



Concrete Plant International
Worldwide English Edition

4 | 2022

www.cpi-worldwide.com

REPRINT | CONCRETE PRODUCTS & CAST STONE

Research and development ensure long-term success



Wasa AG, 64293 Darmstadt, Germany

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■ Matthias Bechtold, Wasa AG, Germany

The terms research and development are emblazoned on the flags of every modern company. To what extent this is also put into practice is often a different matter. When a company like Wasa with a history of over 60 years and products that, such as the Wasa Uniplast Ultra solid plastic board, have already been on the market for over 30 years, talks about research and development, it means that seasoned products with decades of proven performance have to be perfected. This is not always an easy undertaking, because making very good things even better is a challenge.

In the case of products relatively new to the portfolio, such as the polyurethane moulds or stack carrier systems for wetcast applications of the Wasa Construct brand, R&D also means involving customers in the first steps and sounding out what is good and what needs improvement in a trial-and-error process - ultimately to develop and manufacture the most suitable and functional product for the user.

Wasa's largest current research project, Concrete Plant of the Future, is under the leadership of the IAB Weimar. The aim of the research project is to develop an expert system for the production of concrete products and a consulting tool to improve the processes in the concrete plant. Further research projects are running in parallel with the University of Kassel and the Chemnitz Technical University.

At the end of all these research and development processes, we always turn to practical implementation in production and sales. This is precisely why Wasa regularly organises training events for employees from the various company divisions, where the latest research projects are discussed and new products and production processes are presented. The most recent example was in February at a two-day internal event, when employees from the Darmstadt sales office met at the plant in Neubrunn (Thuringia) to be brought up to date on the latest developments.



Wasa produces almost 200,000 production boards every year. In the warehouse they wait to be loaded.



Parts of the new production line for Wasa Woodplast.



Dr. Arno Schimpf explains how the day silos of the polyurethane buffering system work.



Operations Manager Kevin Huneshagen (l.) in conversation with Wasa Construct Sales Manager Benjamin Burschey (r.).

Wasa Boards

With almost 90 per cent of the group's turnover, the production boards are still by far the most important product family. Wasa sells worldwide every year around 200,000 production pallets for static board machines. The main sales areas are Europe, the USA, Canada, parts of South, Central and Latin America and Mexico. But also in Australia or Asia, people appreciate the Wasa Uniplast Ultra solid plastic board in particular because of its very long service life, the possibility of regrinding and the very good production parameters.

So it is not surprising that Wasa's capacities for the production of this board were exhausted and had to be expanded. In 2019, the company decided to build a further, fourth plant for the production of this solid plastic board. Equipped with the latest extruder and mould technology, the fourth plant will start regular operation this summer. On the occasion of the training, the Wasa employees had already enjoyed an interesting peek into the production hall to explain the new production technology and to answer open questions. The new plant is the most modern of its kind in terms of energy efficiency and cycle time.



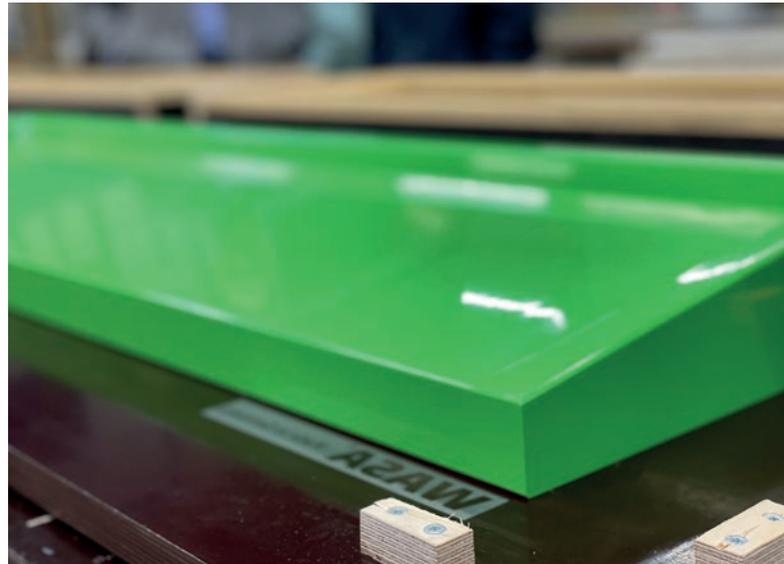
The Wasa shuttering system is produced purely by hand.



