



ICO MULTI STORAGE CAR DECK

Zeebrugge

Fully automatic parking garage for approximately 10,000 cars

**Status**

2023 - ongoing

**Services:**

Building Services, Industrial MEP,
Structural, Architecture

**Sectors:**

Industry: Automotive

**Client:**

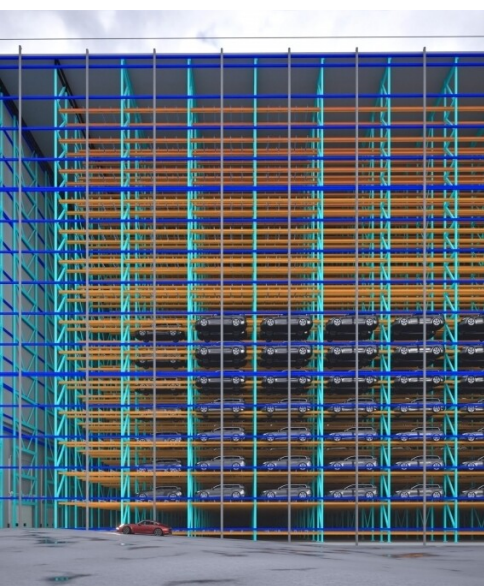
NV INTERNATIONAL CAR
OPERATORS

**Architect:**

Stranger Architects & Engineers

**Area:**

22306 m²



Project Context

In the port of Zeebrugge, Europe's first fully automated multi-storage facility for vehicles is being realized. The system offers capacity for more than 10,000 vehicles and combines low-rise and high-rise zones with a fully automated rack and crane system. The entire flow is controlled via VIN recognition and integrated with ICO's Terminal Operating System (TOS).

The project is set up as a continuous, fully automated logistics chain without manual intervention.

Core Project Challenge

The challenge lies in realizing one integrated and flawlessly operating system in which vehicle flows, automation, fire safety, and MEP installations work together seamlessly.

The complexity is not in the individual systems, but in their mutual interaction and the transition between process zones.

Low-Rise as Interface

The low-rise zones form the critical interface between terminal and automation.

In these zones:

- vehicles arrive and are buffered in a controlled receiving flow
- they are temporarily stabilized according to system capacity and planning
- they are subsequently picked up by automatic cranes
- which place vehicles in the rack system or retrieve them again later

This zone is therefore not storage, but a dynamic link between manual logistics and automated storage logic.

Key Challenges:

- avoiding flow conflicts
- limiting waiting times in the transfer logic
- flawless coupling between physical positioning and TOS/VIN data
- sprinklers in combination with aspiration detection
- integrated approach for low-rise and high-rise zones
- measures against fire spread during automatic movement of vehicles
- full compatibility with automated crane movements

Integration Challenge

- synchronization between low-rise flow and crane logic
- real-time coupling between TOS, VIN, and physical positioning
- safe interaction between fire safety and automation
- flawless transfer between zones without process interruption

Critical Success Factors

- seamless integration between automation and MEP
- minimal waiting times in transfer zones
- reliable fire safety without impact on throughput
- stable end-to-end vehicle tracking
- continuous, flawless logistics flow