

**UNICARRIERS**



# Double-Deep storage technology

30% higher storage space efficiency. 17% lower storage costs.



**UNICARRIERS**

**30%**

more storage  
capacity

**100%**

warehouse  
efficiency







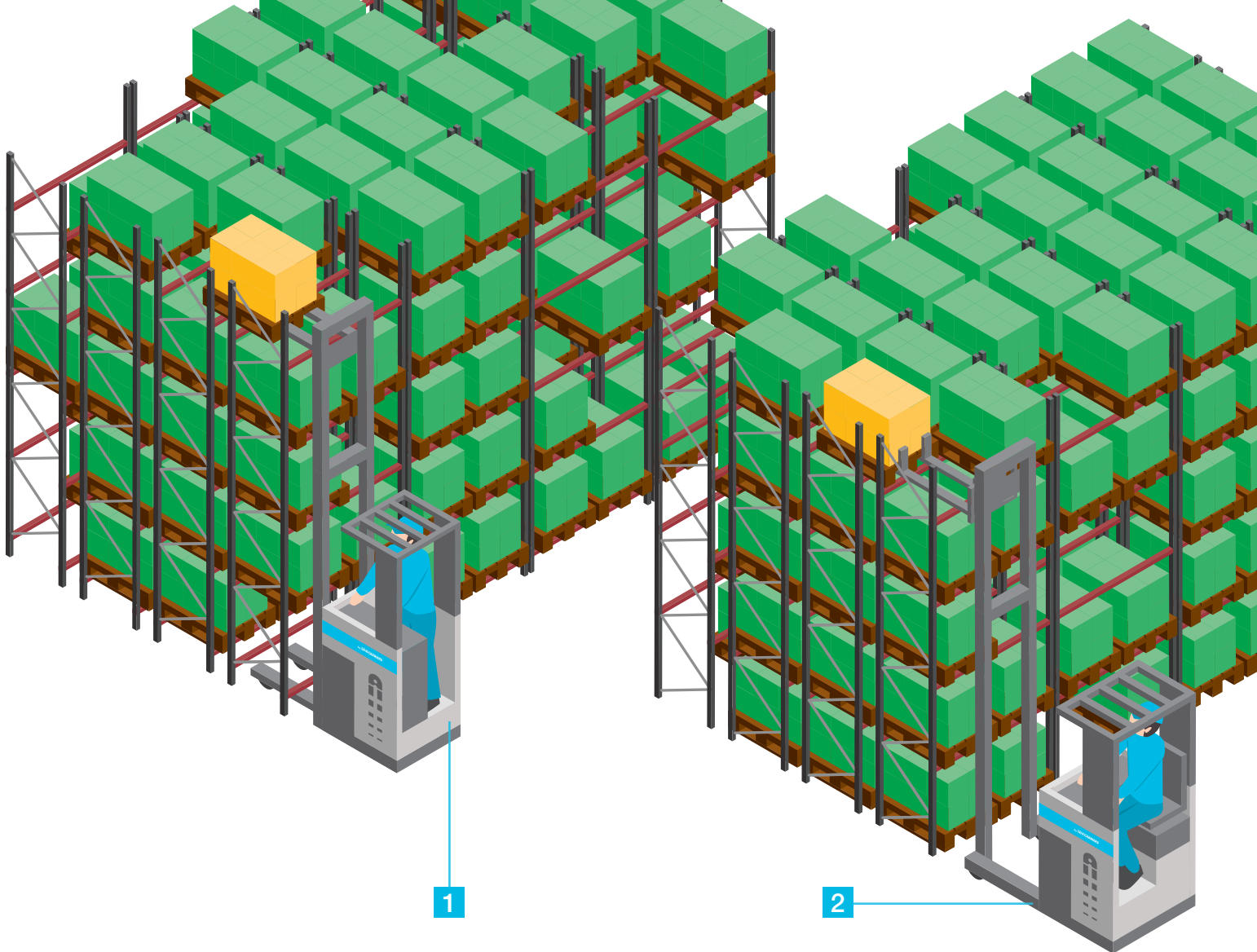
UniCarriers designs, manufactures and supports the most advanced material handling equipment. By integrating the three distinctive brands of Atlet, Nissan Forklift and TCM, UniCarriers is the perfect mixture of Japanese quality and technology as well as Swedish design and ergonomics. UniCarriers represents more than 65 years of industry experience, an unparalleled global reach and deep understanding of local markets.

# Double-Deep storage technology

Are you in a fast growing business? Do you need to expand within your existing storage facilities, or do you just want to use your space more efficiently?

Double-Deep storage instantly gives you up to 30% more pallet locations compared to conventional pallet racking. UniCarriers has the know-how and technology to help you optimise your double-deep operations.