High vertical range of manufacture: From CAD design to model making and PU casting, everything is done in-house at Wasa.



The wafer-thin RFID tag is fixed in the wetcast mould by the red plastic body and then encapsulated in PU.



The model of a window sill awaits further processing to become the finished PU mould.

At around 80 percent, solid plastic boards make up the most important type in the entire board range. Wasa processes around 14,000 t of industrial plastics annually for this purpose - not including the glass fibre added to each Wasa Uniplast Ultra to increase impact strength and stability.

But the polyurethane-coated compound board Wasa Woodplast has also secured its place in the market and will also benefit from a completely new production line at Wasa this year. The employees of the development department had to comply with several requirements and implement them in a production line. As a wooden board coated with plastic, it first requires the production of the essential wooden core. The distinctive feature of the new system technology is the production process. In the process, the softwood core is first inserted into a double-shell aluminium mould which is then fed into the pressing chamber. Specially designed bellows apply the clamping force required for coating the wooden core. This technology can generate locking forces of over 100 t. The employees could get an idea of this impressive technology during the factory tour.

The advantage of this novel clamping technique is that the moulds holding the softwood cores cannot buckle outwards. This reduces the tolerance of the board thickness to a minimum, which is of immense importance for the concrete worker.

The polyurethane dosing plant works with a relatively slow curing PU system to give the coating sufficient time to penetrate deeply into the wood matrix and thus create a strong bond between the PU coating and the production board. This represents a major advantage over fast-curing PU systems.

The press is designed to fill four cavities with polyurethane in parallel. The moulds are fed and discharged to the left and

right of the press respectively. A rail-guided filling trolley travels along the rails to load and unload the respective chambers with the steel moulds. In total, the buffer line comprises 15 steel moulds. Two Fanuc robots are placing the cores into the steel moulds and also remove of the coated boards.

The Wasa employees could view at the plant from its highest point and thus gained insights into parts of the technology that are otherwise not accessible to anyone else. This way, the two teams from Neubrunn and Darmstadt could see for themselves first-hand that the plant is definitely not a light-weight structure. The inherent weight of the press itself is a remarkable 120 t, whereas the individual steel moulds weigh 1.2 t each. The completely installed system has a dead weight of over 200 t. There are also two stainless steel tanks for the liquid polyurethane, which are positioned above the press as a day silo and whose capacity corresponds to a volume of 10,000 litres.

Wasa Construct

It was also exciting for the staff in the mould production hall for wet and precast applications. The production of the polyurethane moulds is true manufacture from start to finish. From the model maker to the carpenter to the employee who pours the liquid PU into the masters, everyone here is a specialist in their field.

Dr Arno Schimpf, the managing director responsible for the department, and David Werning, the authorised signatory, presented the employees not only with the latest process engineering, but also with an innovation in the field of mould making at Wasa: the implementation of RFID chips also in wetcast moulds. While chip technology has been used in production boards for years, the installation of RFID chips in wetcast moulds is still relatively new.



Delivery of plastic granulate for the production of Wasa Uniplast Ultra. Wasa processes a remarkable 14,000 tonnes of this per year.

In addition to the conventional wetcast moulds, another sub-sector has also established itself in Wasa's daily business. For Wasa Shuttering, wood-based panels made of European spruce veneer are coated with polyurethane in Shore A65. The edges of the wooden beams are also coated with the flexible polyurethane and thus give the production table a laminar seal. Wasa Shuttering is supplied with a standard chamfer at the factory to produce smooth and clean edges on concrete blocks. Extensive silicone work to seal the form-

work and chamfering is therefore not necessary. The highly wear-resistant polyurethane coating on the concreting and edge side reduces the wood swelling of the veneer layers used and thus increases the service life of the formwork.

The two eventful days impressively proved that research and development are not just lip service, but are lived practice at Wasa. ■



Inspecting a wooden core for a Wasa Woodplast.

FURTHER INFORMATION



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