

Progress Software Development GmbH, Brixen, Italy

# Advancing quality in precast concrete production

**Voorbij Prefab, a leading precast concrete manufacturer based in Amsterdam, operates a modern carousel plant for the production of solid walls and has successfully integrated Vision.Image, an advanced quality control system, into its production operations. This strategic investment reflects the company's commitment to high quality manufacturing.**

## The decision for Vision.Image

The turning point came when Voorbij expanded its carousel plant. "We wanted 100% quality, with no rework at the construction site or after pouring," explains Hans Both, IT Manager at Voorbij Prefab. "When the opportunity for a quality system based on camera with Vision.Image came up, we decided to move forward."

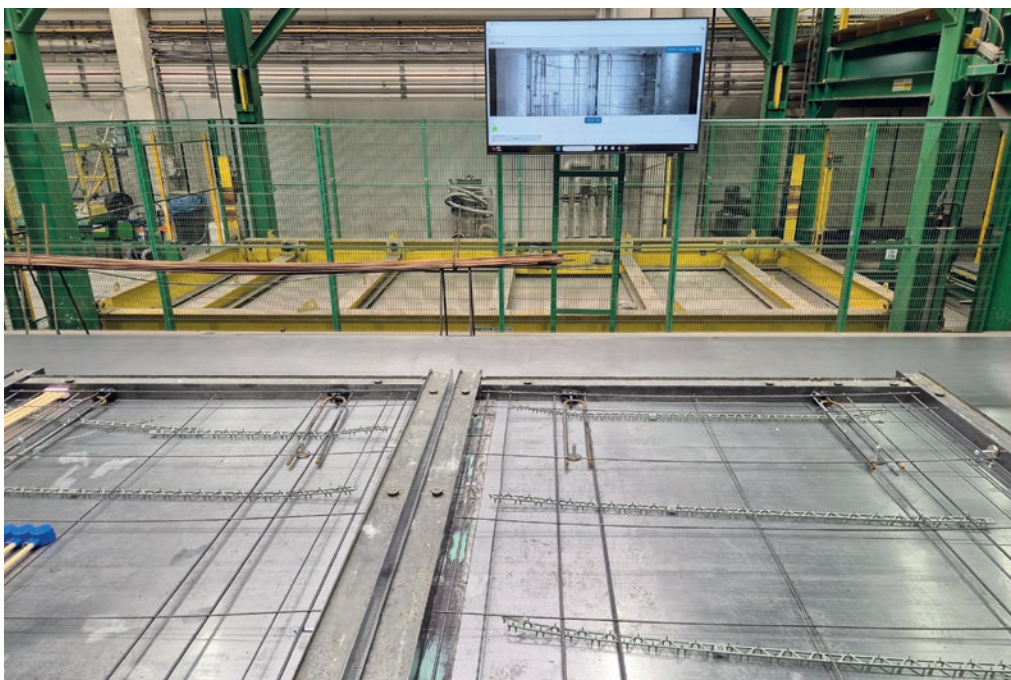
## Sustainability as a Driving Force

Sustainability and quality go hand in hand at Voorbij Prefab. All standard concrete produced by the company already

meets the CO<sub>2</sub> performance levels aligned with the Paris Climate Agreement targets for 2030 – as a default. With Impakt Beton, Voorbij Prefab goes even further, achieving CO<sub>2</sub> values associated with the 2050 horizon, a solution that is already being delivered in practice. To realize this consistently and without errors, Voorbij Prefab deliberately partners with innovative technology leaders such as the Progress Group. The implementation of the Vision.Image system enables flawless production, eliminates rework and waste, and directly supports a more sustainable manufacturing process. In this way, digital innovation, product quality and sustainability come together seamlessly – forming the foundation for future proof precast concrete.

## Real-Time Quality Control

The Vision.Image system, developed and provided by Progress Software Development, detects and verifies the correct placement of inserts in precast concrete elements. It operates on three levels:



*Vision.Image detecting the inserts on the pallet and showing the correct placement on the Smart Production Screen.*



GPA (Graphical Performance Analyzer) in ebos with 3D visualization of the carousel plant provides a real-time overview of production and the possibility of retrospective analyses.

- Real-Time Insert Detection**  
 The system immediately displays whether all required inserts are present on the production line. "You immediately see if something's missing, and it can be fixed before pouring," notes Alexander van Tintelen, director at Voorbij Prefab.
- Positional Accuracy**  
 At present, the system is already achieving good value - Voorbij Prefab is working closely with Progress to further refine calibration and increase positional accuracy.
- AI-Powered Automation**  
 Two AI modules have been ordered to enable fully automated detection. When implemented, the system will automatically stop the pallet if issues are detected, allowing operators to resolve problems immediately.



The FormMaster shuttering and deshuttering robot positions the shutters with precision on the pallet.



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Gripper traverse and bending system for flat and bent reinforcement meshes.



