Concrete Block Production

Reliable, First Class and Solid.

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.
Turn-key Plants: All from one supplier.

Masa has all the necessary experience for the fully automatic production of high quality light or heavy weight concrete blocks in high capacities. A distinct advantage for our customers is that large turn-key plants or single standard components are all from one supplier.

It is a long way from mixing the raw materials to the finished block. Many components of the plant are involved in this process. A plant will run efficiently when each part of the plant has been matched to the other parts containing optimized processes within those parts. Forward looking planning, often referred to as “begin with the end in mind” is a fundamental requirement for a complete efficient production facility. Capacities and machine designs are defined; processes and flows are arranged for the space. This requires to focus on the customer’s requirements and the available space.

The concrete block making plants made by Masa are generally structured as follows:

Via aggregate silos and corresponding transport systems, the various materials are conveyed to the dosing and mixing plant. Here a first-class concrete is produced, which is adapted to the individual customer needs as well as the available basic materials.

Depending on the plant design, this concrete is transported to the block making machine. The concrete is filled into the mold and compacted. The fresh concrete products are then conveyed on production pallets via a transport system to the curing plant. If necessary, quality assurance systems are integrated.

After curing, the products are combined into cubes using the packaging system and prepared for take-off (e.g. by forklift). The used production pallets are returned to the block making machine.

Masa offers a wide range of surface treatment systems for the manufacturing of products with special surfaces.

Masa control and safety systems ensure safe fast production with minimum downtime.

Head office in Andernach, between Frankfurt/M and Cologne. Second location in Porta Westfalica.
Tailor-made solutions for the building materials industry.

Careful planning is decisive for the economic success of a concrete block making plant. The planning should consider the production requirements and site specific possibilities, as well as the longer-term growth impact. To meet these broad scope parameters, our team of planners define capacities, machine designs, and arrange processes and flows to fit the available site.

Our designers specify the capacities and layout of equipment as well as organizing the production process. Turn-key plants are assembled with standard components, which can be combined to achieve individual solutions. Utilizing standardized components wherever practical results in short delivery times.
Note: The concrete block making plant shown is only diagrammatic and does not replace a real layout plan. Special solutions are partially pictured. For better clarity, the safeguards are not displayed.

01 Aggregate Dosing and Concrete Mixing Plant
02 Concrete transport systems
03 Concrete Block Making Machine
04 Wet side transport
05 Elevator
06 Finger car
07 Curing chamber and ventilation
08 Intermediate finger car
09 Lowerator
10 Return transport
11 Centering device
12 Production pallets
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13 Cubing
14 Cube conveyor
15 Surface treatment
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Dosing and mixing plant: Quality right from the start.

Dosing systems for aggregates
Masa dosing systems for all aggregates (e.g. sand, cement, water, additives) guarantee optimum and efficient feeding. Among others, the following components are used:
• Moveable charging scales for exact dosing of the individual bulk materials
• Water dosing systems for measuring the current moisture in the mix and calculation of water addition
• Color dosing (e.g. powder, granule, liquid color)
• Additive dosing systems
• Scales for cement and other types of binding materials

Concrete mixer
Masa concrete mixers deliver all types of highest quality concrete and have proven themselves in practice. Short mixing times and optimum utilization of energy, water and cement are only some of the many strengths.

The stationary mixers of the „PH“ series are available up to a capacity of 3000/4500 litres.

The “S 350/500” model produces excellent, highly homogenized, face-mix colored concrete.
Concrete transport
Depending on the plant layout, the Masa mixers are directly positioned above the concrete making machine or located outside. If located away from the machine, most frequently the mix is transported to the machine hoppers via a bucket conveyor system. This allows flexible dosing of the concrete as well as reduces the pollution of the concrete block making machine and facilitates cleaning of the concrete mixer.

However, other transport methods can be implemented.

Dosing systems for colored concrete
The individual color design of pavers or other concrete blocks is an important part of the production process. It is possible to use simple or complex color mixing systems for both main and face concrete:

- Simple Multi color slide systems
- Premium Multi color systems with up to 6 dosing conveyors and intermediate buffers (individually programmable, reproducible colors possible at all times)
Concrete block making machine
Large Version: L 6.1 and L 9.1

The L version is a powerful, stationary concrete block making machine with medium sized production pallets of 1,400 x 600-900 mm (L 6.1) or 1,400 x 950-1,150 mm (L 9.1). Despite of its compact dimensions, it is designed in a special robust way and convinces technically with its high-grade mechanical, hydraulic, pneumatic and electronic components.

