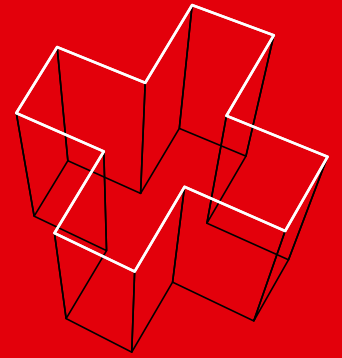


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REISHAUER

Circle of Competence



Making Generating Gear Grinding Transparent

Cars, aircraft, and industrial machinery all require high-accuracy gears for their transmissions. Worldwide, Reishauer gear grinding machines play a significant role in the manufacturing process of grinding gears used in such transmissions. Demands placed on these transmissions include the reliable transfer of high torque and power density, low weight, and minimal noise emissions.

Modern thinking no longer considers the machine tool, the tooling, and the process as separate entities. Hence, Reishauer's cornerstone is its Cir-

cle of Competence. This concept encompasses more than just the manufacture of sophisticated machine tools. The company also produces – all in Switzerland – its tooling such as grinding wheels, workholding, and diamond dressing rolls. In this way, Reishauer can guarantee that all elements of the grinding process – the machine and the tooling – are entirely under control. Furthermore, Reishauer builds its material handling solutions to specific customer needs.

Until recently, the focus in the machine tool industry has been

on “things physical,” such as machine tools and tooling. While these are still very important, Reishauer has expanded its focus, in view with the Internet of Things (IoT), to make the process itself transparent and fully controllable. Hence, Reishauer has created its process and component monitoring system called ARGUS.



ARGUS Process Monitoring



Process Monitoring and Component Monitoring

Reishauer's process monitoring system ARGUS gives it unmatched insight into the grinding process. For this reason, Reishauer can now characterize and monitor generating grinding – from workpiece to workpiece, with the aim of zero-defect manufacturing. Monitoring is not limited to workpieces. Automatic testing cycle measure and evaluate the machine tool itself. As the machine and the process have become more transparent, describing gear grinding as a "black box process" is no longer valid.

Process monitoring: The dressing and grinding intensities are measured and monitored by smart real-time data processing and tested algorithms. For each workpiece, all data generated during dressing and grinding are recorded and stored in a database and remain 100% traceable and make zero-defect manufacturing possible. Using the stored process and tooling data, including workpiece identification via DMC, offers the means of comprehensive analysis. Due to process interaction, and using

preset evaluation limits, workpieces that exceed or fall short of these limits are automatically removed.

Component monitoring: Recurring automatic testing cycles measure and evaluate all the relevant grinding machine axes involved in the process, and thus enables early detection of electro-mechanical deviations. Maintenance becomes predictable, and the costs are optimized both in terms of planning and diagnosis, and potential EOL anomalies may be avoided.

Reishauer AG, Switzerland

reishauer.com | info@reishauer.com

+ 41 44 832 22 11

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Gear Grinding Technology