AUTOMATED STORAGE AND RETRIEVAL SYSTEMS (AS/RS)
SELECTING THE RIGHT AS/RS SYSTEM FOR YOUR BUSINESS PROCESS

Warehouse operations today are increasingly under pressure from labour scarcity, increasingly expensive floorspace and higher customer demands regarding response times and accuracy of deliveries.

At Vanderlande Industries, we recognise the important role automated storage and retrieval systems (AS/RS systems) can play in meeting the tough demands placed on your logistics operation. That is why we offer AS/RS systems, which enable you to maximise efficiency and productivity in your distribution centre and which make optimal use of available floorspace.

We provide a complete range of AS/RS systems including miniloads, shuttles and load handling devices that are seamlessly integrated into your logistics operation. Our AS/RS systems can handle different types of products, such as pallets, totes, trays, cartons and even car tyres. With our experience in logistics and material handling, we can assist you in selecting the right AS/RS system for your specific business process.

Our AS/RS systems have been implemented in a wide range of industries such as food, fashion, parts & components, non-food, automotive, care and e-commerce. We have implemented AS/RS systems for more than 300 well-known companies, including: HERMA, GAME Stores, PLUS Retail, Van Den Ban, Colombini, Micarna, Audi, Arrow Electronics, Casaventa, Tommy Hilfiger, TVH Forklift Parts, Tesco, Edeka, Onninen and Kaufland.
An automated storage and retrieval system can be beneficial in several phases of the warehouse logistics process:

- **BULK STORAGE**
  The need to minimise handling and make better use of available floor space in the distribution centre is leading to a rise in the use of AS/RS systems for bulk storage. We recognise a trend that cartons in bulk storage are stored individually in miniloads or shuttles instead of on pallets. It is possible to increase storage density up to 60%.

- **ORDER PICKING**
  AS/RS systems are a key component in our item and case picking solutions.

  Our goods-to-man based Compact Picking System (CPS) is an ideal concept for slow-moving items in retail and wholesale distribution centres. Miniloads or shuttle systems automatically store and retrieve product totes and bring them to the PICK@EASE ergonomic order picking workstations. This innovative workstation type enables operators to achieve a constant high order picking performance (up to 1,000 order lines per operator per hour) over a prolonged period of time, without risk of work-related injury.

  The Automated Case Picking (ACP) system enables fully automated order picking of a wide variety of products. It provides the answer to the most important challenges of today’s retail distribution: The ACP system is suitable for most retail packaging types, including cardboard trays and shrink wrapped products without tray.

- **CONSOLIDATION**
  Optimising the number of shipments, improving accuracy and store-friendly delivery, and reducing manual handling are important reasons to automate your consolidation and packing operation. Our AS/RS systems can play an important role in consolidation, packing and delivery unit filling processes. Material flows from different (picking) areas come together in an AS/RS system. Within a short time period, flows are sorted and grouped per order, delivery unit or shipment, and then dispatched in the exact sequence you require.

  The complete systems are controlled by VISION, Vanderlande’s Warehouse Management (WMS) and Control (WCS) system.
Vanderlande Industries offers the QUICKSTORE range of AS/RS systems. This range includes various miniloads, the HDS shuttle system and the Microshuttle. These systems can be equipped with many different load handling devices. QUICKSTORE AS/RS systems are developed and manufactured by Beewen, a Vanderlande Industries company, which is one of the leading European suppliers of AS/RS systems.

Selecting the right AS/RS system for your application not only depends on the storage capacity and throughput you require, but also the flexibility and scalability of the solution. The broad QUICKSTORE range always ensures the optimum storage solution for specific logistics challenges.
STACKER CRANES VS SHUTTLE SYSTEMS

Totes in/out per hour per aisle

Locations per aisle

MINILOAD
4 LHDs, SINGLE DEEP

MINILOAD
2 LHDs, DOUBLE DEEP

MINILOAD
1 LHD, DOUBLE DEEP

PALLET STORAGE, SINGLE OR DOUBLE DEEP

MOVING BEAM

HDS
SINGLE DEEP

HDS
DOUBLE DEEP

MICROSHUTTLE

MINILOAD
2 LHDs,
SINGLE DEEP

MINILOAD
1 LHD,
DOUBLE DEEP

WAREHOUSE AUTOMATION
The QUICKSTORE AS/RS systems includes miniloads, the HDS shuttle and the Microshuttle. QUICKSTORE miniloads are available in different variants:

- Single, double or multi-deep storage
- Single or double mast
- Single, double or quadruple load handling devices

The QUICKSTORE HDS shuttle system is especially suitable for highest capacity goods-to-man order picking and efficient, store friendly order consolidation.

The QUICKSTORE Microshuttle is a cost-effective and energy efficient solution for low to medium throughput applications in a broad range of industries. An important advantage is scalability: as throughput requirements increase, the system can be expanded with additional shuttles.

Our AS/RS systems can store and retrieve pallets, totes, trays, cartons and tyres, depending on the type of load handling device applied. We offer load handling devices based on belts, pulling technology, telescope or vacuum telescope.

The broad QUICKSTORE range always ensures the optimum storage solution for specific logistics challenges.
WHY VANDERLANDE INDUSTRIES?

● THE VALUE OF EXPERIENCE
We have broad experience in AS/RS systems and related services, enabling fast implementation with minimum risk. This gives you the assurance that your system will be operational on time and that it will deliver the specified productivity right from the start and throughout the system’s life cycle.

