage for Buschor is the compact design of the Kern milling centre. According to the company boss, there was not much space left as early as 2015 when the first Kern Micro was added: "The ratio of installation area to part size is gigantic; the Kern Micro allows part sizes of up to 350 mm in diameter with a total weight of 80 to 50 kg and that on approx. 4 m²."



Source: Kern

The key to a smooth production process is quick support.

For Werner Buschor, the space-saving design has already paid off. When the flood of new orders did not stop, he was able to install a second Kern Micro at the end of 2017. The purchase of a third Micro is already in the pipeline.

The high process reliability is not only important in unmanned operation. As Buschor also manufactures prototypes in addition to the series business with batch sizes of 20 to 20,000 units, the two Kern machines are frequently used for these orders. "Especially with complex parts, it used to be a great effort," emphasises Buschor. They produced a test part, measured it, made corrections, produced another part, measured it and often corrected it again. "With the Kern Micro, the first parts already fit, which makes me fast and flexible."

Support is key

The entrepreneur's satisfaction also stems from the good co-operation with Kern Microtechnik GmbH. If there are problems, Kern offers support - this applies equally to the machine as well as to the manufacturing process.

One of Kern's decisive advantages is that, in addition to mechanical engineering, it also has its own parts production, emphasises Buschor. Thanks to the contract manufacturer in Murnau, Upper Bavaria, who are equipped with their own machines, the technicians are always up to date with the latest application technology and are available to assist customers with specific milling tasks.

With its motto, "The joy of precision", Buschor meets like-minded people at Kern. Stephan Zeller, a trained master precision mechanic himself, emphasises: "It makes me very proud that we are able to support the famous 'Swiss precision' to such an extent". In order to provide these services to customers in Switzerland, Kern has a service location near Zurich. From there, service technicians with know-how and spare parts provide assistance.

kern-microtechnik.com
wbuschor.ch

ETMM INFO

Buschor Präzisions-mechanik AG specialises in the machining of high-quality precision parts in small and medium-sized series as well as prototypes.



Source: Kern

Buschor is planning to further increase the number of Kern machines.