

Progress Maschinen & Automation AG, 39042 Brixen, Italy

Best foot forward to success – major modernisation programme for Verhelst Prefab

Verhelst Prefab, part of the Belgian Verhelst Group consortium leads the way: steady modernisation over the years leads to success. The prerequisites for this are machines and software solutions, which can be integrated to best effect in the existing plant and contribute to increasing efficiency. Verhelst Prefab found a partner for this scheme in Progress Maschinen & Automation, a company in the Progress Group.

Verhelst Prefab and Progress Maschinen & Automation have been working together successfully for over 20 years. Since 2011, in particular the Belgian precast concrete element manufacturer has been pursuing a policy of modernisation. In this programme the production of made to measure mesh for the two high performance circuits and the handling have been completely modernised, new compacting equipment has been installed, the control system has been replaced in both plants and the shuttering process fully automated. In an adjacent works for the production of architectural concrete, an additional multi-function machine for manufacturing stirrups and bars with and without bending has been installed.

Verhelst Group: a wide-ranging portfolio with tradition

Verhelst is anything but a newcomer to the sector: founded in 1925 in Oudenburg near Ostende as a brickyard, the family firm has been expanding steadily over the decades into a variety of business areas. Today the portfolio includes a total of twelve subsidiary companies providing services from precast concrete element production, through building materials trade and building materials recycling, processing of natural stone, construction of infrastructure and roads, to logistics services and the leasing and sale of cranes. A total of 800 employees generate a total turnover of 190 million Euros.

First cooperation in 1996

When the management of the firm was taken over in the 1990's by the fourth generation, the focus shifted from expansion to investment in modern, efficient production methods and plant. This period also marked the start of the cooperation with Progress Maschinen & Automation: the first straightening machine was installed in 1996. Koen Titeca, the Technical Manager with Verhelst Prefab, remembers: "At that time we needed a good, dependable straightening and bending machine for the manufacture of architectural concrete. We were impressed by the MSR-2BK from Progress Maschinen & Automation and that laid the foundation stone for our successful cooperation with them to this day."

Major modernisation since 2011

The climax of the modernisation measures began in 2011 and is still under way. Every year since then new machines, robots and software solutions have been installed. According to Koen Titeca, the purchase of a Type VGA Versa lattice girder welding machine in 2012 marked a turning point: "We were delighted with the cooperation and the machines from Progress and began to subject our entire production plant to a comparison on a technical basis. As a consequence parts of both carousel systems were progressively



Verhelst Prefab, part of the large Belgian Verhelst Group consortium, has been working together with Progress Maschinen & Automation 20 years now. Since 2011 alone a total of 13 modernisation measures have been implemented – most of them in the sector of automation.



In 2012 as part of the first modernisation measures a new shuttering robot, the Form Master, was installed in the carousel plant for the combined production of lattice girder floors and double walls.

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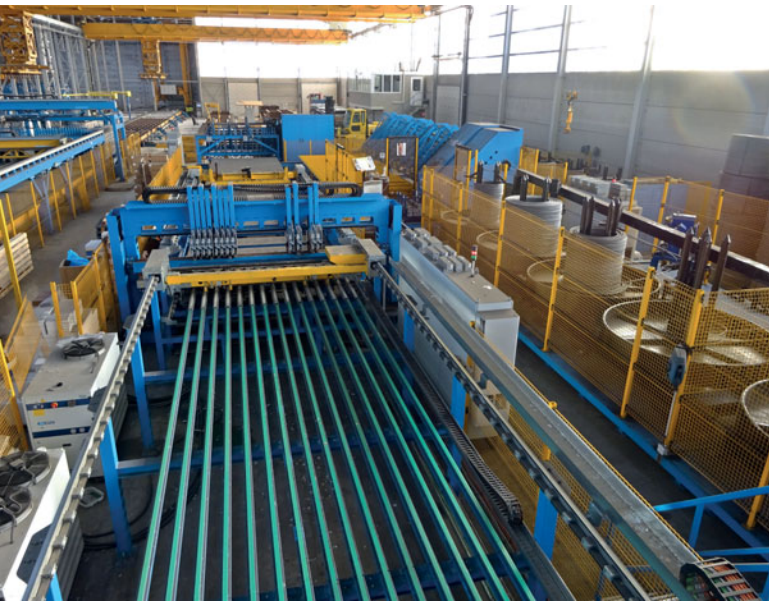


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According to Titeca the M-System PowerMesh HS mesh welding plant, installed in 2016, was "the largest, but also the most important investment" for Verhelst. This newly developed plant is designed for high performance and supplies the two carrousel systems with the required mesh.



