

Staying at the top as one of Romania's leading building materials players

Industry leaders are companies that set themselves apart from the competition. They are innovative, agile and proficient in providing high-quality products and solutions to their clients at all times. Becoming an industry leader certainly is not easy, but staying at the top is even harder and requires an ongoing focus on product quality and production efficiency. This article uncovers the details of two recent projects at CELCO, one of the leading building materials producers in Romania, who engaged Aircrete Europe for these upgrade projects in 2020.

The Romanian construction industry is growing and expanded with nearly 20% in 2019, driven by public and private sector investments in both building and civil engineering works. Despite the disruptions caused by the pandemic, growth in the sector is expected to continue, supported by the government's focus on developing the country's infrastructure, as per the National Plan for Investment and Economic Recovery, announced in July 2020. Under this new model of sustainable development, the industry is expected to grow at an annual average rate of 3.7% between 2021-2024 [1]. In addition, the share of AAC market growth is expected to be even higher, as green and sustainable construction is becoming an

important topic in the Romanian construction industry. A great example of this is the milestone of more than 250 building and real estate projects in Romania being declared as 'green buildings' in the beginning of 2020, according to international sustainable schemes BREEM, LEED, EDGE and WELL [2].

Founded in 1973, the Constanta-based AAC producer Celco, is an important player in this growing market because AAC blocks have a bigger share over clay bricks as the choice of wall building solution in Romania. Celco is one of the premium quality suppliers of AAC blocks and their target for the future is to remain so. (Fig. 1).

Fig. 1: Located in the city of Constanta near Black Sea, Celco has an annual production capacity of 400,000 m³





Fig. 2: Celco developed and implemented The Quality, Environmental and Occupational Health and Safety Management System

The plant from origin is operating on flat-cake cutting technology and is a well-maintained Hebel plant with a production capacity of 1,500 m³/day. The company holds ISO 9001:2015, ISO 14001:2015, OHSAS 18001:2007 certificates and for the management and operations team lean production is a top priority. (Fig. 2)

Ion Secareanu, General Director, CELCO S.A. states:

"In order to be a reliable supplier to our customers, reliability, efficiency and quality of our equipment is a core element in our strategy. For these projects we therefore engaged Aircrete Europe as the flat-cake technology specialist. In addition, their reputation of executing complex projects with limited downtime was a decisive factor as well. We are very satisfied with the end results."

With a strong track record in realizing customized projects for Hebel and other flat-cake plants around the world, Aircrete Europe was engaged by Celco to improve the quality of the products and efficiency of the production process. Although all Hebel plants are based on the flat-cake (cutting) technology, no plant is identical in design and operations; therefore each project requires a tailor-made approach. The following will elaborate the results of the improvements on the cutting machine and packing line at Celco performed in 2020.

A cutting table solution with retractable lamellas

To improve the product quality to a next level and increase the production output efficiency, Celco decided to implement an upgrade of their existing cutting machine. With this new solution, Aircrete Europe designed a new bridge with moving (retractable) lamellas to be installed on the existing cutting line.

After the installation and commissioning, as the blocks over the entire cake are now compacted, the corners of the blocks do not break during the cutting phase. Additionally, the accuracy of the blocks, which were already good, has increased even more. This is mainly because the blocks, especially in the middle of the cake, stay much more stable during vertical cutting.

As well as the above improvements, a full revision of the cutting line was performed within the project delivery. As a result, the new system minimizes the risk of sticking as the blocks remain separated before autoclaving.

A packing area solution with a tilting table and a cross conveyor

In line with their growth objectives, Celco also implemented a packing area solution on their existing packing line. Developed by Aircrete Europe, with the upgrade of the new tilting table and cross conveyor (Fig. 3) in the packing area, Celco is now capable of handling different types of pallets depending on their needs, bringing in extra flexibility and efficiency in transportation.

At the moment, the blocks from the unloading line can be packed on their edges as well as on their larger surfaces by titling 90° (Fig. 4). The special designed hydraulic system holds the angle of both sides of the tilting table exactly at 90° making sure that the blocks do not slide during tilting. This avoids broken corners and packs look nice and straight after tilting. When the blocks are tilted and then packed, the number of broken edges during handling and transport are reduced because of having a larger surface between the block and the pallet. Besides, the blocks stand more stable on the pallet. Tilting also provides an option to perform an inspection check on the bottom side of the blocks.

Focusing on project delivery during COVID-19 – Adapting to the new normal

Aircrete Europe has been delivering turn-key plant solutions, upgrades, modernizations and maintenance to AAC plants for many years. Good planning, clear communication and agility has always created a solid basis to execute projects as agreed with their customers. The pandemic, with all country-specific measures and regulations which are a subject to changes overnight, have taken project execution management challenges to another level within this specific project.

Anticipating these extra uncertainties, and keeping the factory downtime at the minimum level, both projects were installed and commissioned at the same time. In addition, a careful pre-installation, testing and a precise alignment phase in the Netherlands was executed before shipment to Celco in Romania. Then, a thorough planned and well-executed trans-



Fig. 3: The blocks are tilted 90° in order to stack them on the pallets on their larger surfaces



Fig. 4: The pallets are transported to the foiling machine one by one automatically

portation of the equipment and formation of a fluid team structure consisting of multi-skilled technicians and engineers from both parties was followed.

With these new upgrades, Celco is well-positioned to remain one of Romania's premium suppliers of building materials and capitalize the future growth in the AAC market.

About Celco [3]

Celco is one the leading producers of AAC in Romania, with a history of producing construction materials for almost 50 years. Over time, the company has continuously invested in its plant and product quality, aiming to accommodate the needs of increasingly diversified clients. Their production line has been optimized bringing the plant to its full capacity of over 400,000 cubic meters per year.

Celco's long-term objective is to build a better future for next generations by creating sustainable construction solutions. Currently, Celco produces AAC blocks with a heat transfer coefficient of $\lambda = 0.10 \text{ W/mK}$. The company also launched a new product, Izomineal, that are mineral plates for the natural insulation of concrete structures and masonry.

Having invested in a unique mix of plants, Celco has united under one name the production capacities of 5 sectors, all located in Constanta: AAC production, production of adhesives and dry mortars, lime manufacture, sand and limestone quarrying operations. This diversification allows Celco to have full control over raw materials entering the production of AAC, thus ultimately guaranteeing the quality of the final product.

References

- [1] "Construction in Romania - Key Trends and Opportunities to 2024", June 2020, Research and Markets
- [2] "Romania exceeds the threshold of 250 green buildings", February 2020, Business Review – Where Romania talks business
- [3] Building the future – CELCO products



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