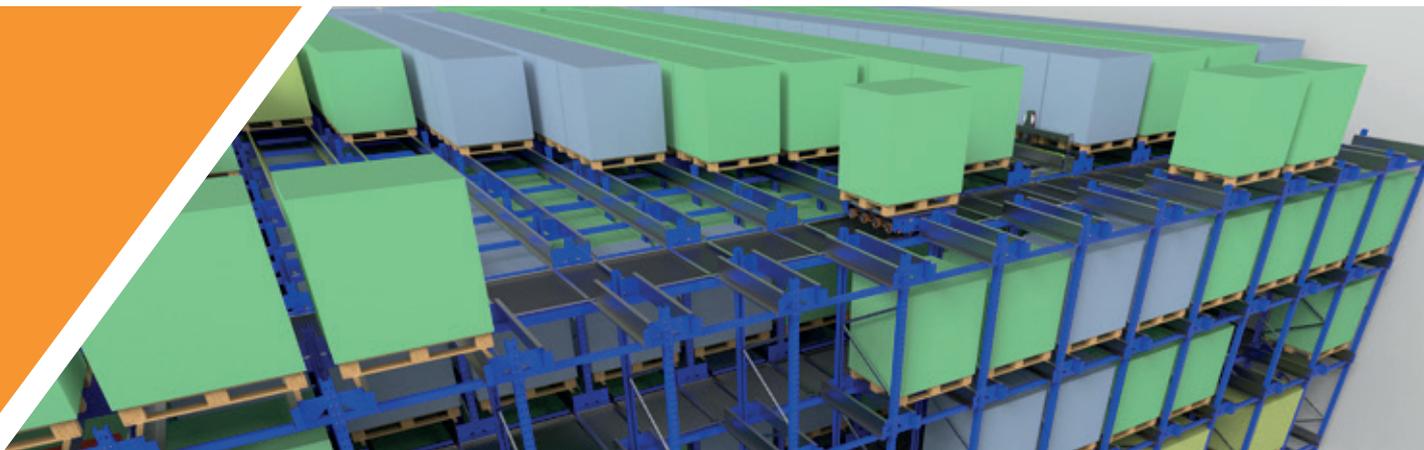


icube
INTELLIGENT STORAGE SYSTEM

The most flexible and cost effective AS/RS



www.logiqs.nl

FLEXIBLE AND MODULAR WAREHOUSE AUTOMATION

The iCUBE is an innovative warehouse automation solution designed from the ground up with flexibility and modularity as its cornerstone principles. What makes the iCUBE stand out from all other warehouse automation systems on the market is the fact that the iCUBE offers the advantage of full scale automation, while using far less machines than any other system.



