

masa

Milestone to your success.

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:

The different required materials go from the aggregate silos via transport systems to the dosing and mixing plant. It produces high-quality concrete which is designed to meet the individual customer demands and is adapted to the available raw materials. Depending on the plant design, the concrete is then conveyed to the block making machine. This then com-

pacts the concrete in a mould using a combination of pressure and vibration. The fresh concrete products go then to product pallets via a conveying system, then pass through an optional quality assurance system, onto the curing chamber. After the curing process, the products are combined to form a pack of blocks using a Cuboter and are prepared for unloading (e.g. by forklift). The used production pallets are returned to the block making machine.

Secondary processing systems for products with different surfaces are available from Masa.

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



External view of a typical concrete block making plant

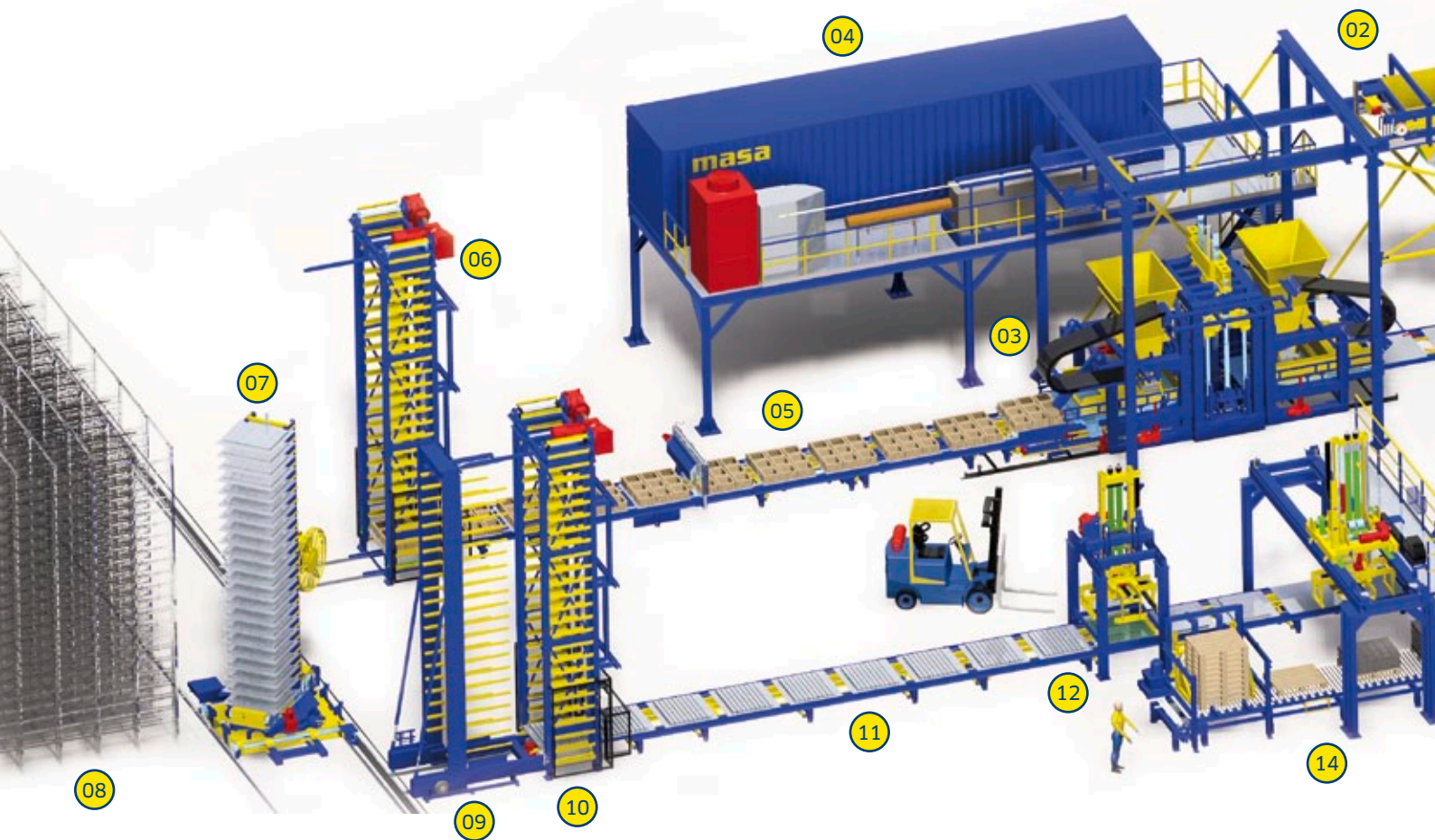


Intermediate storage of finished products

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 | Dosing and mixing plant |
| 02 | Concrete transport (bucket conveyor) |
| 03 | Concrete block making machine |
| 04 | Framework with Powertainer and Hydraulic station |
| 05 | Wet side transport |
| 06 | Elevator |
| 07 | Finger car |
| 08 | Curing |
| 09 | Buffer finger car |
| 10 | Lowerator |
| 11 | Return transport |
| 12 | Centering device |
| 13 | Cross transport/Production pallet buffer |
| 14 | Cubing/Cuboter |
| 15 | Cube conveyor |

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:

- Movable charging scales for exact dosing of the individual types of sand or gravel
- Water dosing systems to control the additional volume of water needed and measurement of the current sand humidity
- Dosing of pigments and additives
- Weigh scales for exact amounts of cement and fly ash into the mixer

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 Masa Horizontal Compulsory 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 coloured concrete.



Dosing of aggregates



PH mixer



Exact dosing using moving charging scale



S 350/500 mixer

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 coloured concrete

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

- Simple colour mix slide systems
- Premium colour mix systems with up to 6 dosing conveyors and intermediate buffers (individually programmable, re-producible colours possible at all times)



Double bucket conveyor



Assembly of the Premium colour mix system