As a material handling systems developer and manufacturer, service requirements are an integral part of our system design process, ensuring minimal service efforts and costs. In addition, our ‘lean engineering’ concept ensures excellent reliability and serviceability, keeping life cycle costs down.

● STORAGE THAT MEETS YOUR NEEDS
We offer a broad range of AS/RS systems and load handling devices, enabling us to optimise the solution to your specific needs. Our high-speed QUICKSTORE HDS system for example achieves up to 1,000 tote movements per hour. Our QUICKSTORE Microshuttle can grow with your business and throughput.

● COMPLETE WAREHOUSE SOLUTIONS
Vanderlande Industries is a leading supplier of automated warehouses and distribution centres, with a track record of over 1,000 satisfied customers in a wide range of industries. We can provide you with a complete warehouse solution, all from a single source. Our automated storage, picking and consolidation concepts have been implemented many times, ensuring that your system is operational on-time, and that it will deliver the specified productivity right from the start, reducing risk. Our concepts have been applied in segments as diverse as food, fashion, parts & components, non-food, automotive, care and e-commerce. By delivering the right level of automation with the flexibility for future changes, we enable you to provide consistently high service levels to your customers.
The value of experience

● EDEKA
One of the most modern and efficient meat-processing facilities in Europe was recently built in Rheinstetten (Baden Württemberg, Germany). At the facility, owned by EDEKA Südwest Fleisch GmbH top quality sausage and meat products are produced and then delivered to over 1,250 outlets of EDEKA Südwest from mid-2011 onwards.

Vanderlande Industries has planned and organised a logistics system in close collaboration with EDEKA Südwest that fully meets the current and future requirements of the market. The system includes:
• Pallet high-bay storage system (3,000 pallet locations)
• 10 depalletising workstations (including two fully automated robot systems).
• 20-aisle QUICKSTORE HDS shuttle system (50,000 locations; 140 HDS shuttles)
• Two PICK@EASE ergonomic order picking workstations (“goods-to-man” principle).

Thanks to the intelligent and flexible solutions from Vanderlande Industries, EDEKA Südwest’s high standards are guaranteed for the future. Its wide-ranging experience and high level of expertise, combined with innovative solutions and ideas, make Vanderlande Industries a strong and efficient partner to the meat industry.
ONNINEN

Onninen is a family-owned company from Finland and operates in northern Europe. The company provides comprehensive materials services to contractors, industry, public utilities and technical product retailers. Onninen has selected Vanderlande Industries to design and implement the material handling system for its new order fulfilment centre in Hyvinkää, Finland.

In the new centre, goods coming in are unpacked and placed into multi-compartment totes at four ergonomic RECEIVE@EASE workstations. The totes are automatically transported to a four-aisle QUICKSTORE HDS shuttle system (38,720 locations). Two high-performance ergonomic PICK@EASE workstations enable operators to deliver a sustainable pick performance of up to 600 order lines per operator per hour (goods to man principle). Products are picked directly into shipping totes and cartons (pick/pack), reducing manual handling. Finished shipping totes and cartons are sent to the manual packing area, where value added services are done (labelling, void filling). The entire warehouse process is managed by Vanderlande’s VISION warehouse control system (WCS), interfaced with the SAP ERP system.

According to Onninen Oy’s Logistics Director Mr. Kai Särkelä, the main advantage of Vanderlande’s solution proved to be the high level of ergonomics – thanks to the @EASE workstation family, which is implemented throughout the warehouse process.
The Tommy Hilfiger Group, founded in New York, USA in 1985, is one of the world’s leading apparel and retail companies. The company has expanded its reach worldwide through a select global distribution network for its core brands, including Tommy Hilfiger, Hilfiger Denim and Hilfiger Sport.

The international expansion included the take-over of an automated distribution centre (originally built by Vanderlande) in Venlo, the Netherlands in the year 2006. In a new consolidation process, three additional miniload AS/RS for cartons and one additional consolidation workstation were integrated. Storage capacity doubled to 13,000 locations. Main advantages are higher storage density and a simplified and more ergonomic operator process. Operator productivity in the consolidation area increased with 40%. The order consolidation system is especially beneficial in preparation for peak seasons. Products can be picked well in advance and placed in the miniloads. When the order needs to be delivered, it can be retrieved from the buffer automatically and delivered to the stores at exactly the right time.
Tesco has taken a major step forward in handling the picking and delivery of groceries ordered via the Tesco.com website by building a dedicated Dot Com facility, know internally as a DCOS, (Dot Com Only Store). Orders coming in from the website were previously processed in Tesco Superstores in the area. Tesco selected Vanderlande Industries to explore the potential for a dedicated facility, which resulted in a successful partnership in Aylesford DCOS (South East England).

Stock in the dedicated “store” is laid out exactly like a supermarket, except that the “customers” are replaced by order picking staff. After picking, completed order totes are sent to a consolidation buffer consisting of a 3-aisle QUICKSTORE HDS shuttle system. The HDS will release totes to be sorted and loaded in reverse drop sequence to vans. In addition to controlling storage and release of the customer orders, Vanderlande systems also control the vehicle dispatch management process. Furthermore Tesco awarded Vanderlande a 24/7 on-site maintenance and support agreement for the next five years.

The first DCOS in Aylesford opened in October 2008. It is proving to have a quick payback time in freeing up expensive retail sales space in existing superstores and enabling faster growth of Dotcom sales. Other benefits include improved accuracy, traceability and a reduction in product damage. The second DCOS in Greenford became operational in 2010.