

Masa GmbH, 56626 Andernach, Germany

Automated precision at Cleannox in Spain

With a new Masa Cuboter, Spanish paver manufacturer Cleannox - Prefabricados de La Jara S.L. has taken a decisive step towards more efficient and reliable packaging of its end products. The modern solution replaces the previous stacking system to create the paver packages, eliminates central bottlenecks in the production process and impresses with precise motion control, high energy efficiency and a well-thought-out safety concept - precisely tailored to the requirements on site.

In summer 2019, Cleannox extensively modernised its production facility in Villanueva de la Jara, Spain. At that time, Masa supplied a fully automatic L 9.1 block and paver making machine including production board feed, hydraulic desk, multi-colour device and the corresponding safety installation (see also CPI 03/2020). The new ring plant was supplied by a local machine manufacturer, while the existing dosing and mixing plant continues to be used.

The Masa L 9.1 has proven to be extremely efficient and reliable in Cleannox's production, much to the satisfaction of owner Alfredo Cebrián. His company has experienced continuous growth, mainly due to the increasing demand for its products. However, this success has also brought new operational challenges. In particular, a significant bottleneck was emerging in the area of paver layer stacking, a central step in the production process.

The cubing plant used so far for stacking the paver layers had served its purpose for a certain time, but was showing increasing signs of ageing. Its limited capacity and the increasing number of breakdowns led to noticeable losses in efficiency, unplanned downtime and delivery delays.

Against this backdrop and after carefully examining various systems available on the market, Alfredo Cebrián decided to reorient his technology in this section. Based on his positive experience with the Masa block and paver making machine, he once again chose Masa.

The new solution was to not only work more efficiently, but also offer greater process reliability and reduce maintenance costs.



Put to the test: the previous cubing plant

Investing in efficiency: The Masa Cuboter as a new cubing solution

The central element of the comprehensive replacement investment is the Masa Cuboter, a high-performance cubing machine supplemented by modern safety technology and a completely new control system.

After the old plant was dismantled by the customer, Masa delivered the fully servo-electric Cuboter. This is already designed in the standard version for product layers with lifting weights of up to 700 kg and product heights of up to 500 mm.

With the commissioning of the Masa Cuboter, Cleannox now benefits from a wide range of powerful features and functions that significantly increase efficiency, flexibility and process reliability in automated cubing:

- **Versatile clamping functions:** The clamping basket with main and side clamp is driven by two electric servo cylinders. Clamping programmes and their sequences can be stored in the recipe memory for each specific product.
- **Stable grabbing process:** The Cuboter grabs the paver layers powerfully so that they remain stable during transfer from the production board to the transport pallet. Interchangeable, product-specific clamping rails ensure optimum adaptation to different product types.
- **Precise cube creation:** The fully automatic creation of the complete paver cube from the individual paver layers is particularly accurate. This ensures that the paver cube is optimally prepared for the subsequent stations, where it is further processed for transport – for example, by strapping, foiling or other packaging steps.
- **Individual turning device positioning:** The turning device is positioned via a tabular input in the recipe. Individual positioning is possible for different products. Additional functions such as centring or offset programmes can also be stored in the recipe in tabular form. The use of toothed belt drives for the lifting and travelling gear enables precise power transmission and high positioning accuracy.



Installation of the new Masa Cuboter

masa GreyHUB

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You want to optimise the use of resources but your building material customers only accept minimal tolerances in product quality.

“My milestone is a discerning eye in your running production.”

