Progress Group, 39042 Brixen, Italy

Automation as the model for the future: The success story of Viguetas Navarras

The Spanish industry giant Viguetas Navarras is investing in modern systems for the automated production of precast concrete elements. The construction industry in southern Europe is well equipped for the future, thanks to Progress Group's technical mechanisation and software. With forward-looking technologies, an exciting vision for the construction industry and international expansion, the company proves that modernisation is the key to success.

International expansion and innovative concepts

The expansion into the Southern European market in 2004 and the access to the French market in 2012 testify to the company's ability to adapt to international standards. The installation of the pallet circulation plant including reinforcement production from Progress Group revolutionised production with the help of robot technology and digital solutions. 2021 saw the launch of the VN System, Viguetas Navarras' own construction system. This combines all the prefabricated elements required on the building site for house construction: Double walls, prestressed beams, foundation slabs, balconies and architectural façades (following the takeover of the precast element manufacturer Dinescon). This rationalises construction and increases efficiency.

Automation and digitalization as pillars of future construction

The decision in favour of automation and digitalization was the basis for the new development of the system. The cooperation with Progress Group as technology supplier turned out to be the key to success. Highly automated machines for the production of precast concrete elements and the related reinforcement followed, as well as innovative software solutions. As well as the complete pallet circulation plant and an M-System BlueMesh® mesh welding plant with bending system, mesh handling and state-of-the-art welding technology, a Form Master shuttering and deshuttering robot was installed to produce the precast elements in a highly automated process. The new carousel system also includes a logistics and storage system, a pallet cleaning device and a modern turning equipment.

"The high level of technology and digitalization provided by Progress Group was fundamental to our decision to make the largest investment in the company's history to date. The ebos^{yc} software control system has not only provided us with useful data, but has also made an invaluable contribution to improving the three pillars of the VN system at Viguetas

The market leader Viguetas Navarras is equipping itself in Barasoain with modern machine technology and a clear vision for the future.

Industrialized production minimizes errors and increases product quality enormously.

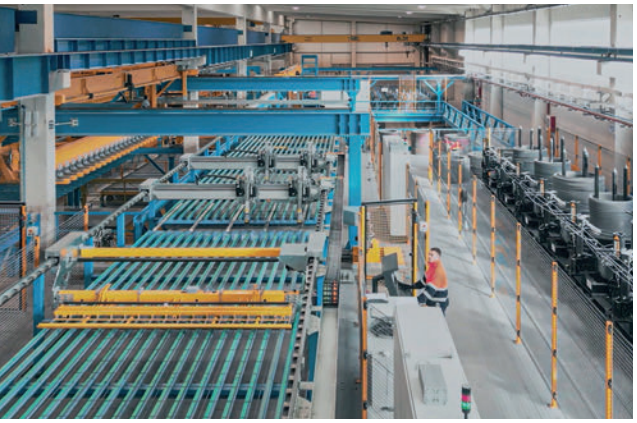
The company has not only been a major player in the Spanish market for over 60 years, but also expanded further into southern Europe and France in the early 2000s.

Navarras: quality, production and communication," says Ivan Ilundáin, production director of the plant.

The implementation of Progress ebos^{yc} software allows a clear 3D visualization of complex relationships and the entire circulation plant can be monitored and controlled in real time.

Also, two camera systems were installed to perform automatic quality control. The fully automatic image capture of the finished or semi-finished element at a specific station provides efficient and reliable quality control. Furthermore, ebos^{yc} also controls the lasers that show the employees where to place which built-in components. This not only eliminates the need for a tape measure, but also provides greater precision, control and quality.

The pallet circulation plant was equipped with automated machines and integrated software from Progress Group.



The flexible mesh welding machine produces the required reinforcement for production just-in-time and precisely according to CAD specifications.

Focus on production and quality

With its two precast concrete plants, Viguetas Navarras relies on state-of-the-art technology. The plant in Huarte specialises in precast slabs and prestressed hollow-core slabs. The plant in Barasoain, just 60 kilometres away, produces 500 m² of architectural façade elements and double walls with the Progress Group's new carousel plant. The increased production capacity of the modern machines enables a monthly production of 2,500 m² of architectural façade elements and 18,000 m² of double walls.

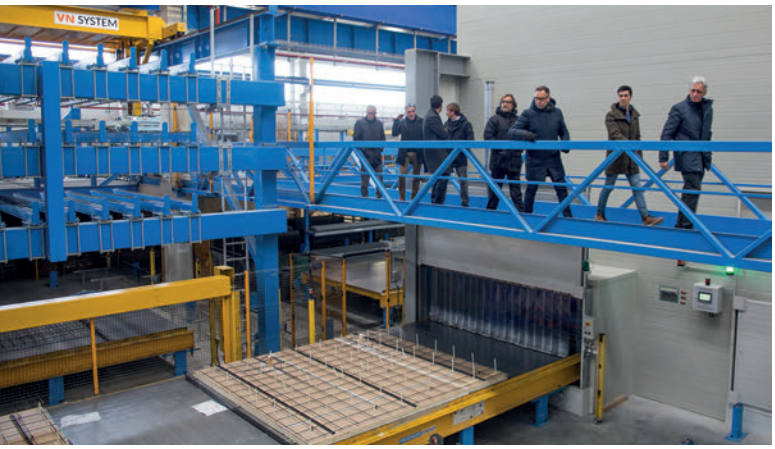
This plant was modelled on the automotive industry and a kind of assembly chain was set up. This innovative movement concept of the plant, in which the element is moved from one workstation to the next, optimizes processes and continuously increases production capacity. Smart Production Screens were installed at each workstation, which digitally display the element currently being produced in 3D. The worker interacts with the on-screen virtual element at each workstation, rotating and moving it and so receives all the necessary information from ebos^{yc} in real time. Progress Group's support for technical queries provides additional security and helps to resolve incidents quickly and efficiently.

