

Masa GmbH, 56626 Andernach, Germany

Set accents – without compromise: solutions for the production of multi-colored products

A distinguished and unique color blend contributes significantly to the character of concrete blocks. Masa multi-color systems are a tool for manufacturing these products and adding them into your product portfolio. The systems range from Easy compact solutions, to Premium versions with sophisticated technology to feed the block machine with complex color blends repeatedly and assuredly. Specialty mixers and auxiliary equipment for the block making machine are also available to further accentuate the look of the finished products.

Multi-color system Easy

The multi-color system Easy is the compact version of a Masa coloring system. The device is mounted directly on the machine silo of the block making machine. The operation of this device is almost identical in both the main mix and the face mix concrete filling units.

The concrete is deposited in several layers on the closed slide with the weight continuously being monitored via load cells. This can be called upon at any time via the visualization. The slide then opens gradually causing the concrete to fall in a randomized manner creating the color blend.

Control and visualization

The control of the multi-color system Easy is directly integrated into the recipe management system of the products. Here the opening width of the slide can be defined for all five positions and the delay time between the individual movements of the slide can be set. These two parameters have a significant influence on the final appearance of the multi-colored product. All processes are displayed in the visualization of the block making machine using the latest generation of visualization Live Motion.

Multi-color system Premium

The patented premium system accurately coordinates blends to enable the replication of highly varied color combinations repeatedly and assuredly. It can be used for blending the colors of both the main mix and face mix concrete. The system essentially consists of two assemblies: the silo unit with a swiveling dosing belt and the collection belt.



Hydraulic version for the block making machines of the XL series



Electric version for the L-series block making machines

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Masa covers the complete range of machinery and ancillary equipment for the building materials industry: Batching and Mixing, Concrete Blocks/Pavers, Kerbstones, Concrete Slabs, Sand Lime Bricks and Autoclaved Aerated Concrete (AAC) Products.

All technical solutions are individually planned, designed, adapted and realised for each customer, resulting in one supplier and one individual contact person.

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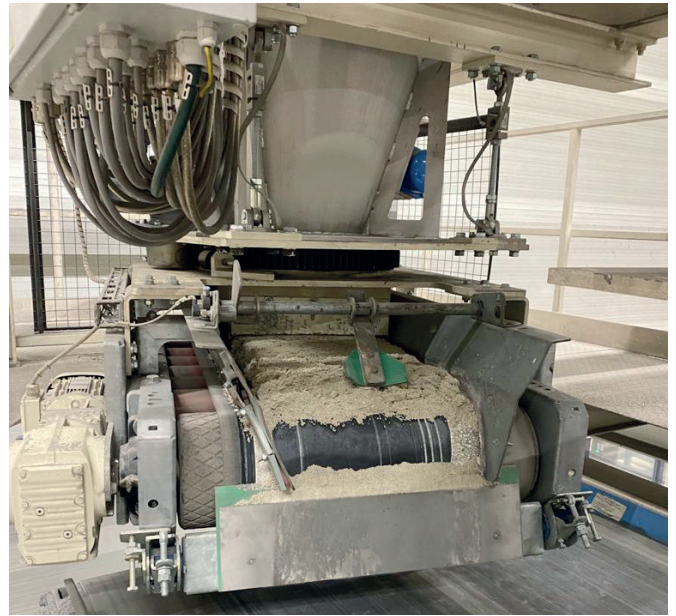
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The patented Masa Multi-color system Premium

Silo unit with swiveling dosing belt

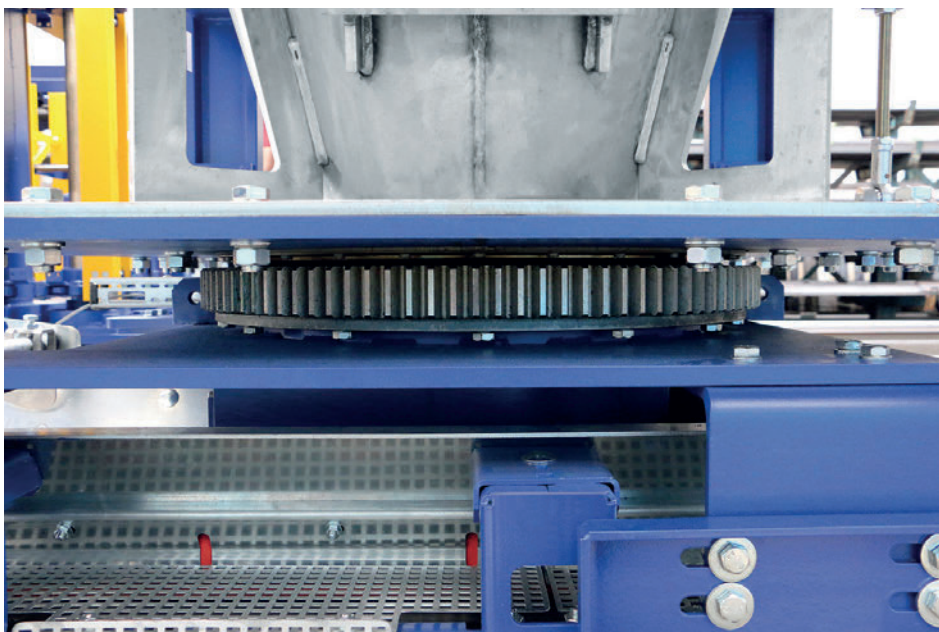
As a standard, the multi-color system is equipped with three silos for products with three different colors.