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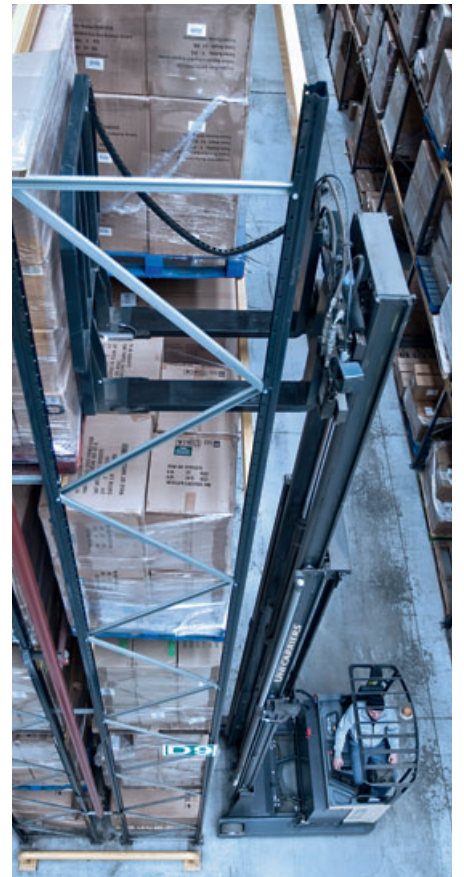
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## 1 Double-Deep with Fixed Mast

Double-Deep trucks with a fixed mast, such as ATF and XTF stackers or TERGO® reach trucks with a fixed mast, need to have free space for the straddle legs. This means the lowest pallet must be placed on beams in the pallet rack. UniCarriers provides a number of different straddle and load wheel solutions to bring the bottom pallet as low as possible. This means better use of the warehouse height and an increased number of pallet locations.

## 2 Double-Deep with Moving Mast

If floor picking is your priority, or if you want to put the first pallet on the floor for some other reason, a moving mast is the solution. UniCarriers TERGO® reach trucks are designed to provide high capacity and performance in this configuration. The rigid design in combination with mast tilt and the ProVision concept for perfect visibility through the mast gives you the right conditions for a high-performance warehouse solution.



# What's your ultimate storage solution?

Space equals money. So how do you get the most out of your warehousing space? There are numerous methods of storing palletised products in a warehouse – from simple floor block-stacking to highly sophisticated automatic crane stores. All have their virtues, depending on your operational requirements – whether it is simply to store as many pallets as possible, or to allow a very high degree of selectivity and instant retrieval of any given pallet. For many types of warehouse, however, Double-Deep stacking combines highly efficient space utilisation with excellent availability, using flexible, cost-effective handling equipment.

## Conventional, Adjustable Pallet Racking (APR = 100)

is the most common type of racking. Each individual pallet is easily accessible, the racking arrangements are flexible and the capital cost is relatively low. However, this solution rarely offers the lowest storage cost since floor space utilisation is comparatively low.

### Space utilisation

Racking	39 %
Aisles	55 %
Work areas	6 %

### Pallets in storage system

Practical utilisation	90–95 %
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## Very-Narrow-Aisle storage (VNA)

creates high storage capacities thanks to narrow aisles and a very high racking height. Pallets are stored and retrieved quickly due to the design of the man-up VNA trucks. This can be a cost-effective solution when the cost per square metre is high or the available area is limited. To operate a VNA installation, specially designed rail or wire-guided specialist high-lifting trucks are needed. The floor space utilisation is up to 40-55 % depending on the transfer aisle width.

**Installation cost comparison index = 110 – 140 (APR = 100)**

### Space utilisation

Racking	45 %
Aisles	48 %
Work areas	7 %

### Pallets in storage system

Practical utilisation	90–95 %
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## Double-Deep racking

halves the number of aisles required to give excellent utilisation of storage capacity, with up to a 30 % storage increase compared to conventional pallet storage. Four pallets can be stored in each racking bay between the aisles. It is an ideal high-density storage system with greater flexibility, where 100 % selectivity is less critical than optimum space utilisation. What's more, the initial capital cost of Double-Deep is lower than many other high-density storage systems. A purpose-built Double-Deep telescopic fork truck is required to operate the system, which also has the added advantage of conventional reach truck flexibility.

**Installation cost comparison index = 100 – 110 (APR = 100)**

### Space utilisation

Racking	50 %
Aisles	44 %
Work areas	6 %

### Pallets in storage system

Practical utilisation	85–90 % (Depending on number of pallets of same type)
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## We bring your Double-Deep operations to the next level

When developing your Double-Deep storage, UniCarriers' material handling expertise is at your disposal. We guide you so you can create the most efficient truck fleet, designed around your unique warehousing conditions, and we offer you the technology that helps you make the most of your Double-Deep operations.

### Logistics Analyser (LA)

UniCarriers has the material handling know-how and experience to be your partner in constantly enhancing your operational efficiency. To help you get an overview of your warehouse operations and identify areas for improvement, we have developed the Logistics Analyser (LA). It's a sophisticated tool that allows us to simulate and analyse the complete flow of

your existing and future operations. Together we can easily find the right solutions for your business, and can see how they affect both your efficiency and your total cost of operation.

