



Fully automatic KKS 401 NA circular saw machine with infeed magazine and segment distribution system.

Fully Automatic Circular Sawing Machine for Multiple Front Cuts

Kaltenbach, a machine manufacturer located in southern Germany, has developed the universal, easy-to-use KKS 401 NA circular sawing machine to handle fully automatic sawing procedures. It is best suited for processing flat, angled, or large material as well as pipes and special profiles.

Several different magazines are available on this machine to hold the material and to feed it into the machine. The material is automatically transported over a roller track from the magazine to the saw's mechanical cutting area. The material supply gripper is precisely positioned electromechanically using ball spindles and servo drives. A photosensitive relay is used to detect the rest of the segment. To avoid the deformation of thin-walled profiles, the clamping pressure of the supply and cutting grippers can be configured individually using reduction valves.

When the controller software was being developed, special emphasis was placed on creating a simple and fast program as well as a clear user interface. The KKS 401 NA can be programmed either from an office over a network or by the operator directly at the machine.

The Windows-based CNC controller with an Industrial PC and flat touch screen was designed by the leading controller manufacturer B&R and combines the most modern technology with exceptional user-friendliness. Entering data using the graphical interface is as simple as possible, even

when dealing with complex sawing tasks. Instead of long program code, there is a symbolic representation of the segments to be sawed with input fields for entering the cutting length and angle as well as the sorting position. Once the program values have been entered, the part to be sawed is displayed along with a progress indicator for the current process. Optional features include expandable material and parts databases. A saw component can be stored in the parts database (with ID number, alternate, length, and cutting angle) and then called up again later. Sets of parts can also be saved in programs and called up later. Storage capacity can be expanded by saving the data to the hard disk as CSV files.



Proficut – the graphical user interface for the KKS 401 NA.

Raw material can be saved in the materials database under a Material ID number (Material ID number, DIN number, type of material, material width/height, wall thickness, cut, and segment length).

can be mounted quickly and easily to reduce the length of the remains when cutting evenly. A heavy sawing drive with hardened, refined helix-toothed gearwheels makes sure that the engine

parts can be distributed to 3 preset positions on a removal cross-table. Longer segments are pushed onto a removal conveyor belt with chains. The removal positions can also be preselected.



We used the first B&R controllers on a newly developed series of band sawing machines for the steel industry. Since then, almost every successive Kaltenbach machine and system has been converted to use B&R controllers. Not long ago, we began installing PCs, ACOPOS controllers and servo motors from B&R in our more complex machines. Around 10 of our developers program B&R controllers the majority of the time, and 12-15 service technicians are familiar with the software. They all profit from the good support provided by B&R Heilbronn, including the small issues that occur daily.

Gerhard Strobel, Department Manager – Electronic Development.

This reduces programming and setup times to a minimum. Complete sawing tasks (even with varying profile types and qualities) can be programmed and managed using a task number in the task management module.

Depending on the material's dimensions, the machine automatically cal-

culates the optimal infeed and cutting speeds using the DIN number or the materials group. Short, efficient sawing times are the result of the automatic cut deviation calculated from the cross-section of the material and the sawing angles. Segment, piece and filling-oriented functions are available to minimize waste and to handle special sawing tasks. The KKS 401 NA saw can also make up to two additional cuts on the front side of the rectangular profile forms. The gussets which crop up are then automatically disposed of.

A cutting gripper with a distributing system is provided to automatically sort first cuts/remains and the segments to be cut. The cut gripper hand-

les two tasks at the same time: First, it stretches the segment during the cut and, second, it handles the segment's delivery out of the sawing area. Small



"We have been working with Kaltenbach for eight years now. During this time, projects have moved from very small individual machines to today's highly complex systems. For this reason, the software developers at Kaltenbach place a high degree of trust in B&R technology. Programming support is now only needed when they have questions about details."

Volker Laukhuf, B&R Industrie-Elektronik GmbH, Heilbronn.

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Positioning the rotating table is CNC-controlled according to the input of the cutting angle in the sawing program. Angled cuts from 30 degrees to the left to 30 degrees to the right are possible. A special stop plate and spring catch

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Hans Kaltenbach Maschinenfabrik GmbH & Co. KG was established over a hundred years ago. With 12 subsidiaries and a workforce of 420 employees, they have become a leading international manufacturer of sawing machines for steel, aluminum, and other NE metals. In addition to more than 100 sales engineers and customer representatives in over 20 countries, a tight network of national and international service centers guarantees fast availability and close customer care. In particular, the strength of Kaltenbach's machines lies in their solid, well-engineered construction.

www.kaltenbach.de