Stainless steel silos with a water volume of 2250 l in the main mix version and 580 l in the face mix version are used. Each silo includes a flap for easy access during cleaning processes. For constant monitoring of the filling level, the silos are hung on a frame above the collecting belt on four load cells for main mix concrete and three load cells for face mix concrete. Below the silo is an 800 mm (main mix concrete) or 650 mm (face mix concrete) wide dosing belt, which is mounted on a swiveling device. This allows the dosing belt to pivot up to 30° from the center axis to the right and to the left.

Optionally, the drives can be equipped with frequency converters so that the speed of both the belt and the swiveling drive can be adjusted.

Collecting Belt

The colored concrete can be deposited in up to five different positions on the 1400 mm wide collecting belt. The collecting belt is equipped with a frequency converter to adjust the speed of the moving belt. This combination enables the precise placement of concrete onto the belt and more importantly uniform placement of the concrete into the machine silo.



Swiveling drive

Alternative variations

Alternatively, the Premium Multi-Color-System can be implemented with movable belts. With a combination of both variations, concrete can be fed independently to both the base mix and face mix by means of a flying bucket conveyor or a conveyor belt.

Control and visualization

The premium system is assigned a separate page in the Masa visualization program. A significant advantage is the use of the current Live Motion generation, which considerably simplifies the monitoring of equipment; particularly for components that cannot be seen from the control panel or the control cabin. In addition, some functions enable the user to intervene in the production process partially.

The control of the system is integrated into the recipe management section of the products. Up to 10 sequences can be defined for each product. One sequence is the depositing of the concrete from each swiveling belt onto the collection belt.

Each sequence consists of three options per silo:

- **Positioning of the concrete onto the collecting belt:**
Up to five positions can be selected here. Pivoting between different positions is also possible.

- **Delay time:**
The delay time indicates whether the dosing starts immediately with the start of the sequence or whether a delay between the start of the sequence and the start of the dosing should occur. With a delay, superimposing concrete on the collecting belt is possible.
- **Amount of concrete to be dosed:**
The amount of concrete to be dosed is specified. The determined weight factor (kg/s) determines the running time of the dosing belt.

Supplementary equipment to produce high-quality multi-colored products

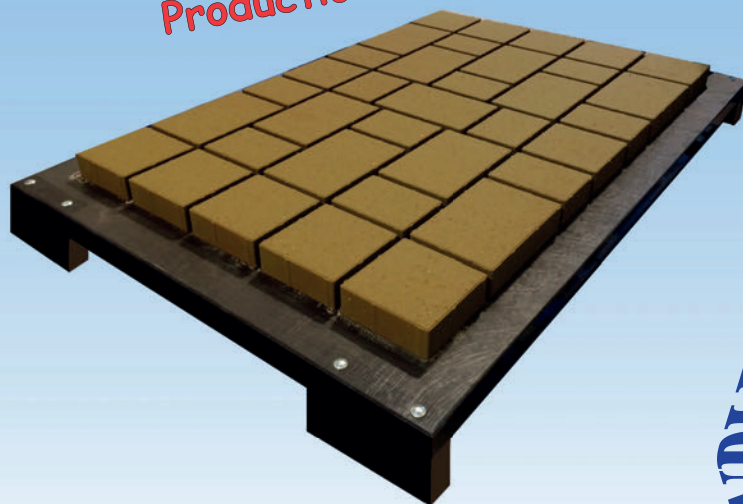
Face mix concrete mixer S 350/500

The Masa concrete mixer portfolio has different concepts for the production of main mix and face mix concrete. While the models of the PH series are designed for the volume requirements of main mix concrete production, the S 350/500 face mix concrete mixer is ideal for particularly small batches of high-quality concrete. A highly wear-resistant agitator in combination with a counter-rotating mixing trough is used as mixing tool. The mixing trough is inclined by 20° so that the mixing process is separated from the transport of the mix. This prevents cement and color balling and achieves excellent homogenization of colored concrete with fine aggregates and



