

State-of-the-art sawing plant: The key to a wide range of products



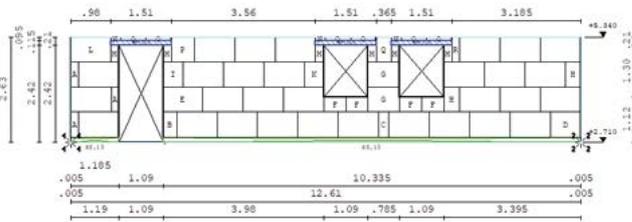
In Germany, the demand for affordable housing has been rising for years. For the construction of urgently needed apartments, one building material in particular is gaining more and more momentum: According to the data from the Federal Statistical Office in Germany, sand lime was the most commonly used wall building material for multi-story residential buildings. The statistics in "Completion of residential buildings with three or more apartments" as well as "Interior space in completed residential buildings with three or more apartments" indicate that sand lime products are the most predominantly used building material for these applications with a reported market share of 35 % and 39 % respectively [1]. Sand lime bricks are cheaper than many other building materials, and they have a high load bearing capacity which is an enormous advantage for lean walls.



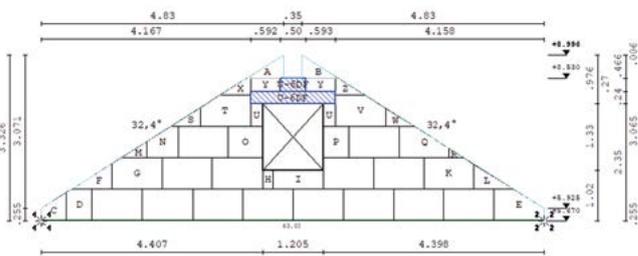
To enable efficient, fast, and economical building with sand lime bricks, large-scale products are becoming increasingly commonplace. Plane elements e.g., with the dimensions 998 mm x 623 to 648 mm with a wall thickness of 100 to 365 mm are common. For the fabrication of these elements the Masa product range comprises the hydraulic element press model HDP 1200 Jumbo. (Please also see AAC World-wide 01/2020).

Fast and economical building with sand lime plane elements and fitting pieces by means of a transfer crane. (source: Xella)

Besides the standard plane elements, typically 20 - 30 % of ready-made, prefabricated fitting pieces are used when building walls. Sawing products is a time and labor-intensive activity when done on a construction site, which can be accomplished much more economically directly in the sand lime factory. When the fitting pieces have been cut to their individual sizes, they are stacked on transport pallets, labelled, numbered, and transported to the building site just in time.



The wall building drawings include all geometrical data of the fitting pieces; these can be fed into the control system of the Masa sawing plant by means of a data transfer. Beside chop cuts and vertical cuts, it is also possible to carry out gable cuts (source: ISOCOM).



For the manufacture of these precise fitting supplementary bricks, Masa can supply a range of sophisticated equipment that is being continuously developed.

The Masa sawing plant: Effective and Efficient

The fitting pieces required for a certain building are planned individually beforehand according to the architect's drawing and the wall development plans. The plans comprise all construction details, such as wall connections, window and door lintels, or gables with different angles.

To provide such a wide range of products, technically proven, automated plant solutions are vital. The Masa sawing plant meets all requirements for this, with many Masa customers using it successfully. With the sawing plant, all types of cuts can be made – from simple vertical and chop cuts, to gable cuts, or single and double bevel cuts. Bricks with a high

View of the complete plant.



Central Masa control system to monitor the automatic sequences and for an additional visual control of the products.



density between 2.2 and 2.4 kg/dm³ can also be cut precisely and with perfect edges. As a supplementary component, a line for manufacturing levelling blocks with low thermal conductivity can be integrated. To do this, the plant is extended by an additional sawing frame and a second packaging line that can package up to three different levelling block sizes separately. In addition, this means a further reduction of waste.

In recent projects, special attention has been paid to the profitability of the sawing plant with the focus on effectiveness and efficiency. This is enhanced by the considerably refined cutting performance of the sawing frames, which stems from the incorporation of frequency-controlled drives for the sawing blades. This component has proven to be superior to those with defined speeds, which is more commonly used. In combination with the frequency-controlled feed of the slat conveyor, the sawing speed is automatically adapted to the wall thickness and product density. In case of a small wall thickness (e.g. 115 mm

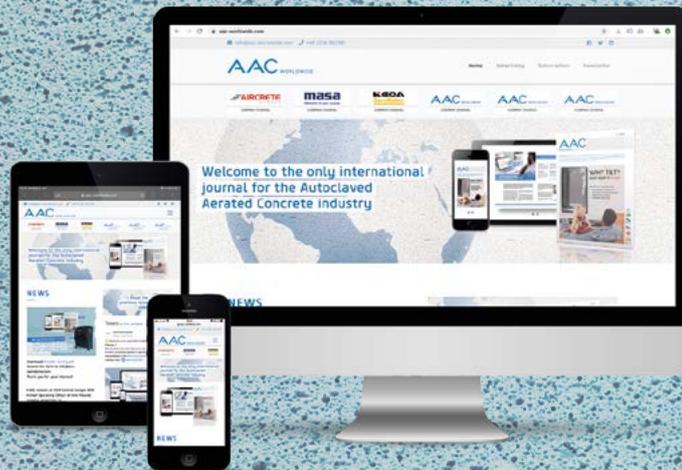
or 150 mm), the throughput of fitting pieces can be increased considerably, which is another clear advantage when doing a cost-benefit analysis of a Masa sawing plant.

