Aerated Concrete Production

Efficient, Flexible and Powerful.

Masa – your partner for the successful production of building materials. With intelligent and flexible solutions, Masa leads its customers to success. Experience, reliability and passion are the basis for a long lasting partnership.

www.masa-group.com
The secret of our success is the future profitability of our customers.
Masa is the world’s leading manufacturer and supplier of plants, machinery and components for the building materials industry. Our experience, the quality of our products and the constant dialogue with our partners have contributed to the success of our customers worldwide.

The planning and design of our plants encompass all the basic principles which are fundamental to “Engineered in Germany”.

Quality: Proven technology, customised solutions and durable equipment
Profitability: Economical – without compromising efficiency
Safety: Comprehensive safety solutions in consultation with the customer

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Note
In general Masa plants are equipped with all the necessary safety guarding to local standards. For reasons of clarity, some photos are shown without safety guards.
Experience is our strength. Flexibility takes us forward.

Masa is able to look back on more than 100 years of company history. Our experience, the quality of our products and the constant dialogue with our partners, have contributed to the success of our customers worldwide.

Our head office with departments for development and production of concrete block making machines and plants is situated in Andernach, between Frankfurt/M and Cologne. A second location for the development and production of plants and machinery for concrete slabs, AAC blocks and sand lime bricks is situated in Porta Westfalica. Furthermore subsidiaries for sales and services are established worldwide: in USA, China, Russia, India and Dubai, responsible for the Middle East.

Success is a strong basis
Throughout our long company history, we have been significantly influenced by the many developments in the building materials industry. The experiences gained over the years in both technical and functional capacities now benefit both the customer and ourselves. This continuity means the customer can be safe in the knowledge that Masa has created solutions which are built to last and can be quickly modified on demand.

Flexible in global markets
As a result of globalisation on the world economy, we have benefitted from our growing reputation for providing solutions. Different markets present specific requirements for which we develop individual solutions. In the end, there are no two products alike; every single solution is based and optimised on the individual wishes of the customer.

Safety and environment protection
On designing a plant, safety is of paramount importance, whilst incorporating ease of operation. Another aspect of vital importance is protection of the environment, hence Masa's solutions for power efficiency, dust protection and the reduction of noise emission.
The manufacturing of aerated concrete demands high standards for mixing and dosing of the aggregates, the control of the fermentation process and the control of each production step. Masa’s aerated concrete installations are proven advanced technology processes, designed according to customers’ specific requirements. This approach allows complete solutions to ensure highly efficient, optimised processes resulting in consistent final product quality.

The wide range of Masa technology for the manufacture of aerated concrete allows ample alternatives for complete plants or stand alone machines as well as all services and production support. All of these combine to provide a decisive advantage for our customers in their marketplace.

Turn-key Installations: Efficient plant concepts from a single source.
Individualised plants from standard components

The economical success of each production facility requires the accurate planning, which begins with the specific site requirements combined with long term growth considerations. Based on this input, Masa engineers will define machine size, capacities and the physical arrangement for processes and production systems. Turn-key, yet customised complete installations are developed by our design engineers through standard components which are combined for the optimal individual solution. The use of these standard base components to form a kit system reduces delivery times while meeting customer requirements.

Intelligent process control.
The combination of many years of experience and the most modern technology allows plant concepts that fulfill the highest customer requirements. A central aspect for the exact and smooth production of aerated concrete is the control of all process steps and plant components.
Vario-Block and Vario-Panel: Expandable concepts that can increase according to demand.

The Vario-Block allows Masa customers a flexible and economic plant concept for aerated concrete block manufacturing. The green cake is in the start phase of the manufacture. It is automatically demoulded and set in an upright position where it is calibrated, profiled and then cut in length and width. Also the grip pocket is formed while in the "green condition".

By modifying installed components, the Vario Block process can be expanded to the Vario Panel system, which allows the production of reinforced elements up to 6 metres in length.
**Production capacity:** The Vario-Block and Vario-Panel plants utilise a concept which allows step expansion and modification. This allows the customers to start with an effective aerated concrete production system although they are still highly flexible and able to respond to any future market demands.

<table>
<thead>
<tr>
<th>Installation type</th>
<th>Max. production capacity (300 days)</th>
<th>Max. yearly capacity (300 days)</th>
<th>Cycle time</th>
<th>No. of autoclaves</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VB 360 ECO</strong></td>
<td>360 m³/day</td>
<td>108.000 m³/year</td>
<td>20.00 min.</td>
<td>2 pcs.</td>
</tr>
<tr>
<td><strong>VB 540 ECO</strong></td>
<td>540 m³/day</td>
<td>162.000 m³/year</td>
<td>13.50 min.</td>
<td>3 pcs.</td>
</tr>
<tr>
<td><strong>VB 660</strong></td>
<td>660 m³/day</td>
<td>198.000 m³/year</td>
<td>11.00 min.</td>
<td>3 pcs.</td>
</tr>
<tr>
<td><strong>VB 880</strong></td>
<td>880 m³/day</td>
<td>264.000 m³/year</td>
<td>8.30 min.</td>
<td>4 pcs.</td>
</tr>
<tr>
<td><strong>VB 1100</strong> <strong>,</strong></td>
<td>1100 m³/day</td>
<td>330.000 m³/year</td>
<td>6.60 min.</td>
<td>5 pcs.</td>
</tr>
<tr>
<td><strong>VB 1500</strong> <strong>,</strong></td>
<td>1500 m³/day</td>
<td>450.000 m³/year</td>
<td>4.80 min.</td>
<td>7 pcs.</td>
</tr>
</tbody>
</table>

* Theoretical output with suitable aggregates.
** VB 1500 can be extended up to 2.000 m³/day.

