

Modern Motion Control Solutions in Practice



The Challenge

Stone wool is the material of choice for best results concerning thermal insulation, energy saving, and fire protection.

Production plants melt the stone, swirl the glowing material, and press it into mats. An endless flow of stone-based fiber mat then cools down on long conveyor belts. The soft fiber mat "ribbon" must finally be cut to the customer-specific product lengths directly on the moving conveyor belt.

The Solution

The endless flow of cooled and pressed "ribbon" on the conveyor belt is cut into single mats by "flying saws". The two sawing units are placed on transverse travelling gears. The whole unit is accelerated on a linear guide parallel to the conveyor belt until the speed is synchronized with the conveyor belt and the position of the saw blade corresponds to the requested fiber mat length. The linear speed of the sawing unit is controlled and adjusted every millisecond to match the speed of the conveyor belt during the sawing process. This guarantees that the soft material is not compressed or stretched by the saw blade. The result is a perfect linear cut without any fraying and it is done independently of any changes in the speed of the material flow. As soon as the complete material width is cut, the movement of the sawing unit on the linear guide is decelerated, reversed, and moved back into its starting position.

CAM profiles, which are calculated by the control unit, represent the motion phases such as acceleration, synchronized movement, and deceleration of the linear guide. The two sawing units are used alternately to achieve maximum system performance. One unit moves back to its starting position while the other one does the next cut.

One MACS motion control module from zub AG calculates the CAM motion profiles of the flying saws and controls the motor movements of the linear guides synchronized to any speed variation of the conveyor belt. An additional task of the MACS control unit is the adjustment and positioning of the dust suction hoods that depend on the material thickness.

The Conclusion

Even complex process tasks seem to be simple in the end if the right product is combined with a highly efficient engineering service that understands the application's demands.

Application videos and further product information:

- Video links of a "flying saw" controlled by a MACS motion control unit:
[Flying saw by Pamag Engineering AG](#)
- Links offering further information on zub's motion control products:
[Animation of a flying saw](#) / [MACS5 press release](#) / [MACS5 data sheet](#)

Your Partner

zub machine control AG provides highly sophisticated motion control modules and software for drive positioning and synchronization.

The MACS motion control modules are the intelligent link in between the PLC or PC and the drive unit. Standardized hardware and software interfaces combined with free programmability offer maximum compatibility without any limitation for the integration of application-specific features and add-ons.

zub AG offers supplementary consulting and engineering services to assist their customers in a very focused and most efficient way.

Take the opportunity to reduce your time to market, your development costs, and your risks. Count on a partner like zub AG, who provides products and engineering services focused on highly-sophisticated but still cost-optimized motion control solutions.

We are happy to accept your challenge. Please [contact](#) us for an initial discussion.

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