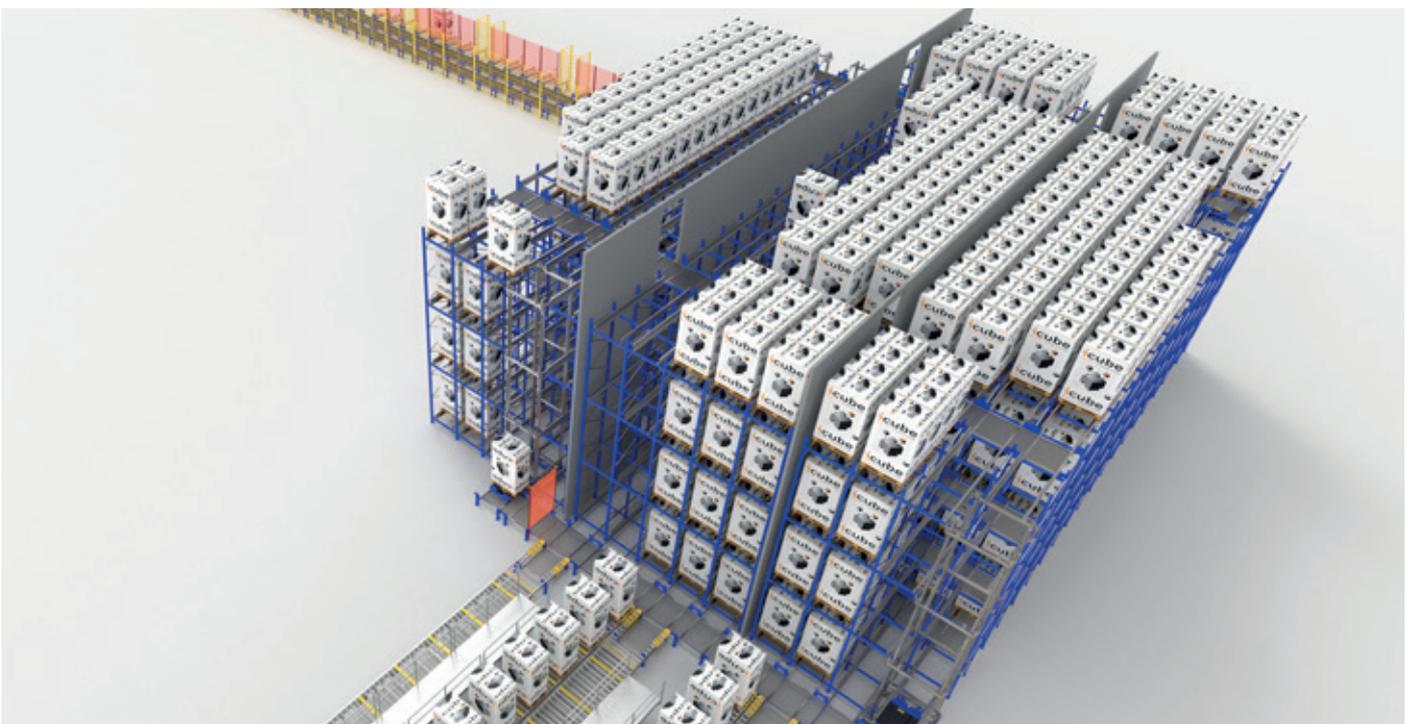
The iCUBE operates all the pallet movements using only the Logiqs 3D-Carriers and Lifts. All machine and pallet movements are being controlled automatically using our advanced Warehouse Control Software (WCS).

The Warehouse Control Software (WCS) allows the operator to issue large batches of tasks, and operates all the tasks automatically according to priority without requiring the operator to manually operate the machines at any time.



Since the iCUBE only needs 3D-Carriers and Lifts to achieve full automation, that means it also doesn't require expensive and unreliable chain mechanisms for each aisle, or other roller mechanisms. Since the 3D-Carriers and the Lifts use their own arrays of sensors for movement and safety reasons, no other always-on sensors are needed in the warehouse.

The iCUBE is one of the few warehouse automation systems that can be implemented in existing warehouses, new builds as well as in phased builds. Both the racking and the automation can be modified in phases allowing for both changes of capacity and throughput according to the customer's needs.

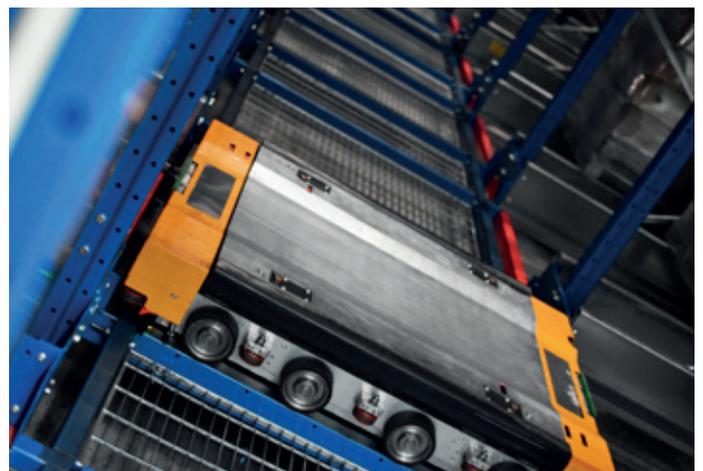


HIGH AVAILABILITY AND HIGH THROUGHPUT



For warehouses where high availability is paramount, the system can also be equipped with more X-tracks (side movement tracks between aisles for the 3D-carriers) so that the 3D-Carriers can reach individual pallets even faster.

This also results in shorter individual aisles and therefore in an even better availability for individual pallets or pallet batches.



Depending on system size and throughput requirements the iCUBE can be equipped with as little as one 3D-Carrier and one Lift. If the size and/or throughput requirements of the warehouse are higher, the system can be equipped with as many 3D-Carriers and Lifts as needed. And since all machine movements are automatically controlled by our software, several 3D-Carriers can work together to complete high priority tasks quickly.