Truck performance  
+ Operator efficiency  
+ Warehouse layout

**Operational output**









# The right tools for your efficiency

UniCarriers pioneered the development of telescopic fork stackers and reach trucks and remain the acknowledged world leader in Double-Deep storage applications. Our range includes a broad array of dedicated telescopic fork Double-Deep trucks. Proven world-leading ergonomics and top performance make them the most effective in their class.

## 1. UniCarriers ERGO Double-Deep stackers

The ultra-compact ERGO ATF and XTF provide Double-Deep stacking capability, combining optimum efficiency with cost-effectiveness and flexibility, while the operator can enjoy a safe, protected work environment surrounded by UniCarriers' innovative ergonomics. The ERGO ATF stand-in stacker can operate in narrow aisles and other confined spaces. With its telescopic forks, extended at the push of a button, the ERGO ATF/XTF provides Double-Deep stacking capability. It can stack up to the maximum lift height even with the forks fully extended. The ERGO XTF Double-Deep sit-on stacker is designed for more intensive operations, where the operator has to work for long periods of time and is better off sitting than standing.



## ERGO ATF/XTF

**Telereach stacker stand-in and sit-on telescopic forks**

**Lift capacity** Single/double deep ATF 1000/800 kg, XTF: 1000/1000 kg

**Lift height** up to 6.3 metres



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## TERGO® UMS-TF/ UHD-TF/UHX-TF

Reach truck with telescopic forks

Lift height up to 12.1 metres

### 2. UniCarriers TERGO® Double-Deep reach trucks

Featuring outstandingly advanced ergonomics and performance, the new generation UniCarriers TERGO® heavy-duty Double-Deep reach trucks bring your warehousing efficiency to the highest level. You also get a reach truck designed for Double-Deep storage right from the start. Built with a robust chassis, a strong mast with appropriate tilt function depending on your material handling requirements, well-dimensioned hydraulics and state-of-the-art telescopic forks, the TERGO® has what it takes to optimise your heavy-duty Double-Deep operations. Where high-level racking is the solution in the quest for even more storage capacity, there's the high-lifting TERGO® UHX-TF, giving the capability to stack Double-Deep up to 12.1 metres. Depending on the design

of the warehouse and your capacity requirements, UniCarriers design reach trucks with a moving or a fixed mast.

### 3. UniCarriers tilting mast for your total Double-Deep control

A tilting mast fits perfectly within Double-Deep operations. When removing loads from racking, the mast can be tilted rearwards to conveniently clear the back of the pallet from the racking and the load behind. This minimises the risk of goods damage, while also reducing the truck length and thereby increasing the speed of pallet handling when stacking at height, and by tilting the mast forward, the operator can reach highly positioned pallets even if there is load overhang on the lower levels.



### 4. Man-up VNA double deep truck

A very narrow aisle (VNA) warehouse configuration achieves excellent space utilisation. Add Double-Deep racking and the number of aisles required is reduced, and storage density becomes outstanding. Double-Deep stacking capability is achieved with a sturdy hydraulic telescopic fork module, fitted to a traversing/rotating carriage which enables the truck to handle pallets in the racks on either side of the aisle.



## 5. ProVision concept for your Double-Deep vision

UniCarriers' ProVision mast design ensures visibility and ergonomics when handling loads in high-level storage systems. Due to cleverly positioned hydraulic hoses in the mast to operate the telescopic forks, the operator can enjoy the same vision as in a conventional truck. To further enhance the operator's vision in high-level Double-Deep racking, an optional fork-integrated camera together with a cabin monitor is available. The ProVision concept also means optimised visibility through the overhead guard, thanks to the perfectly positioned and angled protection bars.

The openings in the overhead guard pillars and the low contour of the truck also improve visibility, safety and performance when manoeuvring in confined spaces.

## 6. Moving or fixed mast?

UniCarriers' moving mast solution is perfect in warehouses designed for low-level order picking since there is no need for a bottom beam in the Double-Deep racking. This makes the floor picking location easily available and the replenishment pallet instantly accessible. With the truck standing clear of the racking, the mast reaches out and the forks are extended to engage the rear pallet cleanly and easily. The truck can still handle heavy loads at high lift heights.

If your operation includes extra heavy pallets, you need trucks with a very high load capacity. In this case we recommend reach trucks with a fixed mast design. This means the racking needs a bottom beam, and a fixed mast can be used. Intelligent UniCarriers design with low straddles and compact load wheels (only 235 mm) allows low bottom beam positioning, which enhances your total storage capacity.



# We dare to care about your Double Deep operations

With Double-Deep storage you release the full capacity of your warehouse. You simply get more from less. At UniCarriers we have the know-how, the technology and the truck range you need to succeed, and most of all we have the personal commitment to care about your business all the way. It's very personal, and that's just the way we are.



It's all about  
the price.  
**But what  
price?**

## **Reduce your Total Cost of Operation with UniCarriers**

We agree. Price is everything. Or to be more specific: your Total Cost of Operation (TCO). That's why we're so focused on cutting costs and improving your material handling. The truck and its performance play an important role, but this is even more about how we can support you in optimising your warehouse operations to give you the best value for your money. Which – in the long run – is what creates a winner.