



Tool grinding machine for circular saws with integrated automation

Based in the Swiss town of Seengen, tool manufacturer Alesa has produced tools for the metalworking industry for more than 80 years. Development of the Denta Combi 160 grinding machine drew on the expertise amassed in the course of this longstanding tradition. The machine is used to tooth and chamfer HSS and solid carbide circular saws with a diameter of up to 160 mm.

For some years now, EGS Automatisierungstechnik has supplied Alesa with automation systems for its own in-house tool production. As there was no suitable machine on the market to perform this task, Alesa decided to develop its own and put it on the market. The newly developed machine was to be equipped with automation integrated from the outset in order to ensure that customers and users would benefit from optimum capacity utilization. Since Alesa was pleased with its in-house production, EGS was tasked with developing the automation solution.

The Alesa Denta Combi 160 is a tool grinding machine for circular saws with a diameter of up to 160 mm. One of the outstanding features is that quality and results are consistently good, even when the machine is operated unmanned for 24 hours. What is more, the compact design of the grinding machine allows automated toothing of circular saws with a diameter as small as 40 mm.

In order to optimize utilization of the machine it is equipped with an automatic loading and unloading system. Handling of the unmachined and finished parts is carried out by a 6-axis robot made by Yaskawa Motoman. The ultra-compact automation is integrated in the machine, so the customer has complete peace of mind in terms of interfaces.

Moreover, the door to the machining chamber is fully accessible to the operator, as the robot loads and unloads the parts via a separate loading chamber. The unmachined and finished parts are stockpiled on two pallets in the robotic cell.

Finished parts can be removed and new blanks loaded at any time during machining. The blanks are reliably separated by a specially developed gripper tool and precisely positioned in the clamping fixture of the machine. The flexible and universal jointed-arm robot enables simple conversion to workpieces of different diameters.



The relatively long machining time of the workpieces – 3 to 5 minutes – does not place any great demands on the speed of the robot and the cycle time of the automation. In this case, the automation enables unmanned operation of the machine and, above all, optimum capacity utilization. This is because the system ensures that the finished part is removed directly on completion of the machining operation and a new unmachined part is loaded, thereby preventing unproductive waiting times.

The small dimensions of the automation with integrated controller contribute to the compact size of the overall system. The Alesa team is highly satisfied with the concept.

Christoph Leimgruber, CEO of Alesa AG, says: "We have repeatedly had occasion in the past to appreciate the solutions and expertise provided by EGS Automatisierungstechnik, so we had no hesitation in equipping our own DENTA COMBI 160 grinding machine with an EGS system. Cooperation between our companies functions very smoothly and once again we were able to implement all our ideas."



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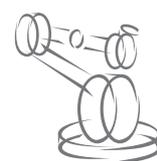
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