The 3D-Carriers can also work together through hand-offs using the lift, so that one 3D-Carrier can fetch the pallets from the top level and place them in the lift, while a second 3D-Carrier waits at the bottom level to transfer the pallets to the loading/unloading area. The 3D-Carriers are powered by 88ah Li-ion battery packs, and can operate continuously for up to 2 hours, and they can fully charge up automatically in 45 minutes using our aisle charging locations. The 3D-Carriers can also be set to take advantage of opportunity charging and to charge their batteries whenever there is downtime.

HIGH AVAILABILITY AND HIGH THROUGHPUT

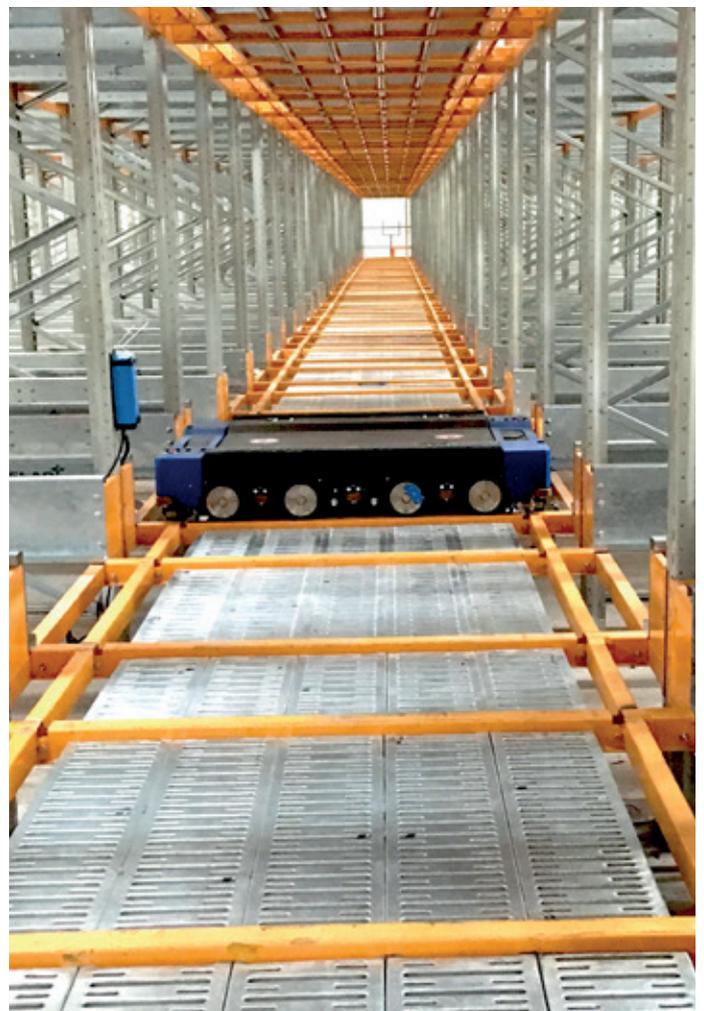


When an iCUBE uses more than one 3D-Carrier and one Lift, the system also becomes redundant, and the iCUBE can continue operating even in case one of the lifts or 3D-Carriers malfunctions or are undergoing maintenance.

One of the main advantages of an iCUBE automatic warehouse is the increased safety, both when compared to conventional forklift operated warehouses, but also to large automated crane systems that employ very heavy machinery.

Safety zones can be configured in the iCUBE, so that the 3D-Carriers can keep executing tasks in the rest of the warehouse, while a certain zone of the warehouse becomes no-limit to the 3D-Carriers.

By using an iCUBE system, forklifts are completely eliminated from the main storage area removing both the risk of operator injury and of possible damage to the racking that could occur as a result of a forklift accident.



MAXIMUM SPACE USAGE

The Logiqs 3D-Carriers and Lifts as well as the X-tracks (side movement tracks between aisles for the 3D-carriers) are extremely compact, and have a low impact on the overall storage capacity of the warehouse.

The Logiqs software also makes all picking strategies possible, allowing for full usage of the available storage lanes. Our software can also be configured to automatically reorganise lots in down time, so that pallets are already prepared for expedition without user input being needed.

