

AAC panels – Part 3: Clever technology for specialised applications

Following earlier articles in AAC Worldwide (Part I and II) on reinforcement solutions in AAC production, this third part focuses on two specialised technological solutions offered by Masa WhiteHub. The Wire Handling System for automated wire positioning and the Needle Brushing Unit for integrated needle cleaning demonstrate how advanced automation concepts can optimise process flow, reduce manual intervention, and ensure consistently high quality in the production of non-loadbearing AAC wall panels.

Wire Handling System: a game changer in the production of non-loadbearing AAC wall panels

When autoclaved aerated concrete is used in components such as wall panels, roofs and floors exposed to bending stresses, corrosion-resistant, customised reinforcement is essential. While simple rod or wire reinforcement is suitable for internal partitions, more robust and specialised solutions are required for structural elements such as slabs, beams and columns.

To optimise the production of non-loadbearing AAC wall panels, Masa WhiteHub offers an advanced automated Wire Handling System that delivers decisive benefits in efficiency, cost reduction and process reliability.

At the core of the solution is a fully automated workflow: the operator defines all product-specific dimensions in the Masa WhiteHub control system, with parameters loaded directly via recipe files. This ensures that reinforcement wires are connected to the needles automatically and with precision. As a result, one of the most common sources of inefficiency – manual loading errors – is virtually eliminated. This not only improves quality consistency but also avoids costly rework and downtime.

The economic impact is particularly striking. With Masa WhiteHub plants, daily production capacities of over 2,000 m³ of wall panels can be achieved. The Wire Handling System reduces required manpower by up to 90%, enabling operation with just a single operator.

Further efficiency gains are achieved through the system's compact design. As no separate workstation for manual loading is required, valuable production space is freed up, with savings of approximately 200 m². At the same time, the automation of handling processes significantly increases occupational safety by eliminating the need for operators to manually handle reinforcement wires of up to 6 m in length.

In summary, the Wire Handling System combines automation, precision and safety to create a highly efficient and future-proof production process.

The Wire Handling System can be implemented in new and existing AAC production lines.

Smart technology for automated positioning

The use of the Wire Handling System requires only an upstream wire straightening and cutting machine. This unit cuts the reinforcement wire to the required



Wire Handling System: Smart technology for automated positioning of reinforcement wires.

length before it is fed into the wire magazine, either automatically or manually. As a consequence, a mesh welding machine is not required, representing a significant cost advantage for the customer.

The wire magazine automatically places the wires onto a highly accurate positioning unit comprising a positioning conveyor and a movable loading carriage. This arrangement enables the precise alignment of up to 30 wires at defined spacings between 50 and 150 mm – ensuring maximum repeatability and product quality.

Once a batch of wires has been completed, the positioning unit moves automatically beneath the holding frame containing the needles. The handling system then performs a synchronised upward movement, guiding the wires along the needles until they securely engage in specially designed clips. Depending on the product specification, this sequence is repeated up to four times until all wires are fixed and the complete reinforcement assembly for one cake is prepared.

The result is a reinforcement for one AAC cake produced quickly, reliably and without manual intervention. Subsequently, downstream manipulators transfer the holding frame with the reinforcement to

the next stages of the process, where it is ultimately integrated into the cake.

By combining precise positioning, automated handling and seamless process integration, the system not only enhances product quality but also ensures a consistently high production throughput – making it a key enabler for competitive AAC panel manufacturing.

Needle Brushing Unit: Ensuring clean and reusable reinforcement needles

The needles used to mount reinforcement elements onto the holding frame are subject to repeated use throughout the production process. To ensure smooth extraction from the AAC cake after rising, their surfaces must remain clean and free from adhesion. This is typically supported by immersing the needles in a paraffin wax bath, which reduces sticking and facilitates handling.

However, maintaining the quality of the wax bath is equally critical. Contamination caused by residual material on the needles can impair performance and increase maintenance requirements. Masa WhiteHub addresses this challenge with its automated Needle Brushing Unit, ensuring consistent and efficient cleaning of reinforcement needles.

Placing of the wires on the positioning unit.



Automatic transfer of the pre-positioned wires to the holding frame.



The cleaning process is fully integrated into the production workflow. Once the rising phase of the AAC cake is completed and the reinforcement manipulator has removed the holding frame from the mould, the frame – with needles attached – is transported automatically to a designated cleaning station. There, it is positioned precisely.

The Needle Brushing Unit detects the exact positions of the individual needles and aligns itself beneath their tips. Cleaning is then carried out by rotating brushes that move upward to remove adhering residues thoroughly and uniformly. This automated process ensures a consistently high cleaning quality without manual intervention.

From an operational perspective, the benefits are significant. Manual cleaning of needles can require up to three operators per shift, depending on plant capacity. In contrast, the automated unit eliminates the need for dedicated personnel. When combined with the Wire Handling System, a single operator can oversee both the loading process and the brushing unit simultaneously, further enhancing efficiency.

Following the cleaning cycle, the needles are transferred automatically to the wax bath, where they can be immediately recoated without risk of contamination. This seamless integration of cleaning and preparation steps not only safeguards process reliability but also contributes to extended equipment life and reduced operating costs.

In summary, the Needle Brushing Unit complements the Wire Handling System by ensuring optimal needle condition, enabling a highly automated, clean and efficient reinforcement handling process throughout AAC panel production. ●



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Advanced Handling in Reinforced AAC Production.

“My milestone increases automation in the production of reinforced AAC products.”

Hans Heerink, Manager Engineering,
Masa WhiteHUB, Enschede

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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 to produce aerated concrete blocks and panels and sand-lime bricks as well as concrete blocks, pavers or landscape products. In other words, we are real concrete heads with a passion for reliable, high-performance machines.

Clever concrete heads of ours, Hans Heerink and his team have developed a device that automatically and precisely integrates reinforcement into the production process for aerated concrete slabs or lintels, using a support frame with crossbars and needles that inserts the reinforcement cages into the mould immediately after filling. **When it comes to reinforced AAC products – just ask the concrete heads!**



Scan the QR code for more information about the Masa reinforcement solutions