Elaborate plant control system and configuration

Continual developments in the control software are essential to increasing the profitability of the sawing plant. The maximum utilization of a plane



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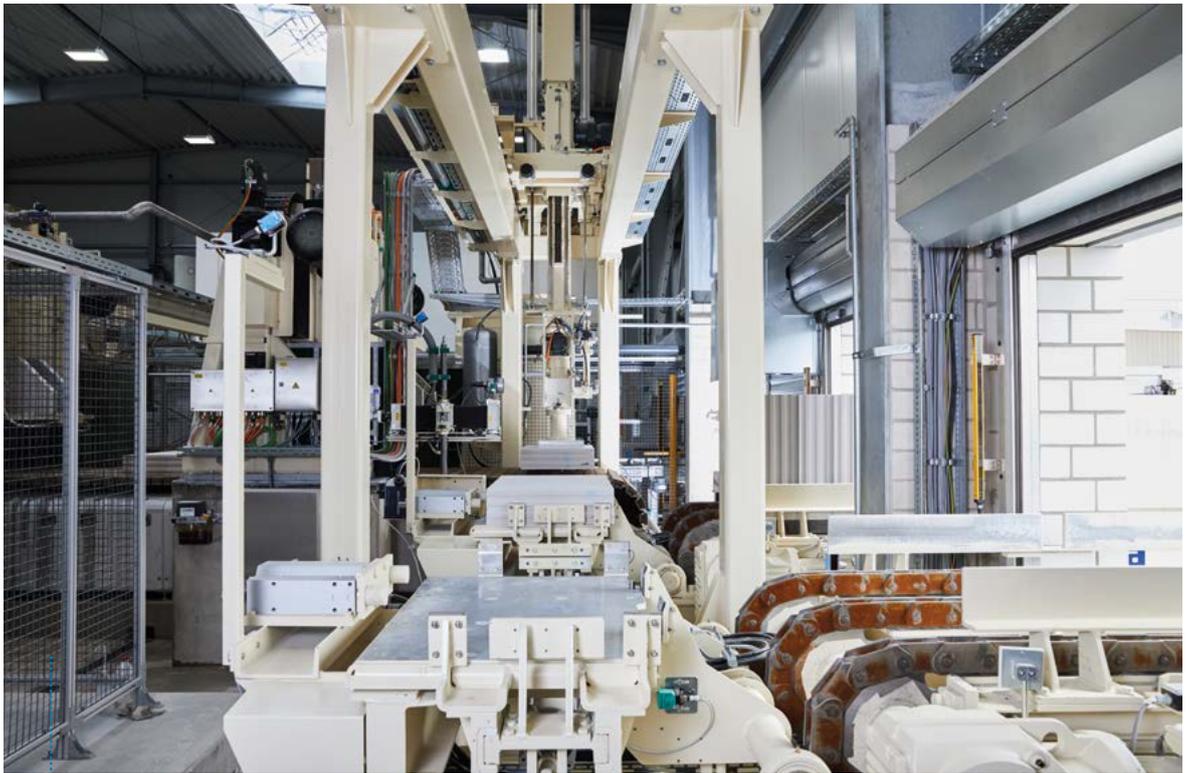
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Transfer grabs move the products to the individual processing sections.

element is improved considerably by using special storage tables within the process sequence. The control software automatically optimizes the cuts by considering the defined fitting pieces for the respective building stage. This leads to a considerable reduction of waste when comparing it to solutions found in conventional plants.

The optimally cut blocks are intermediately stored on storage tables and placed on transport pallets later. This procedure has a positive effect on the efficiency of the Masa sawing plant.

The plane elements as well as the fitting pieces are transported to the different processing stations of the plant by means of transfer grabs or robots.

Vacuum plate with newly developed, individually shiftable sections. Thus, the products can be transferred safely and smoothly.



The finished products are placed on wooden pallets, secured for transport, and labelled with an automatic labelling device.

All geometrical details of the various products have to be considered for this. Hence, special vacuum plates are used to lift the products. These plates are divided into several sections that can be individually activated or de-activated. With the latest generation of these vacuum plates, the division of the individual sections was modified once again. The results are impressive: Particularly small or narrow products as well as gables can be transferred safely and smoothly. Besides being a highly reliable process, this also enlarges the range of products that can be handled. At the end of the packaging line, a labelling device automatically places an inscription field. This guarantees a clear assignment of the products to the architect's drawing and wall development plans. A comprehensive process from the planning of the building to the labelling results in a fast and cost-efficient completion of the individually planned walls on the building site. At the same time, a tailor-made just-in-time supply of products to the building site helps to save storage capacity.

Flexibility by independent plant technology

As the sawing plant is always fed with finished complete plane elements, it can be operated independently, no matter which products are manufactured in the sand lime brick plant at that time. This guarantees that the demand for fitting pieces can also be satisfied in case of planned plant shutdowns, such as maintenance work in the winter, which is common in many sand lime brick making plants. Compared to a sawing plant integrated into a sand lime brick making plant, the independent solution provides a high degree of flexibility.

Waste management preserves resources

The waste incurred in the sawing process does not have to be disposed of. In fact, it is a good raw material that is crushed and can then be returned to the manufacturing process via the mixing plant. A possible correction of the grain distribution curve and a reduction of the lime consumption are positive side effects of this procedure.

Experience and market presence

Masa GmbH is a competent partner for all topics around the manufacturing of sand lime bricks. In many plants worldwide, the innovative Masa sawing technology for the manufacturing of fitting pieces as well as the modern Masa sand lime brick press types HDP 800 and HDP 1200 Jumbo for the manufacturing of small and large products can be found. Decades of experience and market presence assure the success of our customers around the globe. ●



[1] Cp. Statistisches Bundesamt (Destatis), 2020: Baufertigstellungen von Wohn- und Nichtwohngebäuden (Neubau) nach überwiegend verwendetem Baustoff - Lange Reihen ab 2000, 2019, Charts 1.1.1 and 2.1.1



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