At Voorbij Prefab, sustainability and quality go hand in hand: standard concrete already meets 2030 CO<sub>2</sub> targets, while Impakt Beton reaches 2050 levels – already in practice.

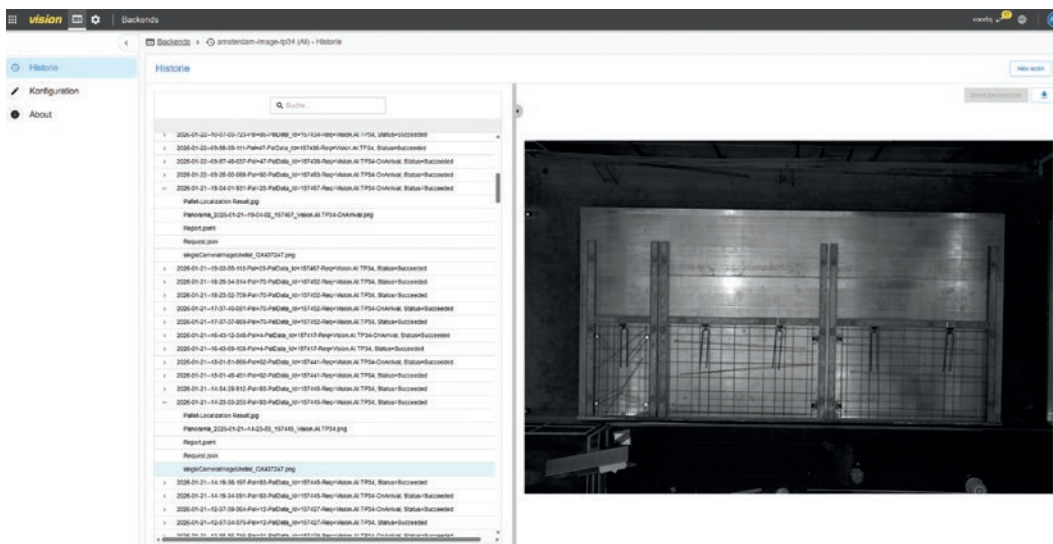
Furthermore Vision.Image is complemented by ebos®, Progress Software Development's Manufacturing Execution System for carousel plants. ebos manages the shuttering robot, production planning, and factory output optimization – serving as the digital backbone of Voorbij's daily production.

### Modernizing the Carousel Plant - Control System Migration

Perhaps more significant was the ongoing modernization of the carousel plant, which currently includes a control system migration from legacy Siemens technology (2004) to the Beckhoff control system, along with the necessary adaptations in ebos. "We debated this for years," Hans Both reflects. "Progress Group transitioned to Beckhoff as their standard platform after 2004. We faced a choice: replace Siemens components with newer Siemens equipment or migrate completely to Beckhoff."

The deciding factor was futureproofing. Remaining with Siemens would have meant missing future developments and losing technical support from Progress. The migration was executed as a comprehensive "Big Bang" implementation over four to five weeks.

"The Siemens components were reaching end-of-life anyway – they're 20 years old," Both explains. "Beckhoff provides new opportunities, particularly in safety. It was the right decision." This step builds on a long history of continuous upgrades: the plant was already modernized with several machines in 2015. In addition, in the summer of 2024 the plant was modernized with pallet transport accessories, transverse movement, and two lifting devices for the pallets. At the end of 2025 the plant was upgraded with fully automatic packaging machines, with stocking and internal transport.



The Vision.Image system detects and verifies the correct placement of inserts in precast elements before concreting.



*Voorbij Prefab is a leading precast concrete manufacturer based in Amsterdam, Netherlands.*

### Partnership and Collaboration

The relationship between Voorbij Prefab and Progress Group exemplifies strategic partnership in precast manufacturing. Both organizations recognize that sustained success requires continuous dialogue and shared vision.

"You have to keep a good relationship to move forward," Hans Both emphasizes. "It's not just about addressing problems – it's about regular conversations about what's new, what's possible, and what we want next."

Voorbij Prefab initially felt like a "test case" during Vision. Image implementation, with various features requiring refinement over six months. However, the company remained patient and collaborative, understanding that integration takes time.

### Current Focus

The anticipated implementation of the two ordered AI modules – currently scheduled for April – will mark the next milestone. Once calibrated properly, these modules will enable the autonomous insert detection and automatic pallet stop functionality that promises to elevate quality control to the highest level.

### Lessons from Digital Transformation

Voorbij Prefab's investment in Vision.Image, ebos, and carousel modernization offers valuable lessons for precast manufacturers considering similar investments: embrace in-

novation, maintain strong relationships, be patient with integration timelines, and never lose sight of the ultimate goal – 100% quality delivered to customers, every time.

"We always like new developments," Hans Both concludes. "When we find something, we believe in, we commit to it – even when the path isn't entirely clear at the start. That's how you drive progress." ■

#### FURTHER INFORMATION



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