Björn Herborn, R&D Department
Masa GreyHUB, Andernach



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At Masa, we think of nothing but concrete – and how to shape it for the building materials industry. The machines we design and build are used for the production of concrete blocks, pavers or landscaping products, aerated concrete blocks and (reinforced) panels as well as sand-lime bricks. In other words, **we are real concrete heads with a passion for reliable, high-performance machines.**

NEW Masa Optical Quality Control System

Björn, one of our clever concrete heads, has developed a tool for paver production lines that provides precise information about the quality of the ongoing production. On the wet side, the system measures products, identifies defects such as cracks, liftings or cement balls and helps you to reduce waste. **When it comes to precise 24/7 inline defect detection and resource savings – just ask the concrete heads.**

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Powerful and versatile: Masa clamping basket and turning device

- **Optimised motion control:** The kinematic control calculates precise travel curves and enables time- and jerk-optimised bypassing of interfering edges. As a result, the Cuboter always moves along the most efficient path to the respective pick-up or set-down positions. This leads to short cycle times and high process stability. The dynamic, harmonious movements of the Cuboter ensure that cubes are created without damaging the products.

In addition to the process-related functions, Cleannox now also benefits from other technical features of the Masa Cuboter that are specifically designed for energy efficiency, ease of maintenance and high system availability:

- **Energy-efficient movement:** The Masa Cuboter offers a high degree of energy efficiency by converting braking energy into acceleration energy. The Cuboter also reduces energy consumption by automatically selecting the optimal travel path.
- **Low-noise, low-maintenance drive:** The use of toothed belts for the travelling and lifting gear ensures low-noise operation and minimises maintenance requirements. In contrast to chain drives, no elongation occurs and lubrication is not required.



Efficient in every respect: The Masa Cuboter with safe access options

- **Safe maintenance platform:** Masa supplied the Cuboter with a robust maintenance platform installed at track level. This platform provides safe and ergonomic access to components of the Cuboter. This considerably simplifies maintenance and inspection work, increases work safety and improves the efficiency of maintenance. Regular maintenance and the early detection and rectification of signs of wear are thus supported – a significant contribution to maximising plant availability and extending the service life of the Cuboter.

The entire cubing process – from removing and transferring the paver layers to creating the paver cubes – is now harmonised with the cycle times of the block and paver making machine and the variety of products. "Our production line now runs much more smoothly, faster and more continuously. This strategic investment helps us to respond even more efficiently to our customers' needs. In addition, our team can now concentrate on the essential tasks in production, while the cubing process runs automatically, precisely and without disruption," explains Alfredo Cebrián, owner of Cleannox.

Safety rethought

The safety concept of the previous cubing plant at Cleannox required that the entire dry side come to an immediate standstill when the safety-relevant area was entered. For Cleannox, it was therefore clear that the new cubing solution should not only meet high safety standards, but also be significantly more flexible and practical.

Masa has an experienced, interdisciplinary team that has specialised for years in the development, planning and implementation of plant-specific safety concepts for block and paver production plants. The proven Masa safety concept divides each plant into several spatially separated zones.



The Masa Safety Concept – reliable protection for operating personnel with very high system availability

This allows targeted access to individual plant components while operations continue in other areas – a decisive advantage for productivity and plant availability.

The safety installation for the new Cuboter was defined in close consultation between the Masa team and the customer. The aim was to create a system that both meets Masa's high safety standards and ensures user-friendly operation.

A safety zone was defined for the delivered Cuboter, consisting of safety gratings, light barriers, access doors and an ascent barrier.

The programming of the Cuboter control takes safety functions into account. Before access to the safety area is granted and when the emergency stop is triggered, the control system moves the Cuboter to a safe position in a controlled manner. This also enables a controlled restart.

A key transfer system ensures that the critical safety areas are secured with keys that are mechanically locked or released against each other according to a predetermined sequence.

In addition, 'Lockout-Tagout' maintenance safety devices ensure that no unauthorised access or unintentional restarting of the system can occur during maintenance work.

The next step is already in sight

With the Masa Cuboter, Cleannox has taken a significant step towards future-oriented, automated production. The combination of technical precision, high energy efficiency and a well-thought-out safety concept impresses in daily operation.

Alfredo Cebrián is highly satisfied with the collaboration and the results achieved: "This investment underlines our commitment to innovation, continuous improvement and excellent service – key building factors for sustainable success and the creation of added value in an increasingly competitive market."

The focus is already on the future: "We are open to further discussions with Masa with a view to equipping other areas of our plant with reliable technology from Masa." ■



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FURTHER INFORMATION

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