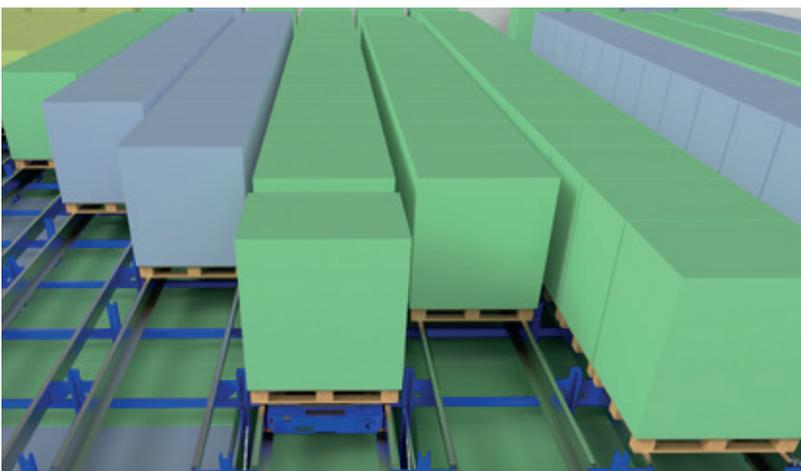
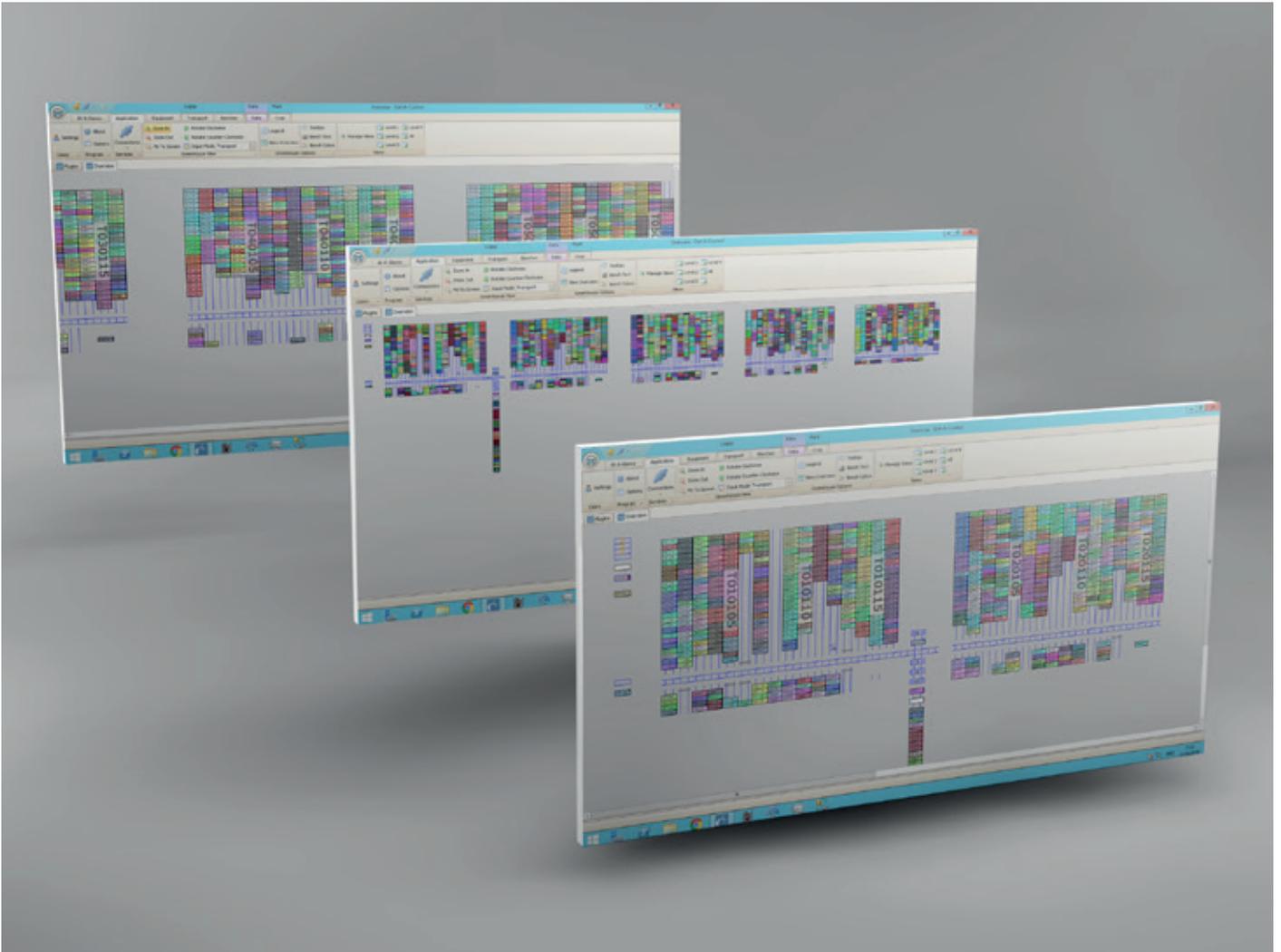
The loading and unloading area for an iCUBE system can also be designed to be much more compact than in a conventional warehouse. The system can be equipped with one or more Pallet Transfer Car that move pallets to and from the dock to the storage area.