Two robots, called Mesh Spacers, position specialised spacers for bespoke mesh in a fully automatic operation in accordance with CAD-CAM specifications.

exchanged and replaced by machines and components from Progress.

A new complete software solution for both carrousel systems

In the same year, a new Form Master shuttering robot was installed in the carrousel plant for the combined production of lattice girder floors and double walls. Similarly, the ebos® complete software solution was implemented. That ebos was put over the previously existing system was not a disadvantage according to Titeca. "From the outset Progress understood what we need and what we consider important. That is why the new system worked from Day One and is still working today. It was not by chance that we decided three years later to use ebos for the other floor element carrousel as well."

Improvement made easy

This software solution, developed by the Progress Group, is now used by dozens of customers all over the world. In Verhelst's opinion it is the system's control and analysis functions, which really bring the high added value. "For example, ebos gives us an accurate overview of production times. This makes it easy to improve," explains Koen Titeca.

M-System PowerMesh HS: mesh for two circuits with simultaneous flexibility

Innovative approaches have marked the solutions, which have been installed by Verhelst for producing and handling of bespoke mesh. The M-System PowerMesh HS mesh welding plant was delivered just last year and in Titeca's view was "the largest, but also the most important investment for our operation." This newly developed plant is designed for high performance and supplies the two carrousel

systems with the required mesh. At the same time, however, it provides a great deal of flexibility. "This was exactly the flexibility we were seeking," explains Titeca. Not least of its talents is the specialised bending system for right-angled bends.

High performance through parallel straightening on four lines

Wire with a diameter of 6 to 16 mm is wound off a total of 16 decoilers and delivered to the two straightening machines. There the longitudinal and cross wires are simultaneously straightened, cut to length and then transported over delivery systems to the welding portal. "We went through a long planning and decision-making process, before we decided on the plant from Progress Maschinen & Automation, for we had high technical demands," explains Koen Titeca. The Technical Manager is convinced that the M-System PowerMesh HS was ultimately the best choice: "From the technological viewpoint alone this mesh welding plant is the best, which was offered to us." According to Titeca there was no other company capable of delivering and installing the plant in such a short time. "At no time did we have to stop production," he adds.

Innovative solution for the fully automatic placing of spacers

As well as the mesh welding plant, the production sequence was also speeded up by a new completely automatic system for placing spacers for rebar mesh. The first robot, called Mesh Spacer, was installed in 2015 in the combined circuit for floor and double wall production. For this purpose in the production process a positioner removes the required number of spacers from the magazine and places them in positions defined by CAD-CAM. Optimal positioning is calculated with its own algorithm and controlled by an integral laser system. This guarantees a steady rate of concrete coverage - absolutely in line with production specifications.



The spacers are placed accurately and a steady rate of concrete coverage is thus guaranteed. The savings potential is considerable.



Koen Titeca, Technical Manager at Verhelst Prefab

Improved quality and significant cost reductions

The automation of this operation means that on one hand the number of spacers can be reduced to a minimum and at the same time the quality of the precast concrete element is improved. This further increases cost-effectiveness: according to calculations by Progress Maschinen & Automation the potential for saving is in the region of up to 20 cents/m². If you assume annual production of some 500,000 m², the Mesh Spacer can easily save you €100,000 in costs. Koen Titeca confirms this: "We are extremely satisfied with this solution, since we are saving not only a large number of working hours, but material as well. Titeca considers the cost saving significant. "It has not been in vain that we ordered a second mesh spacer only six months after the first one was commissioned." This second machine was integrated into the floor element circuit last year and is also equipped with a release agent spraying device.

Modernisation in harmony with corporate philosophy

The steady modernisation of the precast production is in perfect harmony with Verhelst's corporate philosophy: it is a combination of innovation, dynamics, customer orientation and sustainability, which is intended to lead to solid growth. Not least, this approach is reflected by the solar cells, which have been installed on the works site and the roofs of halls and buildings. On sunny working days the operation already runs completely on solar energy, at the weekends 1,350 households can be supplied with environmentally-friendly energy. ■

FURTHER INFORMATION



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