Colour mix slide system



Colour example for the Premium colour mix system

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 an especially robust way and convinces technically with its high-grade mechanical, hydraulic, pneumatic and electronic components.

Among others, standard equipment includes:

- Filling unit (face mix)
- Welded machine construction in a strong and compact design
- Reinforced base frame for carrying the vibration table
- Integral vibration table

- Siemens S7 PLC-control
- Plant operation data; fault diagnosis with visualization of all functions via a PC and 24"-TFT monitor
- Statistics and print function
- Robust and operator-optimized safety devices
- Proportional regulation for pump pressure and main drives

Further options:

- Mould changing conveyor
- Styrofoam inserting device
- Compaction head locking
- Servo vibration (only L 9.1)



Block making machine L 6.1

Continuous product quality, high quantities and a wide range of products: Concrete blocks made of light and heavy concrete, for instance wall building material, paving blocks, kerbstones, plates and special products for horticulture and landscaping.



Driven silo flaps



Cleaning brush



Machine silo



Block making machine L-version

Concrete block making machine

XL-version: XL 9.1 – XL 9.2

Due to its sophisticated and well engineered technology, the XL version is the top model of the block making machines in the market. Decades of experience and continuous further developments have some influence on the technology of this model range. In cooperation with our customers, we especially set great value upon a market adequate definition and implementation of new requirements. For instance, the XL version stands for an especially height accurate production of concrete blocks of all types, short cycle times or highest daily production quantities at optimum production quality.

The standard scope of delivery includes, among others:

- Continuous level measurement in silos for main and face mix
- Oil temperature control with oil pre-heating and oil cooler (air)

- optional heat exchanger and cooling tower
- Frequency controlled vibration - optional amplitude control
- Visualisation of the functions via PC control and 24" TFT monitor
- Online support
- Proportional pressure control for the hydraulic system
- optional hydraulic unit installed in a noise insulated container (Hydrautainer)

The standard scope of delivery can be upgraded by the following special package:

S-package (fast): higher pumping capacity, additional hydraulic accumulator, V-belt conveyor with integrated lowering device, laser level measurement in the face mix filling box and other items.