This solution dramatically improves space usage for the loading/unloading dock and guarantees a high throughput rate for the loading/unloading area.

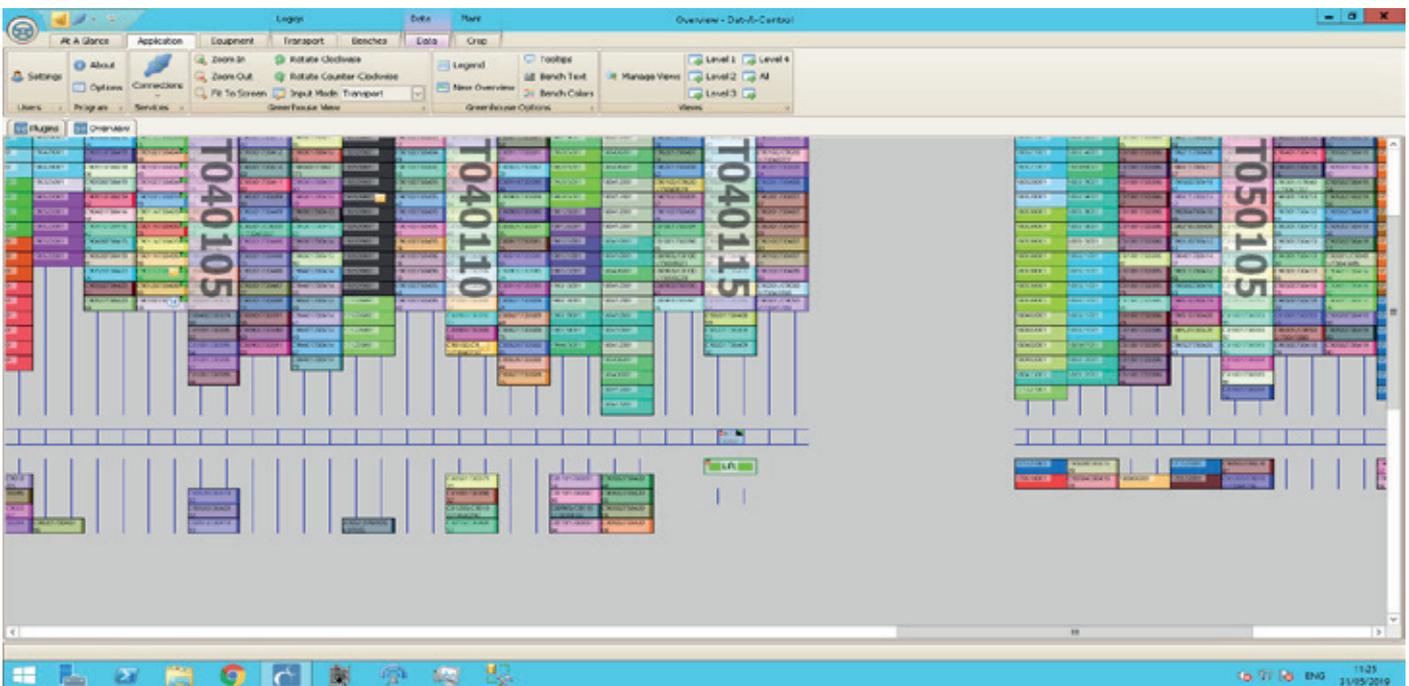


WAREHOUSE CONTROL SOFTWARE(WCS)

