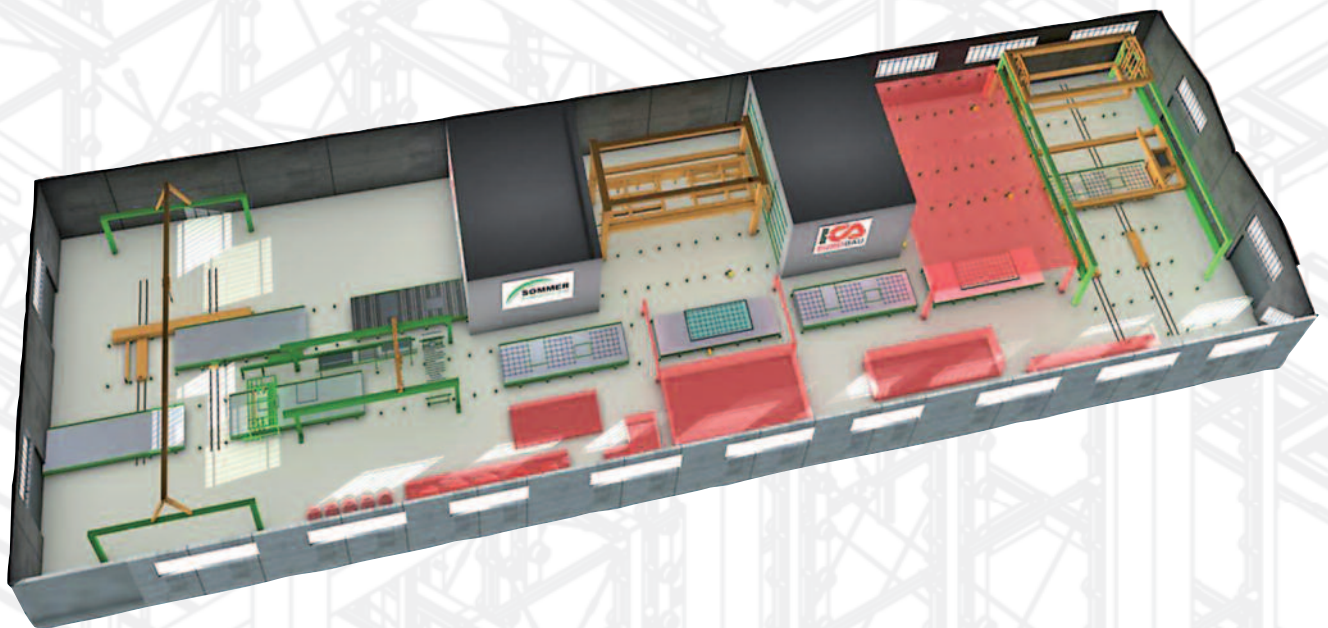




## Pallet circulation plants

The production technology for the cost-effective and flexible production of:

- | Double walls
- | Element ceilings
- | Massive walls
- | Sandwich walls
- | Special purpose elements





## SOMMER pallet circulation plants

SOMMER pallet circulation systems for the production of element ceilings, double walls, solid walls and sandwich walls from standard and light-weight concrete are in use all over the world to the complete satisfaction of our customers. Performances of 200 up to 3000 m<sup>2</sup> can be realized. This production method enables a production process which can be controlled the whole way from the CAD system to the construction site. The automation degree of the plants can be adapted with regards to the aimed capacity and the local conditions. The plants consist of modules and can be adapted to almost all market requirements. The production flow in circulation plants is split up into the following working stations:

### Preparation of contact faces

A perfect cleaning of pallets' surfaces is the basis for our product quality. The scrapers from special material clean off major dirt from the contact faces without scratching the ground pallets. The brushes remove the fine dust from the pallets. A dust collecting container or a dust exhaustion provide an optimum surface for the next shuttering process. The machines are produced to a high standard in a driveable or stationary version. Combined machines with the additional functions plotting, oiling, lifting shutterings and lowering them are available as modular components.

### Formwork

For forming the concrete elements mainly steel shutterings with integrated magnetic fixing systems are in use. The quality of the shutterings-made from special steel, laser cut, milled and with the desired profile-guarantee a long service-life and highest precision. The design enables simple cleaning by a machine. A new patented Shuttering-Module-System (SMS) offers flexibility for all market requirements.