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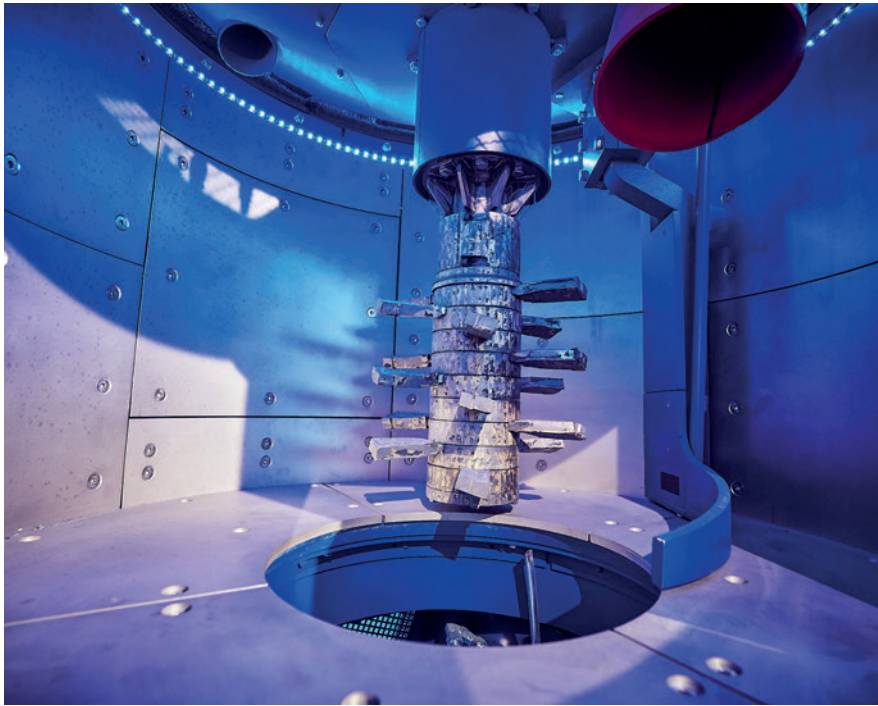
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S 350/500 in the interior view of the probe for moisture measurement (in the side scraper).

small batches. With the face mix concrete mixer, an output between approximately 120 l and 350 l can be achieved per mixing cycle.

The mixing process is supported by the Masa water dosing system Aquados, which uses a probe to determine the humidity content of the mix after the aggregates have been filled into the concrete mixer (or after the dry mixing time). By comparing the set water/cement ratio with the measured humidity, the amount of water can be calculated and precisely dosed. The radar technology penetrates a large volume of material and compensates for unequal humidity distributions at an early stage of the mixing process. The method enables precise measurements at low to high water content as well as different material densities and grain sizes. The probe getting covered in concrete, the conductivity of the material, and the local prevailing temperature has little effect on the ability of

for the system to accurately produce highly homogenized concrete. In combination with the Masa plant control software a recipe-based calibration of the water curve is carried out. This enables correct humidity measurement even with different material compositions. The use of a Bluetooth probe is also available as an option.

Auxiliary equipment for block making machine

By incorporating special equipment into the block making machine, the production of excellent multi-colored products can be cleared at an early stage. For example, the use of a dosing belt to feed the filling boxes instead of the standard dosing flap ensures a more even and controlled filling of the main mix or face mix filling boxes. Furthermore, the face mix filling box can be equipped with a driven bottom plate. This makes it possible to fill the mold only in the backwards move-



Filling box feeding via dosing belt.



Face mix filling box with hydraulic bottom plate.

ment of the filling box, which prevent overfilling of the mold. It also limits the superimposition of the concrete, which leads to more distinguished and contrasting colors in multi-colored applications and increases the reproducibility of the products surface.

Various solutions and components

Masa offers various solutions and components for the successful production of colored concrete products. These options can be incorporated upfront when planning and realizing a new plant or integrated into an existing production system to expand and modernize the plants capabilities. Depending on the customer-specific requirements, and after checking the feasibility of a retrofit, the product range can be expanded to include multi-colored products at a later date.



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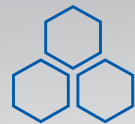
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Watch the Masa Multi-Color System in a video.



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