

No. 26, Issue 2/2015

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Dear readers,

We are committed to helping our customers maintain their competitive edge in the global marketplace. Increasing throughput, streamlining material flows and ensuring reliable processes while reducing error rates to almost zero – these are just a few of the objectives companies across multiple industries approach us with. To help them achieve their goals, we implement both manual warehousing systems and fully automated, turnkey distribution centres.

Intralogistics has developed into a high-tech industry, with automated warehouse and logistics processes, and purpose-designed software. The technologies we deploy in our projects reflect this trend: they include high-throughput warehouses and storage systems, efficient picking solutions, fully automated storage and retrieval machines, sophisticated robotics, intelligent inventory data capture methods, and reliable warehouse management software. Our automotive-themed cover story on the Brose Group spotlights many of these solutions in action.

A blue ink handwritten signature, appearing to read 'Harrie Swinkels', with a long horizontal flourish extending to the right.

Harrie Swinkels

Managing Director, SSI Schaefer, Giebelstadt, Germany

SSI Schaefer's warehousing and logistics systems are at the cutting edge of developments – we have a tradition of innovation. Against this background, I am pleased to introduce our new product, Navette, in this issue of *Update*. Our scalable, multi-level shuttle can move up to four totes, trays, or cartons at a time, by means of its two load-handling devices. As a result, it shortens travel time while doubling process efficiency.

The special feature article describes our Customer Service and Support division, which offers new and established customers a broad portfolio of services. In particular, we address the growing demand for upgrading and retrofitting. Within the scope of these projects, we focus on designing solutions tailored to our customers' specific needs – helping them create high-availability storage and maximise their productivity.

Read on to learn more about the exciting world of intralogistics at SSI Schaefer. We hope you enjoy.



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Innovative tugger train solution eliminates need for forklifts

Brose Group, the world's fifth largest family-owned automotive supplier, called on SSI Schaefer's proven expertise when constructing its new logistics centre in the Czech city of Ostrava. The one-stop solutions provider created innovative material flows managed by using a SAP EWM solution tailored precisely to the customer's needs to supply the highly dynamic parts to Brose's production line.

Each of the four tugger train stations has a racking system comprising four levels and a total of 32 tote channels. A train with four trailers arrives at the station where loading is due to take place.



Kopřivnice, Czech Republic. SSI Schaefer has constructed a new logistics centre at Brose's manufacturing site in Kopřivnice, near the Czech city of Ostrava. By consolidating storage capacity inside the plant, the Brose Group aimed to cut shipment and external storage costs, streamline material flows, optimise production line supply processes and boost throughput.

To achieve these goals, SSI Schaefer deployed a highly automated logistics solution. First, SSI Schaefer constructed a five-aisle high-bay warehouse with 9,750 pallet positions in a single-deep configuration, with the goal of increasing capacity and streamlining intralogistics. Five Exyz storage and retrieval systems ensure maximum energy efficiency during picking and putaway. A travel speed of 180 metres per minute and lifting speed of 48 metres per minute enable throughput of 200 pallets per hour. The warehouse provides storage for reserve stock, and is connected to an existing building via a bridge. It houses the goods receipt area, the conveyor systems and processing points, plus an automated small parts warehouse.

Brose opted to pursue the goal of a forklift-free logistics facility. With this in mind, tugger trains are used to supply parts to the production line. All intralogistics processes are fully automated, including loading. The seven-aisle small parts warehouse can store up to 23,520 totes, each weighing up to 15 kilogrammes, in either single-deep or double-deep configurations. Seven storage and retrieval systems from the tried-and-trusted Schaefer Miniload Cranes (SMC 1) range enable throughput of up to 840 totes per hour. Totes supplying parts to the production line are loaded at four tugger train stations, located on the upstream sides of the automated small parts warehouse. Once the train has reached the correct position, the totes are released, the locking roller lowers, and the totes roll onto the trailer positions.

Material flow at the logistics centre is also highly innovative. SSI Schaefer has integrated a customised SAP EWM solution into the existing SAP infrastructure. As Jürgen Hergenröther, IT/SAP Project Manager at SSI Schaefer, explains, "SAP EWM calculates where the tugger train needs to stop on its journey, and plans the routes and locations of trains, trailers and storage positions accordingly. It also organises and controls all underlying processes to ensure loading and supply processes take place exactly when and where they are needed." The combination of pallet conveying

technology, vertical conveyors and robotic arms that fully automate the depalletising process ensures high material flow efficiency. Teaching the robotic arms to perform their tasks was a particular challenge – and to solve it, SSI Schaefer combined state-of-the-art image recognition with device control technology and SAP EMW.

As Claudia Vogel-Daniel, Project Manager at Brose, says, "The new solution has reduced the need for manual input and optimised material flow. What's more, it has cut personnel costs and enhanced ergonomics. By increasing plant automation, redefining our material flows and deploying an end-to-end SAP solution, we have simplified, streamlined and increased visibility into our processes, and have boosted our throughput, too. We are extremely pleased with this intelligent solution, which has fully automated the supply of parts to the production line."