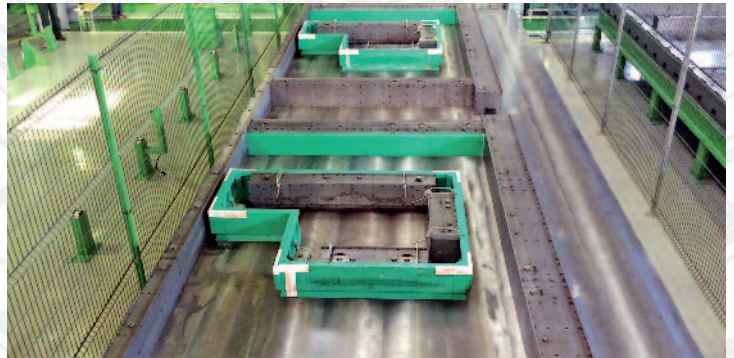
The core of the automated production is the patented Multi-Function-Shuttering-Robot (MFSR). The shutterings, magnets and additional elements are set with a precision of +/- 1 mm. Adapted to the shuttering system additional tasks such as measuring the pallets, oiling of the shuttering area, activation of magnets and placing of special magnets for fixing insert parts are performed. The management of the shuttering storage is performed by the MFSR. Shutterings up to a height of 400 mm can be processed as standard. Sommer offers also manual solutions. In this context an ergonomically designed working station is of special importance. State of the art working place systems which ease physical work substantially have already shown to be of a great advantage in many plants.

### Reinforcement

The required reinforcement is prepared according to CAD requirements and fed to the working station. The design of the steel processing machines is done according to performance and requirement of the products. The interfaces are defined exactly.



Preparation of casting surface



Shuttering systems



Placing of shutterings



Reinforcement



### Casting

SOMMER concrete distributors are suitable for almost every degree of consistency due to the casting of light and normal concrete with augers. As portal-, half portal- or bridge construction, with manual or fully automatic control, these machines are in use for all purposes.



Concrete casting



### Compacting

The products, the concrete recipe and consistency are the requirements for the design of the compacting stations.

Vario oscillate compacting System VSV:

The VSV system reduces the noise level to 70 – 75 dB(A). By horizontal and vertical oscillations compacting can be also guaranteed with massive walls from normal or light concrete.

High frequency compacting (HFC):

The pallets are lowered onto the vibration rolls or vibration sets and guarantee a perfect compacting of the concrete in all areas of consistency.

Combined compacting stations:

The Vario-Oscillate-Compacting-System is combined with high frequency compacting. With this solution all requirements are fulfilled with regards to occupational safety and flexibility.

Plunge vibrators and load vibrators:

For compacting elements in several layers bottle vibrators or load vibrators are used.



Compacting system VSV



### Turning

The SOMMER turning station guarantees an exact production of double wall elements of high quality. The lifting and turning movements are performed hydraulically as is the fixing of the elements. For the production of special purpose elements vacuum units can be used.



Casting- compacting leveling station



Turning station for double wall production





### Finishing

Surface treatment is essential for the production of massive elements. Here the pre-drying times are taken into consideration and the pallets are fed to the stations. Finishing screeds, finishing rollers and smoothing devices ("helicopter") are arranged in such a way that an optimum surface treatment with regards to cycle-time requirements is guaranteed.

### Hardening

The hardening area is designed corresponding to the capacity of the plant. Staple or rack devices and the lifting and transport devices for those guarantee a rational production flow. For the insulation of the hardening chamber and heating systems different systems are supplied with optimum hardening conditions at low operational costs.

### Lifting of elements/Storage

Tilting stations, lifting devices and element exit cars guarantee also in this context all aspects of an economic production. Automated storage systems have contributed to a success of many prefabricated concrete plants to a great extent.

### Lifting and cleaning of shutterings

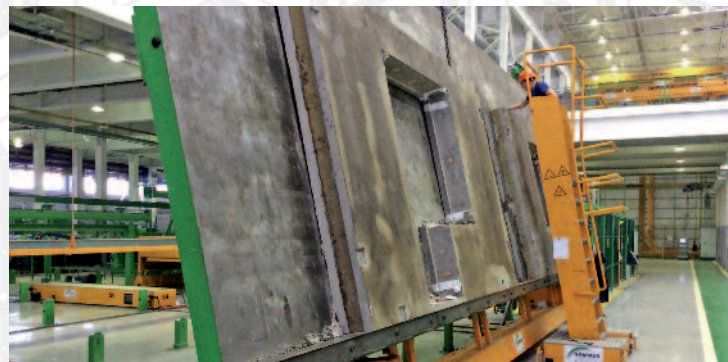
Manual or fully automated – Sommer has perfect solutions here. Multi-Function-Shuttering-Robots (MFSR) or a separate deshuttering robot recognize the shutterings on the pallet via an image processing system, calculate the position of each shuttering, open the magnets and feed the shutterings to the transporting and cleaning unit. A new cycle starts.



Smoothing device



Rack operator



Demoulding area



MFSR Demoulding station