Among others, standard equipment includes:
- Reinforced frame construction to carry the one-piece vibration table
- Frequency controlled vibration
- Recipe management, fault diagnosis and visualization of the functions by PC and 24” TFT monitor
- Proportional controlled valves for pump pressure and main drive
- Hydraulic unit with components of high standard manufacturers

Further options (L 9.1):
- Amplitude controlled vibration
- Automatic mold change
- Integration of a height limit system for an accurate height control
- Sheet/profile pulling device
Concrete block making machine
XL Version: XL 9.1 – XL 9.2

The XL version convinces with sophisticated and well engineered technology. Decades of experience and continuous further development flow into this model range. Our strength: In close dialogue with our customers, we focus on defining and implementing new standards in line with market requirements.

The standard scope of delivery includes, among others:
- Amplitude or frequency controlled vibration
- Energy-efficient drives
- Proportional pressure control for hydraulic
- Solid frame construction with 4 hard-chrome plated guide columns (ø 120 mm) for exact parallel positioning of the mold and compaction head
- Forced synchronous mold guide for precise demolding of products
- Level measurement for silos with weighing cells
- Hydraulic compaction head lock

Further options are e.g:
- Automatic mould change, to simplify and speed up the mould change process
- Amplitude monitoring of the vibration table
- Magnetic compaction head lock
- Integration of a height limit system to ensure an utmost production height
- Sheet/profile pulling device
- Core pulling device for the production of profiles in the products
- Laser level measurement in the main and face mix concrete filling box
The Masa Premium model: Block making machine type XL-R

The Premium model of the Masa concrete block making machines is available in three different sizes:
- XL-R 9.1
- XL-R 9.2
- XL-R 9.3

The standard scope of supply includes, among others:
- Amplitude controlled vibration
- Servo hydraulics with pressure accumulator
- Energy-efficient drive concepts
- Mold leveling via servo hydraulics
- Automatic mold change to optimize set-up times
- Magnetic clamping of the filling box running rails
- Laser-controlled, repeatable and exact filling of the filling box (main and face mix)
- Hydraulic compaction head lock
- Servo controlled production pallet feed
- Servo controlled lowering rocker synchronized with pallet feed designed as V-belt conveyor

Optionally available are e.g.:
- Amplitude monitoring of the vibration table
- Magnetic compaction head lock
- Oscillating grate drive (main mix) via hydraulic eccentric drive
- Core-/sheet pulling device for the production of cavities in the products or to achieve extra smooth surfaces resp. profiles on the bottom side of the products
- Face mix filling box with driven bottom plate
- Hydraulically driven smoothing roller
- Special design of the face mix filling unit (prepared for multi color system)
- Main mix silo with 2 separate outlets
- Dosing / filling belt
- Authorization for access via RFID chip
- Various software tools
Plant control
Modern production plants feature a high degree of automation and therefore, a corresponding high availability. In addition to the robust design of the components, a customer-oriented operating interface is an important factor of success.

The software of the Masa plant control (Masa FAST Factory Automation Service Tools) is a modular software for the unified operation and visualization of the components. Just to mention a few, it is characterized by:

- A clear visual design of the complete plant
- Use of 3D plant illustrations
- Connection of a precise fault finding facility
- Integrated language selection (up to 3 languages)
- Customer-specific user and parameter management

- There are further optional packages available in addition to the basic package: Package I „Advanced“ (extended formulation management, formulation comparator, input history, mold management), Package II „Professional“ (user management, order management, extended formulation comparator and many more).

Masa “Powertainer”
The Masa “Powertainer” which includes all the power panels is already proven in practice. It provides a clean and safe environment whilst at the same time saving valuable installation time.
Precise handling: Everything in its place.

Transport systems
Masa pallet transport systems ensure that both fresh and cured products are moved without any damage. Visual quality control takes place without jeopardizing safety.

Wet side paver washing device
The Masa paver washing devices are perfectly suitable for surface finishing. Fine particles of the aggregate materials as well as the cement residue are removed by a combined spray and splash process. With this, the high-quality visual effect of the face material is emphasised particularly. The product receives its characteristic appearance.

Curing and ventilation
For curing, Masa provides an innovative one-room concept. The complete curing rack as well as elevator, finger car and lowerator are installed in the same room. The curing process is optimized by means of a ventilation system. The Masa control regulates temperature and humidity in the curing chamber.
Production pallets - buffering system
Masa offers several pallet buffering systems. These systems cater to individual customer requests as well as considering the specific desired type of production pallet. Depending on the system, a flow-optimized functioning of both the fresh and the dry side will be ensured. Furthermore, the plant efficiency and availability will be increased because the fresh and the dry side can work independently from each other.

