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How to cut AAC production costs

High quality AAC, smoothly cut cakes and ideal mixing ratios. There is a variety of challenges that a plant owner is facing in the AAC production process. Wehrhahn has already addressed many of these points in previous publications. In this article, the focus is on reducing production costs. In general, production costs can be divided into five different categories. These include personnel, packaging and operating supply, as well as raw materials and energy costs.Raw material costs are the number one cost driver of production costs, with energy costs in second place. At 40 to 70% of production costs, a review of raw material and energy cost drivers can pay off and lead to immediate savings in consumption.

The dosing and mixing system can be monitored on screen by the workers.

After the calculation, exact dosing takes place in the mixing tower.

Raw Materials

For autoclaved aerated concrete, sand, cement, water and lime are the main ingredients. Renegotiation purchase prices or conditions can be a start. However, when considering a change of raw material suppliers, it is generally advisable to pay close attention to the quality and composition of the materials, as the cake recipe may need to be adapted, in order to continue producing high quality AAC products.

In the production process, resource-saving usage of raw materials is vital for reducing raw material costs. Therefore, only continuous and precise dosing of raw materials facilitates homogenous cake quality and raw material waste can be reduced to a minimum. For this process, it is advised to use an automated dosing and mixing system, such as the Wehrhahn Dosing and Mixing Control System. The self-learning dosing optimisation system has exceptional accuracy and can completely avoid over- and underdosing. It automatically adjusts a recipe according to occurring variations of raw material qualities and densities. Continuous measurement of raw material temperatures enable the system to add hot or cold water as needed, to achieve the desired mixer output temperature and cutting temperature.

It is designed to work in a resource-saving way, by not producing any process related system waste. All cut-offs are immediately recycled in the plant and returned as “return slurry” to the dosing and mixing area. Hard scrap is also considered as a valuable raw material and can be used in the mix. The dosing and mixing system calculates the exact amount of hard scrap that is re-entered into the process and then adjusts the mixing formula accordingly. High-quality cakes are always the result. In addition, condensate from the autoclave process can be recycled and then entered back into the production cycle.

The energy management system notifies the workers of unnecessary energy consumers, such as leakages in valves.

Energy Costs

Energy costs have risen steadily in recent years and are expected to continue to do so in the future. In addition, environmental awareness and energy regulations are becoming more stringent. With energy costs being the second highest cost driver, monitoring and reducing the energy consumption in the plant is of high importance. Therefore, the traceability of the consumption is essential, to find cost drivers. Measures that quickly lead to substantial savings are required. For this, an automated energy management system can provide a consumption overview. In short-intervals, the system measures the electric energy consumption in each sector. However, in difference to conventional energy management systems, the Wehrhahn Energy Management System is based on a holistic view of the entire plant. It shows measurable potential for savings in all divisions of the company, not just the production line. Energy consumption data of office buildings, as well as lighting and heating sections are taken into account.

Unexpected rising of energy consumption, for example due to leakage of pneumatic pipes is immediately detected by the energy management system. Unnecessary running times are also avoided, as the intelligent system identifies and switches off consumers that are not continuously needed. Up to 25% of energy consumption in these consumers can be saved this way. Also, a temperature controlled precuring section keeps the cake warm and avoids heat loss in that area. This optimises and stabilises the precuring process and allows to make use of raw materials in the most feasible way.

The key to the reduction of production costs lies in transparency and precision. Only if raw materials are being dosed accurately, consistent high quality can be guaranteed and process waste is avoided.

The transparency of energy consumption leads to more efficient energy usage and enables plant managers to directly influence the technical workflows of the plant, in order to facilitate additional savings.

Automation and coordination of machines optimise the production process to enable high product quality and low consumption of raw materials and energy.

You can see a presentation about this topic presented by Volker Krick, Sales Manager with Wehrhahn at the ICCX digital 365. The registration is free of charge and you can benefit from many other valuable presentations about AAC technology.

https://iccx.org/digital-365/visitor-registration

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