Quality control through digital twin

Production is also virtually simulated in the software by a digital twin, four days before the real production of each element. During this phase, errors can be identified and corrected prior to production to deliver precise, high-quality products. Involving employees in the process by interacting with the digitally created element is crucial to achieve the highest quality standards. During this virtual phase, Viguetas Navarras recognises and corrects all errors indicated by the software and the machines so that production can be precise and error-free.

Automation and digitalization

"We decided to invest in automation and digitalization for several reasons. Firstly, we want to increase our operational



Viguetas Navarras opens its plant for tours to make the advantages of industrial prefabrication more tangible.

The circulation plant has led to an enormous increase in production and is fully automated.

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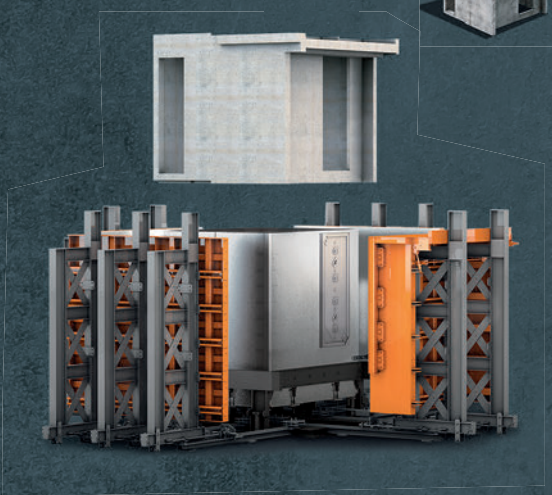

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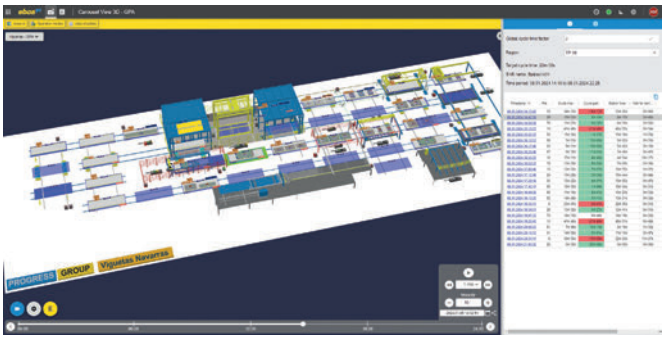
All elements produced in the plant are digitally processed four days before production, which significantly minimizes sources of error and raises quality standards.



Full transparency in 3D with GPA (Graphical Performance Analyser) in ebos[yc].

efficiency by rationalizing tasks and optimizing the use of resources. This allows us to work more flexibly and effectively," confirms Ivan Ilundain. It is also essential to reduce human error, and the introduction of automated systems guarantees greater accuracy and reliability than manual processes. Another important factor is the considerable reduction in labour costs and downtime. This not only has a positive effect on cost-effectiveness, but also allows the allocation of resources to strategic areas and innovation. Improving the quality of products and services is another decisive advantage.

Vision - helping to shape the future of construction

Viguetas Navarra's vision for the future is ambitious. The company is committed to consolidating the industrialized VN System concept into five objectives: VN System Complete (the precast concrete system with industrial prefabrication), training, knowledge exchange, VN System Engineering and environment. Training is regarded as fundamental. However, the vision goes beyond training young professionals; Viguetas Navarras wants to share knowledge and technology with the entire sector. The company plans tours of its modern systems to make the advantages and possibilities of industrialisation tangible and understandable to builders, developers, architects and engineers. Through collaboration between internal architects and engineers with external partners, the aim is to use technology to design more efficient homes and bring about change in the housing industry through automation and industrialization.

On the way to a sustainable future

Beyond these objectives, Viguetas Navarras also sees environmental protection as a priority. The company uses concretes with a very low carbon footprint and provides the end customer with precise data from the entire production process. The aim is to build not only innovative, but also environmentally friendly houses and to integrate sustainability into every step of the construction work. With a clear focus on innovation, modernisation, sustainability and quality, Viguetas Navarras has established itself as a pioneer in the southern European construction industry. The cooperation with Progress Group as one of the leading technology suppliers has laid the foundation for this success and an evolution in the construction industry.

The cloud-based system allows Viguetas Navarras to keep an eye on its production from anywhere at any time.

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

On 19 July 1962, Abel Arrieta Eugui, Luis Ilundáin Eugui and Javier Esparza founded San Julián in Huarte near Pamplona Viguetas Navarras. This foundation marked the beginning of an entrepreneurial journey that has decisively shaped the building industry through a spirit of innovation and commitment to excellence. Today, Viguetas Navarras employs 165 people.

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