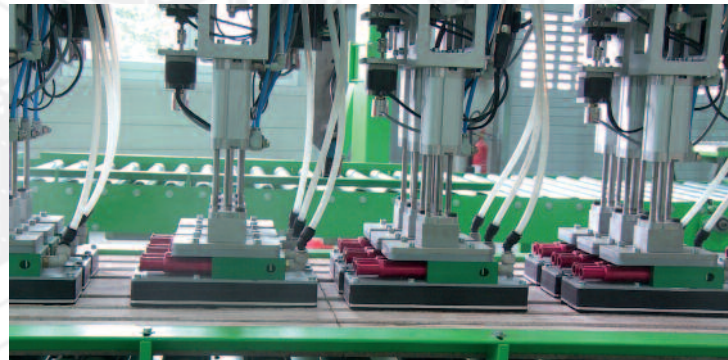




**JFI Method:
Fully automated production
of multi-layer concrete elements**

**EUROPEAN PATENT EP 2418058
GRANTED 05.11.2014**



SOMMER
PRECAST TECHNOLOGY

JFI Method: Fully automated production of multi-layer concrete elements

European Patent EP 2418058 granted 05.11.2014

The JFI method, an innovation by Sommer Anlagentechnik and SAA Engineering, granted with a patent in 2014, enables a highly precise automated production of multilayer concrete elements with high flexibility and productivity.

Till now the production of multilayer concrete elements had been performed manually in most cases. The production of sandwich elements with a protruding facade cladding with klinkers, tiles, handcraft and natural stone needs a lot of personnel and is not flexible. For this reason the market share is also quite low currently.

This new process has been developed for the requirements of the Russian market. But due to the substantial advantages of this process for the production of high quality facade elements it will increase the market share of prefabricated concrete elements world wide.

At the end of the year 2013 the very first plant worldwide with this

energy efficient, highly productive and resource friendly technology was taken into operation in the greater Moscow region. Two additional plants were started its production in year 2014.

New fields of application in the production of complex prefabricated concrete parts are opened. Different building projects can be implemented economically. Energy and material costs are reduced, eg by saving plastic matrix and insulation material. By the possible use of different facade cladding elements such as steel, stone, aluminium, ceramics and photovoltaic the technical and aesthetical quality of the building projects will be improved significantly.

The net product for the production in the prefabricated concrete plant is increased and also the competitiveness of prefabricated concrete parts over cast-in-place concrete. By fully automated, CAD supported production processes the efficiency of the production process will be increased and the working conditions in the factories will be improved.



Flexible placing of facade cladding elements in different sizes



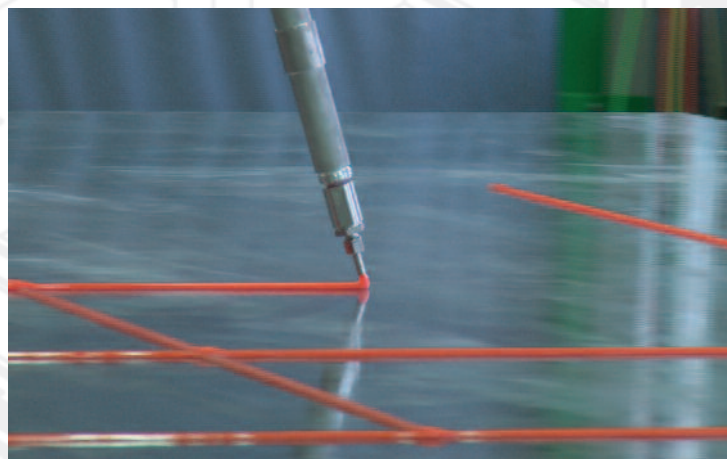
Estate building project in Moscow

The following developments have been implemented for that purpose:

Production method for applying a joint filler

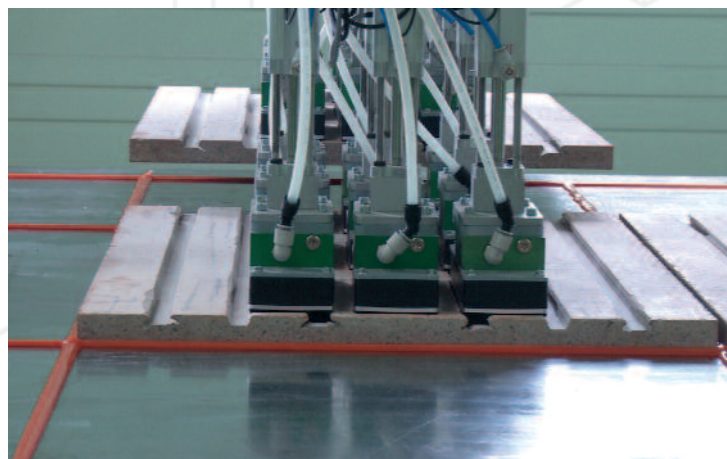
The joint filler is applied automatically to the surface of the production pallet in a grid pattern according to the CAD planning. The joint filler mass has the following properties:

