

Progress Group, 39042 Brixen, Italy

A technology leader that sets standards with its own precast plant

The Progress Group is primarily known as a full-range supplier of system solutions for the automation of reinforcement and precast element production including the necessary software. Yet what many do not realise is that the international group operates its own state-of-the-art precast plant with integrated rebar shop at its headquarters in Brixen (South Tyrol/Italy), producing innovative and sustainable precast concrete elements for the northern Italian and Austrian markets.

More than 30 years of in-house production

The first pallet circulation system was put into operation in Brixen in the early 1990s. Previously, precast slabs with in-situ topping were produced on membranes. A second circulation plant for the production of double walls and precast slab with in-situ topping went into operation in 1998. The first system was completely modernised in 2011.

Overall, the individual machines in the carousel plant have a very long service life. However, the Progress precast plant is undergoing constant modernisation and expansion, as the

company is not only a producer but also an in-house innovation hub. The Group's latest developments in mechanical engineering and software are deployed in line with market requirements.

Automation as a guarantee for employee satisfaction

One example of ongoing automation is the Form Master shuttering, deshuttering and storage robot, which eliminates strenuous manual formwork and makes workplaces more attractive and safer. It shows: Several production employees have been with the company for almost 40 years and could continuously develop their area of responsibility. Automation creates new perspectives and also binds young employees to the company with secure and exciting tasks.

All innovations in one place

Apart from the Progress Group's classic reinforcement machines such as a Wire Centre, which considerably improves the production process through the automated processing of reinforcing steel from the coil and the installation of reinforce-



Just a few metres from the Progress Group's new headquarters, their own precast plant is producing precast elements.



The headquarters in Brixen serves as a showroom for the innovative construction system, as it was built entirely with the company's own precast elements from the factory next door.



The precast plant at the headquarters of the company group, which specialises in automation and digitalisation, produces with its own machines and software.



The M-System Smart Mesh welding machine is equipped with an additional bending machine, which facilitates fully automatic cage production.

ment as per CAD specifications, the Blue Versa lattice girder welding plant, the EBA automatic stirrup bender and the MSR multi-rotor straightening and bending machines, there are also absolute world firsts in use in the rebar shop and in the precast plant. The M-System Smart Mesh mesh welding plant with bending system can, for example, automatically produce extra-wide mesh and process it into a complete reinforcement cage. The Tube Master is a novel pipe-laying robot that automatically bends heating and cooling pipes for the production of thermally activated and energy-efficient precast concrete elements and lays them precisely on the pallet. This increases productivity and makes work easier. Other modern-

ised machines in the circulation plant include the automated eCon Drive concrete spreader, which provides significant material savings and high concrete quality, and two combined shaking and vibration devices.

Further, two impressive innovations were installed in the precast plant in 2023, which automate and efficiently organise the production of the licensed precast concrete elements, the Green Code Thermo Wall® and the Green Code Eco Slab®. The Pin Master automatically inserts the GC pins, thermal bridge-free connectors between the inner and outer panels of the thermal wall, into the insulating material of the thermal



The Tube Master pipe-laying robot is a market first. It installs heating and cooling pipes fully automatically as part of the prefabricated ceilings.



The Pin Master places the GC pins automatically straight through the insulating material into the fresh concrete, eliminating the manual insertion.



The Box Master places the lower half of the GC box (the GC base) fully automatically in the Green Code Eco Slab® at the plant - this is then completed on building site with the GC top, i.e. the other half.



The Form Master shuttering and deshuttering robot can position the shuttering precisely according to the CAD data transmitted by the ebos® control system.

wall so that they do not need to be inserted manually. The GC base (the lower part of the Green Code Eco Slab recess body) is installed automatically in the factory using the Box Master, with millimetre precision and without any manual work.