Block making machine XL-version



Servo-vibration



XL compaction unit with vibration table

Today's modern concrete block making machines feature high levels of automation and production requiring strong components and customer friendly operating facilities with high levels of safety.

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 visualisation of the components.

Among others, it is characterised by:

- A clear visual design of the complete plant
- Use of 3D plant illustrations
- Connection of a precise fault finding facility
- Integrated language selection (max. 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, mould management), Package II „Professional“ (user management, order management, extended formulation comparator and others), Package III „Ultimate“ (operating data acquisition, recording via Ethernet interface).

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.



Masa FAST Factory Automation Service Tools: Curing Chamber assignment



Innovative and well-conceived: Masa “Powertainer”



Masa FAST Factory Automation Service Tools: Formulation management



Power panels within the “Powertainer”

Precise handling: Everything at its destination.

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 very well 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 optimised by means of a ventilation system. The Masa control regulates temperature and humidity in the curing chamber.



Concrete block transport



Masa 3 station paver washing plant



Fully automatic finger car loading curing racks



Concrete blocks placed in the curing chamber for curing

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-optimised 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 provi-

des 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 optimisation.

Centering devices or doublers can supplement the process. The individual integration of packaging systems, e.g. strapping units 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.



Masa remodelling and cubing



Secondary processing with Masa splitting machine



Split faces with natural appearance

Technical Overview.

The output figures listed below 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.

If desired, available special package options allow one to increase the production outputs. The block dimensions, quantity per cycle and production quantity are determining parameters for the planned production.

Mixer

		S 350/500	MH/PH 500/ 750	MH/PH 1500/2250	MH/PH 2000/3000	PH 3000/4500
Dry filling quantity	in liter	500	750	2250	3375	4.500
Output	in liter	350	500	1500	2250	3000
Max. filling level	in kg	800	1150	3450	4600	6900

Block making plants / capacity data

		Economy	Standard	Fast ⁽⁴⁾			
max. cycles per minute Masa ring plant							
Hollow blocks ⁽³⁾	-	4	4	5	4	5	4
Rectangular pavers	w/o face mix	4	4	5	5	6	6
Rectangular pavers	with face mix	3,5	3,5	4	4	5	5

Machine type		L 6.1	L 9.1	XL 9.1	XL 9.2	XL 9.1	XL 9.2
Standard pallet size ⁽²⁾	in mm	1400 x 900	1400 x 1100	1400 x 1100	1400 x 1300	1400 x 1100	1400 x 1300
Useful area - blocks max.	in mm	1300 x 850	1300 x 1050	1300 x 1050	1300 x 1250	1300 x 1050	1300 x 1250
Useful area - pavers max.	in mm	1300 x 850	1300 x 1050	1300 x 1050	1300 x 1150	1300 x 1050	1300 x 1150
Stone height max.	in mm	350	500	500	500	500	500

Pieces per cycle

Hollow blocks	400 x 200 x 200 mm (8")	12	12	12	18	12	18
Rectangular pavers	200 x 100 x 80 mm	48	54	54	60	54	60

Production capacity⁽³⁾ per 8 hour shift, at 85% efficiency

Hollow blocks	pieces	19584	19584	24480	29376	24480	29376
400 x 200 x 200 mm (8")	m ³	313	313	392	470	392	470
Rectangular pavers	m ² w/o face mix	1567	1763	2203	2448	2644	2938
200 x 100 x 80 mm	m ² with face mix	1371	1542	1763	1958	2203	2448

(1) Wall thickness > 30 mm (2) Variations available upon request. (3) The capacity data are theoretical and are dependent on machine settings, mix design, aggregates used and other environmental conditions. (4) High speed capacities only in combination with S package for machine and ring.

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.

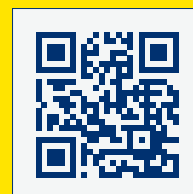
At our head office in Andernach between Koblenz and Cologne we develop and manufacture equipment to produce concrete blocks and pavers. A second location focused on the development and production of machinery and plants for concrete slabs, AAC blocks and sand lime bricks is in Porta Westfalica. Furthermore, 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
- Kerbstone production
- Service

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



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