- | it can form a joining contour.
- | it does not connect with the joining concrete.
- | it balances the tolerances of the production pallet.
- | it has vibration absorbing properties and thus protects the facade elements from damages in the following compaction process.
- | the facade elements are position-fixed.
- | it enables sealing and balancing of tolerances at the moulding edges.



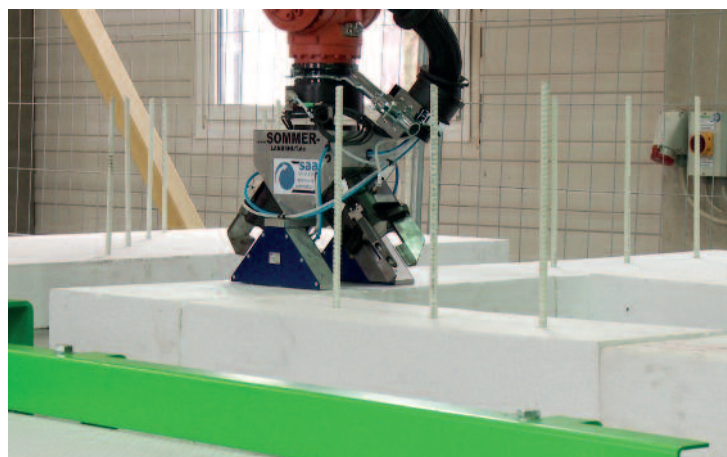
Production method for feeding facade cladding elements (tiles, klinker, etc) automatically to a transport and cutting device and for placing them automatically and precisely with a robot on the production pallets

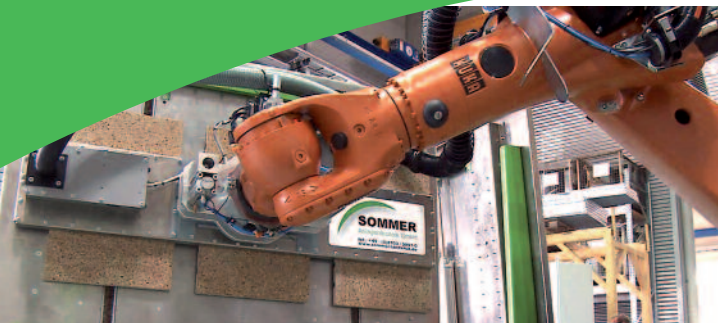
The cladding elements are fed to a robot cell. The robot takes out one unit from a transporting unit (pallet, staple etc) and feeds it directly to a cutting device or directly to the placing robot. The placing robot grips a group of pre-positioned parts, drives them to the unit and exactly into the joint filler applied before - in a distance to be defined.



Production method enabling an automated feeding, cutting, boring and positioning of the insulation layer and an automated placing of wall connectors

The insulation staples being delivered as staples are cut into single pieces automatically; according to the CAD data they are cut and borings or breakthroughs for the wall connectors to be used are inserted. A placing robot positions the plates on the freshly cast front layer and plugs and wall connectors through the recesses in the insulation plates and into the wet concrete.





Destacking and loading robot



Water jet cutting



Manual loading of special elements with positioning by laser projection



Placing of tiles in matrix grid with multi gripper



Individual matrix grid after curing



Elements with monolithic tile surface ready for erection

SOMMER Precast Technology: Production Engineering and Automation Systems for the Prefabricated Concrete Element Industry

- | Stationary line production
- | Tilting station
- | Pallet circulation plants
- | Transport and handling systems
- | Multi-Function-Shuttering-Robot (MFSR)
- | Concrete distribution systems for all purposes
- | Compacting systems
- | Finishing equipment
- | Shuttering systems
- | Shuttering for special purpose elements
- | Moulds for garages/moulds for rooms/special purpose elements
- | Shuttering for skeleton building systems
- | Moulds for columns/moulds for girders/moulds for TT-elements



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