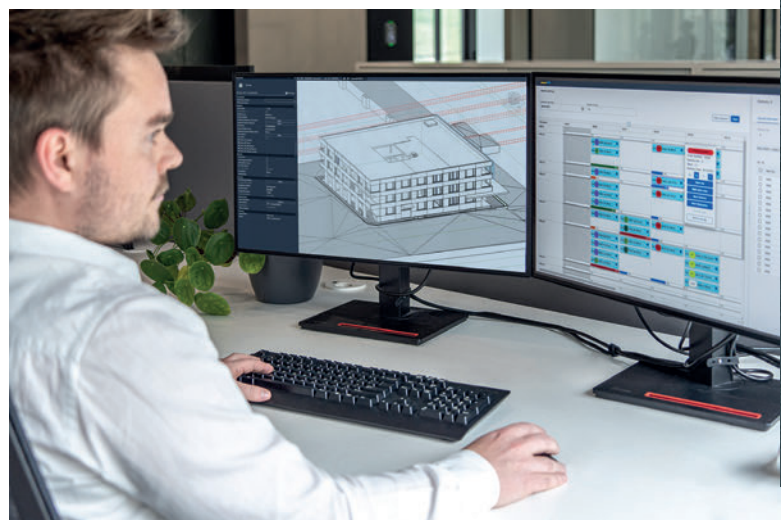
Software as the key to efficiency

The precast concrete plant works with Progress software solutions from the initial planning stages through to production. The BIMpro software, which quickly and easily converts an architectural model into a precast concrete model, supports the element design, resulting in time savings of up to 50%. The model-based data is simply exported for planning and production via PXML data and transferred to the other sys-

tems. All planning is carried out using the Progress ERPbos solution, which maps the entire business process specifically for the precast concrete industry - from sales to invoicing. Production is controlled and monitored by the industry-specific Progress MES systems. The control system benefits, controls and monitors all production processes and machines in reinforcing steel processing to guarantee maximum accuracy and efficiency in the in-house rebar shop. ebos, the corresponding equivalent, controls both circulation plants in the production of precast elements and ensures the quality with the respective features. One example is the Green Code Curing Control, which monitors the curing process and uses intelligent sensors to send data in real time. This monitors exactly when the elements are ready for deshuttering.



The automatic control unit transports the elements for effective curing, supported by the Green Code Curing Control.



The entire workflow and production are planned using the model-based data. Due to the integrated process and real-time data flow, changes can be addressed quickly.

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Real-time information from ebos is used to visualise production data and thus create transparency and control over current production. The Dynamic Smart Production screens show employees the right information at the right time.

This fully digitalised production guarantees an integrated process from design, planning and production through to assembly. Efficiency and productivity are significantly increased and up to 15% higher machine availability is achieved.

Sustainable recess body for reinforcement reduction

Progress AG is a founding member of Green Code - a licensed building system for sustainable and innovative precast concrete elements. The Green Code building system enables the construction of modern, individualised and high-quality buildings. The innovative precast concrete elements optimise the use of materials and minimise the impact on the environment. The latest achievement of this system is the Green Code Eco Slab, which is produced automatically at Progress AG using the Box Master. With the Green Code Eco Slab, you can now dispense with some of the steel reinforcement and replace it with an environmentally friendly recess body - without sacrificing structural performance. With the recess body, the GC box, the Green Code Eco Slab not only saves steel, but also concrete. In concrete terms, this means up to: -25% concrete and inherent weight of the ceiling, -15% steel meaning considerable CO₂ savings. The GC box is made from 100% recycled polypropylene, which can be fully recycled again at the end of the building's life. It consists of a base (GC base) installed at the factory with the Box Master and a cover (GC top) added on site.

Advantages of automation - precision and product safety

From the perspective of plant manager Robert Wenter, who has been with the company for 25 years, the advantages of automation are not just increased productivity, but above all



The MES system profit monitors and controls all machines to achieve maximum efficiency in reinforcing bar processing. All production data is collected centrally and helps to increase productivity.



quality: "Precision and product safety are essential in our sector. It is particularly important that all precast elements are manufactured exactly according to plan to guarantee the safety and stability of the building and minimise sources of error."

We are Progress - constant progress

The Progress Group's future development is also fully focussed on innovative and sustainable solutions, which are put through their paces in the company's own factory. And this in all three areas of the corporate group: Mechanical engineering, software and precast concrete element production.



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The Green Code Eco Slab® is completed on the building site with the GC top, i.e. the upper half of the recess body, which is available in different versions for different slab thicknesses.

FURTHER INFORMATION

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Experience the future of construction at the Green Code Precast Days on 26 and 27 September at the PROGRESS GROUP headquarters in Brixen, South Tyrol!



The new BSV headquarters is a prime example of how modern, sustainable and time-saving precast concrete elements can be used in construction.