Cubing
At the end of the production process of each concrete block, there is the Masa cubing unit. With the „Cuboter“, Masa provides the technology and the know-how to prepare the final product for shipment. Block layers are set on a conveying system, which then form the block cubes (with or without the use of transport pallets). In case of the Cuboter, Masa completely goes without a hydraulic system. Further advantages are provided by the cubing clamp which is equipped with servomotors, the high cubing speed and the formulation-related flow optimization.

Centering devices or doublers can supplement the process. The individual integration of packaging systems, e.g. automatic strapping machines or film stretch wrappers, is possible.

Fully automatic Masa production pallet buffer

Transport pallet storage and cubing

Efficient and appropriate to the material: The Masa Cuboter
Remodelling and surface processing: Individual solutions.

Remodelling
Due to the different arrangements within the production plant, it is partially required to change the arrangement of the block layers. Therefore, Masa is offering several remodelling systems to prepare the concrete blocks in compliance with the customer-specific requirements referring transport and laying.

Splitting machine and refinement
Splitting is a popular refinement method. Masa splitting machines allow the production of split concrete blocks that can hardly be distinguished from natural stones. Depending on the split format, it is possible to split different block sizes. The splitting machine can be integrated in a complete plant concept or it can also be operated as a separate unit.

Furthermore, aging, blasting or other surface finishing machines can be integrated in the process or used independently.
Technical Overview.

Capacity data Masa Mixer

<table>
<thead>
<tr>
<th>Type</th>
<th>Dry filling quantity (in liter)</th>
<th>Output (in liter)</th>
<th>Max. filling level (in kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S 350/500</td>
<td>500</td>
<td>350</td>
<td>750</td>
</tr>
<tr>
<td>PH 1500/2250</td>
<td>2,250</td>
<td>1,500</td>
<td>3,375</td>
</tr>
<tr>
<td>PH 2000/3000</td>
<td>3,375</td>
<td>2,250</td>
<td>5,062</td>
</tr>
<tr>
<td>PH 3000/4500</td>
<td>4,500</td>
<td>3,000</td>
<td>6,750</td>
</tr>
</tbody>
</table>

Capacity data Masa Concrete block machines

<table>
<thead>
<tr>
<th>Type</th>
<th>Hollow blocks 200 x 200 mm (8&quot;)</th>
<th>Rectangular pavers w/o face mix 200 x 100 x 80 mm</th>
<th>Rectangular pavers with face mix 200 x 100 x 80 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle time</td>
<td>Pieces per cycle</td>
<td>Pieces per cycle</td>
<td>Pieces per cycle</td>
</tr>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>L 6.1</td>
<td>16</td>
<td>12</td>
<td>18.360</td>
</tr>
<tr>
<td>L 9.1</td>
<td>15</td>
<td>12</td>
<td>19.584</td>
</tr>
<tr>
<td>XL 9.1</td>
<td>12</td>
<td>12</td>
<td>24.480</td>
</tr>
<tr>
<td>XL 9.2</td>
<td>15</td>
<td>18</td>
<td>29.376</td>
</tr>
<tr>
<td>XL-R 9.1</td>
<td>11.5</td>
<td>12</td>
<td>25.544</td>
</tr>
<tr>
<td>XL-R 9.2</td>
<td>14</td>
<td>18</td>
<td>31.474</td>
</tr>
<tr>
<td>XL-R 9.3</td>
<td>14</td>
<td>18</td>
<td>31.474</td>
</tr>
</tbody>
</table>

The output figures listed above are guiding values. In practice, the production output depends on different factors such as: Specific machine settings, selected mix designs, raw material types, additives, ambient conditions as well as others. The block dimensions, quantity per cycle and production quantity are determining parameters for the planned production.

(1) Cycle time in seconds (listed Masa machine in combination with Masa ring plant)
(2) Production capacity per 8 hour shift, at 85% efficiency
Experience is our strength. Flexibility takes us forward.

Masa is a German born medium sized enterprise with over a hundred years’ history. We are specialized in planning and construction of plants and machines for the building materials industry and today, we are a global leader.

We have an experienced service team responsible for both installation and commissioning of new plants and modification and maintenance of both Masa and other manufacturers units.

The “Masa” brand includes production facilities in Germany and sales offices around the world.

At our head office in Andernach between Koblenz and Cologne we develop and manufacture equipment to produce concrete blocks and pavers. A second location focused on the development and production of machinery and plants for concrete slabs, AAC blocks and sand lime bricks is in Porta Westfalica. Furthermore, there are subsidiaries worldwide, mainly involved in service: in the USA, China, Russia, India and Dubai, responsible for the Middle East.

Would you like more information regarding Masa delivery and performance programme?

Please find a detailed overview in our brochures you can download separately.

- Aerated concrete production
- Sand lime brick production
- Concrete slab production
- Curbstone production
- Service

Use our download area at: www.masa-group.com

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