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**Vario-Block system:**

**Blocks in different thicknesses**

<table>
<thead>
<tr>
<th>Product dimensions</th>
<th>Length</th>
<th>Height</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blocks</td>
<td>600/625 mm</td>
<td>200/250 mm</td>
<td>50/500 mm</td>
</tr>
</tbody>
</table>

**Vario-Panel System:**

**Elements for wall, roof, ceiling**

<table>
<thead>
<tr>
<th>Product dimensions</th>
<th>Length</th>
<th>Width</th>
<th>Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elements</td>
<td>up to 6000 mm</td>
<td>600/625 mm</td>
<td>100 – 300 mm</td>
</tr>
<tr>
<td>Dividing wall elem</td>
<td>2000 – 3000 mm</td>
<td>600/625 mm</td>
<td>75 – 300 mm</td>
</tr>
</tbody>
</table>

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Preparation of reinforcement
Handling of reinforcement framework
Aggregates Storing, Mixing, Pouring: The basis for continuous high quality.

Aerated concrete is produced from quartz sand, lime, cement, gypsum (anhydrous), and water.

The process starts with quartz sand being milled in a wet ball mill into a fine sand slurry which is then stored in slurry silos with an integrated stirrer.

It is important to keep the defined density, which is controlled either manually or automatically. Sand slurry, recycled slurry, lime, cement, gypsum, aluminum and water are added to the mixer according to the desired product recipe.

Immediately after the mixing the pre-positioned moulds are filled and subsequently transported to the fermentation area. Here the mixture starts reacting by producing fine pores, allowing the mass to harden into an aerated concrete cake.

Aggregate storing and measurement
- Sand storing
- Sand preparation and transport
- Milling devices
- Storage of binding agent and additives

Mixing and dispensing
- Aggregate dosing and mixing devices
- Moulds, hardening floors
- Process / installation controls

Intermediate storage of the sand slurry after the milling to the exact defined density.
The mixing is the key. Final products from aerated concrete need to reach a certain resistance and density that can vary according to the application. For this reason there are different recipes for how the raw material is dosed and mixed. With components and control technology from Masa each of these recipes can be stored exactly for easy replication.
Cutting and Conveying: Consistent precision.

The fermentation process produces hydrogen, resulting in the creation of billions of tiny pores in the concrete cake. At the end of the process the cake is left with an enormous number of air cells. Simultaneously the aerated concrete cake starts to harden.

As soon as the material has enough resistance to be cut, the aerated concrete cakes are demoulded and placed onto the cutting line. Here they are first calibrated, profiled, and cut both horizontally and vertically.

**Cutting device**
- Pre-cutting device
- Longitudinal-cut device
- Cross-cut device
- Grip pocket milling machine
- Cut waste recycling device
- Recycling of the cut waste

**Mould transport**
- Moving car
- Cubing device
- Roller conveyors
- Chain conveyors
- Cleaning device

Stability and precision: part of the longitudinal cutting device
Precise and efficient. The cutting of the aerated concrete cake is done in several sequences. To do this, the devices for pre-cutting, longitudinal cutting, cross cutting, and further special cutting are used. The optimal tuning of all the components enables a trouble-free and efficient production.
Curing and Packaging: Quality products safely packaged.

The aerated concrete achieves its final strength from the curing under steam pressure in the autoclaves. The steam pressure chambers work fully automatically and are highly energy efficient due to an optimised process in control technology. The curing process follows exact defined procedural steps. The curing time depends on the density and the grade of open pores of the cake.

Finally, before leaving the plant, the finished products are packaged in a way that they are protected from dirt and humidity. Depending on the installation concept the packaging process can be either fully or semi automatic.

Curing in autoclaves
- Autoclaves and accessories
- Automatic steam control
- Steam boiler with energy saving device
- Recirculating moisture

Packaging
- Cutting machine
- Cubing installation
- Packaging machine
Cured by steam under pressure. The curing of the aerated concrete cake is done by means of water vapor in horizontal airtight pressure chambers, called autoclaves. The steam pressure is approximately 12 bars, the temperature is approximately 190° Celsius. After 10 to 12 hours in the autoclave the aerated concrete is sufficiently cured.
Service: There is no limit to our partnership.

Whether you purchase a complete production line or a single component, it is the start of a long lasting relationship with Masa. Our service does not stop with the handover of the equipment to the customer – but lasts for the lifetime of the machine.

Assembly and commissioning
After delivery, plants are installed and commissioned by our own qualified and experienced engineers.

After sales service
With programmed visits by our experts, a preventative maintenance programme is agreed to maintain high productivity and minimise downtimes.

Training of operators
During the installation and commissioning of the equipment, the operators are given training and familiarisation with all the plant components and after the final test run, should be able to run the plant themselves at the agreed productivity.

Product advice
Masa’s vast experience of manufacturing concrete elements ensures both visual and technical qualities of the finished product.

Service hotline
Masa has a 24 hour Service hotline for the customer to assist in the diagnosis of any malfunctions or when problems in the production system occur.

Online Tele service
Today, technical support for the equipment is provided in most instances online. Updates and programme modifications can also be done via modem/router, without having Masa engineers on site.

Spare parts service
With our flexible system and worldwide spare parts locations, if necessary, we are able to supply quickly and cost effectively within 24 hours, unless the parts have to be manufactured specially.
Masa – your partner for the successful production of building materials. Masa is the world’s leading manufacturer and supplier of plants, machinery and components for the building materials industry. This brochure describes equipment for the manufacture of AAC blocks – other brochures are also available, giving an overview of capacities, plant layouts and components for the manufacture of concrete blocks, concrete slabs and sand lime bricks.

Masa – the one company to talk to for all solutions. A complete range of machinery to produce all types of building materials.

Location to contact
for concrete block and paver production:
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