



PROCESS OPTIMIZATION BY CLAMPING DEVICE EXPERTS

König-mtm is one of the leading manufacturers of high-precision hydraulic and mechanical clamping devices. We design, construct and produce clamping fixtures according to the individual requirements of our customers. The Weiden-based specialist for precision components HÖR Technologie, a long-standing customer, was able to carry out an extraordinary process optimization thanks to a clamping tool from König-mtm. HÖR Technologie manufactures complete gearboxes and technically demanding individual parts such as camshafts, eccentric shafts and gear components.

Following previous, positive experiences that HÖR has had with König-mtm in the area of gear grinding, the factory manager Michael Riedl contacted the clamping device manufacturer in 2019 with an extraordinary task. The manufacturing process was to be optimized for a double-cam sliding piece, which is used in the engine of a well-known German motorcycle manufacturer. In the past, several barriers had to be overcome in the machining of this workpiece. Due to the high level of precision required, the workpiece's acceptance for final machining (cam and external cylindrical grinding) needed to be improved.

During an in-house meeting with our technical application consultant, Tobias Münch, the customer's task was discussed in greater detail, and an efficient solution for optimizing the clamping - with the aim of significantly increasing the accuracy of the machining - was sought. An important factor and challenge here, was that the large tolerance range of the workpiece must be covered with only a single clamping device. A mechanical clamping solution developed by König-mtm - the ball pressure mandrel - seemed perfectly suited for this purpose. After initial concerns about stability and accuracy, we were able to convince our customer of our clamping device and start the project together.

With the aid of the mechanical ball pressure mandrel, the double cam slider is centered at two clamping points in the pitch circle of the spline, which is essential for the adjusting mechanism of the camshaft. For this purpose, the workpiece is first positioned on the Königdorn® outside the machine. The two clamping points are then expanded independently of each other by screwing in the actuating screw by hand. In this way, the double-cam slider is ideally aligned with the reference teeth, which are later relevant for the function in the assembled position. Now that the workpiece has been securely clamped, the hard and fine machining can begin.

After design, manufacturing and final testing, König-mtm put the clamping device into operation at the gearbox manufacturer HÖR Technologie. Both parties were excitedly awaiting the first tests of the Königdorn® at the customer's site. The customer's machine was prepared for use of the clamping device, and the first workpieces could be clamped and machined.

The simple and pleasant handling of the new clamping mandrel was already apparent during operation. After the first measurements on the measuring machine, the clear increases in runout quality were immediately realized.

Now that the new clamping mandrel has been in use at HÖR Technologie for two years, the advantages of the optimized clamping process are becoming fully apparent. Due to the significant increase in quality during finishing and the resulting reduction in the number of rejects, the required quantity of pre-machining parts has been drastically reduced. In addition, the optimization significantly improved the handling of the double cam slider. This example shows clearly that improvements can often be achieved in running processes by optimizing the clamping device. These investigations can reduce manufacturing costs and increase process reliability. As shown in this case, König-mtm is always dedicated to improve the processes together with the customer.

Our Application Engineers are available for you and will be happy to advise you.



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