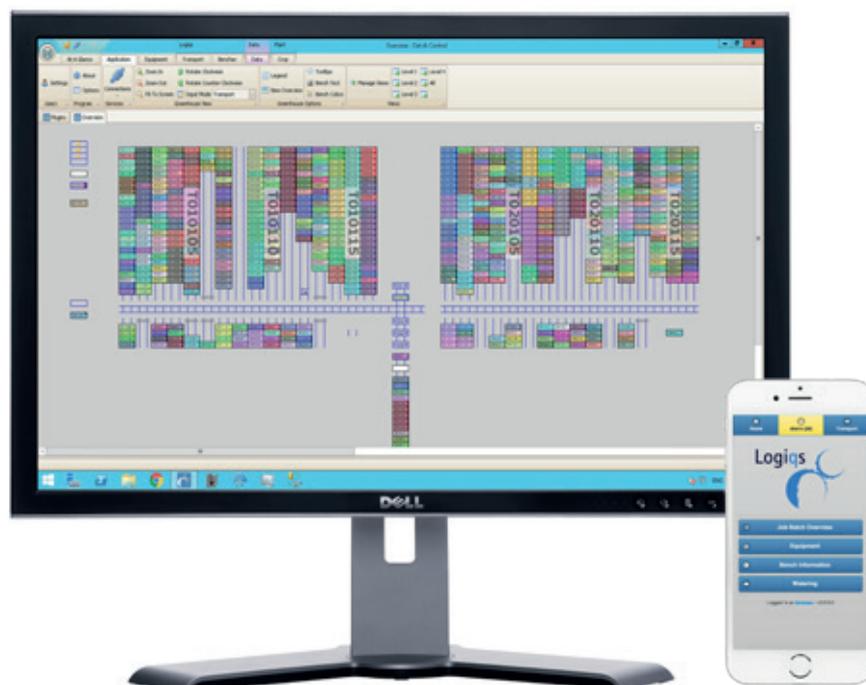
The iCUBE is controlled with our own Warehouse Control System (WCS), through which the entire automation is controlled automatically. The tasks can be given either automatically using a link to the company's ERP system, or tasks can be entered by an operator using the WCS's intuitive graphical user interface.



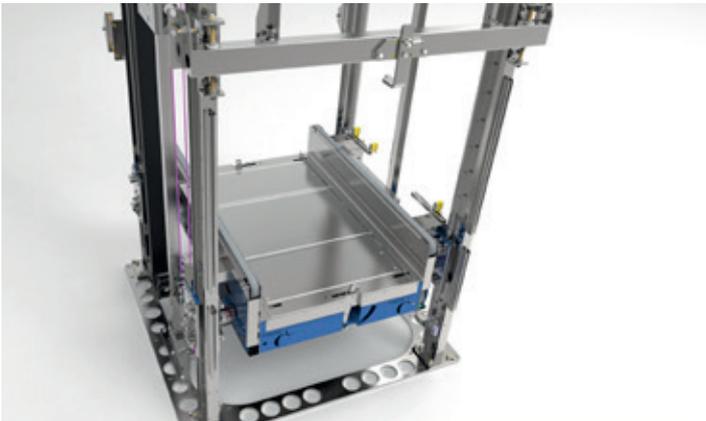
The WCS uses advanced algorithms to manage the iCUBE automatically and control inbound and outbound pallet transfers without the need for user interference for each individual machine operation.



Task priority, task scheduling, reorganise tasks as well as complex transport plans can all be easily controlled using our intelligent WCS. Our WCS can be configured according to the needs of the warehouse and automatic protocols can be set for reorganising pallets during down-time, preparing them for shipment according to the pending outbound shipment orders.



VT & 3D-CARRIER



Because of this extensive standardisation and modular approach to the design, the latest generation of the iCube is completely ready for use and turnkey, for the best price on the market and is by far the most flexible automated solution available today. The iCube is extremely suited for phased builds and unforeseen extensions.



By using only 3D-Carrier's, that can move throughout the entire iCube and VT's (Vertical Transporters) movement between levels we managed to keep the logistical design of the iCube brilliantly simple. Since the 3D-Carrier and the VT's use only their own sensors, there's no need for other sensors in the iCube.

The VT's can also be configured with multiple lifting frames per shaft when needed. The VT's can transport either just the 3D-Carrier, just the pallet or both. So that during peaks more 3D-Carriers can be deployed to one level of the iCube.



The iCube is an automatic pallet storage system designed from the ground up using standardised components. The iCube is fully automated using our 3D-Carriers and Vertical Transporters. Using an iCube system means getting the most out of the available storage space, without needing space for operating a forklift between rows.



Lift capacity:	up to 1.500 Kg	Charge time:	45 minutes
Operating speed:	0,8 m/s	Opportunity charging:	Yes
Operating temperatures:	-25° to +40° C	Wheels:	Vulkollan
Battery capacity:	88 Ah	Frame assembly:	aluminum
Battery working temperatures:	-25° to +40° C	Maintenance interval:	6 Months

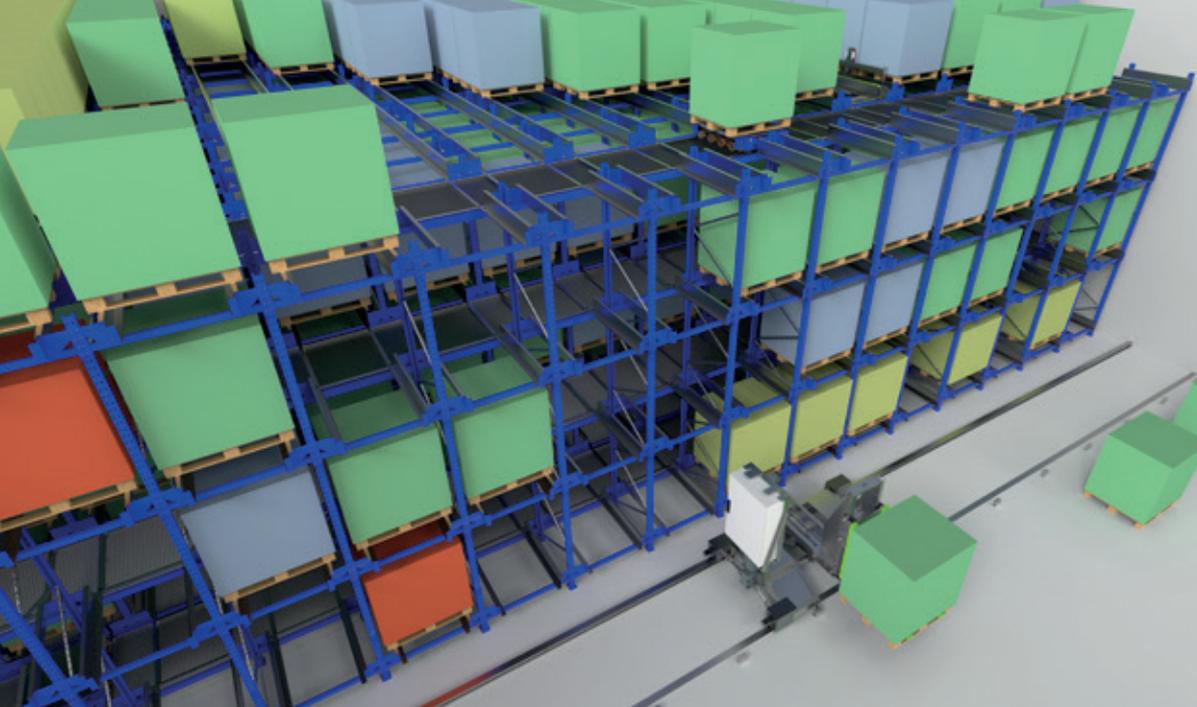


3D-Carrier

Vertical Transporter



Lift capacity:	up to 2.000 Kg	Security sensors	Photocell
Operating speed:	0,25 m/s	Simultaneous 3D-Carrier and pallet transport	Yes
Operating temperatures:	-25° to +40° C	Multiple lifting frames	Yes (optional)
Actuator capacity:	6 kW	Frame assembly:	galvanized steel
Max. height	24 meters	Maintenance interval:	6 Months



Logiqs has more than 45 years of experience and know-how, gained in the field of internal transport and logistics systems.

Our industry leading solutions help our clients achieve a higher profitability and a stronger competitive position within their marketplace.

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