The Schaefer Miniload Cranes can collect up to two totes, depending on the type of tote. As a result, they enable throughput of up to 840 totes per hour.



BMW Vogl's new storage system doubles the speed of wheel putaway and picking.

An intelligent combination of technologies boosts efficiency

An innovative wheel and parts storage system has created structured, accelerated processes, saved considerable space, and greatly improved ergonomics at BMW Vogl.

Mühldorf am Inn, Germany. Since 2001, BMW Vogl has been one of Germany's top 20 BMW dealerships. In 2013, a new BMW and Mini centre was opened in Mühldorf am Inn. Within the scope of this project, BMW Vogl contracted SSI Schaefer to implement a new warehouse, comprising fixed location and wheel and tyre storage systems, with pallet dollies and stackers.

Developing a new wheel storage system was the primary challenge; approximately 1,100 sets of wheels have to be stored on 150 square metres. "Capacity and process efficiency were not the only important factors – ergonomics is also critical. Our productivity goals shouldn't be achieved at the cost of employees' back pain," explains Bernd Rupprecht, responsible for fixed location storage sales at SSI Schaefer. A typical wheel weighs 20 to 25 kilogrammes; SUV wheels tip the scales at 35 kilogrammes. Handling these heavy items is tough physical work, and places great strain on employees' backs.

Sets of four wheels are stored double-deep, with each pair occupying one storage position. SSI Schaefer introduced pallet dollies to increase

efficiency. This also improves working conditions, as it eliminates the need for heavy lifting during putaway and picking. The combination of dollies and pallet stackers has proven highly successful. Vertical movements are completed in just 18 seconds – offering over 50 per cent greater time efficiency than conventional systems. Moreover, there are practically no picking errors.

Fixed location warehousing has been a mainstay of the automotive industry for many years. It offers a number of advantages: up to 50 per cent space savings, shorter picking tours due to optimised layouts, and an extremely low picking error rate, as every part has an assigned position. BMW Vogl stores approximately 4,500 spare parts on R 3000 modular shelves on a two-level mezzanine, taking up only 240 square metres of floor space.

"Our new storage system enables us to provide our customers with the high-quality service they have come to expect from one of Germany's leading BMW dealerships. It was a pleasure to work with SSI Schaefer; we have formed an excellent partnership," notes Jürgen Pöllner, Managing Director at BMW Vogl.

Efficient pallet live storage

Ertvelde, Belgium. Total supplies high-quality petrol and diesel throughout Belgium via more than 500 stations. But the company is also a global player in the energy industry, with a broad portfolio comprising fuel oil, LPG, renewables, speciality chemicals, and more.

SSI Schaefer implemented a pallet live storage system at Total's Ertvelde distribution centre in north-eastern Belgium. The solution was installed in the centre's staging area, providing buffer storage prior to shipment. In addition, it serves as a means of conveying pallets loaded with oil drums, canisters, and cartons. The system consists of 12 aisles, three levels, and a single channel with roller tracks and 10 pallet positions.

Loaded pallets – which can weigh up to 1,000 kilogrammes each – are transported on conveyor belts to the staging area, where forklifts place them on the racking system's roller track. They are unloaded by forklifts on the opposite side of the racking – meaning putaway and retrieval processes remain independent.

Total is very satisfied with the system. "SSI Schaefer provided a solution that signifi-

cantly increased our capacity, creating 360 new pallet positions," states Peter Van Laere, Project Leader at Total. The company has already drawn up plans to replace the forklifts with automated guided vehicles (AGVs).



Carglass® enjoys accessible, practical storage

SSI Schaefer has implemented shelving for car parts in Carglass' European distribution centre.



Hasselt, Belgium. Carglass has been Belgium's leading automotive window specialist for over 25 years. The company's core competency is repair and replacement – for all car makes, models, and ages. They provide 24/7 customer service, using 41 workshops and a fleet of 100 mobile technicians in Belgium. Moreover, Carglass provides a lifetime guarantee on all workmanship, including the watertight seal on replacement windscreens.

To perform repairs rapidly and reliably, Carglass needs a warehouse infrastructure of the highest standard. With this goal in mind, SSI Schaefer equipped Carglass' European distribution centre with shelving for work clothing, and R 3000 modular shelving systems for car components of a variety of types and brands – supporting picking processes for both fast and slow-moving items.

For greater efficiency, repair materials and accessories are stored in Euro-Fix boxes on modular shelving systems on a mezzanine.

Taking efficiency to a new level

Within the scope of a large-scale expansion of their production plant, Liebherr-Aerospace Lindenberg has built a new logistics centre. All processes in this automated high-efficiency warehouse are managed with WAMAS® software.



SSI Schaefer's WAMAS software supports the ongoing optimisation of all processes in the new logistics hall in line with actual needs, and uses graphics to visualise current inventory.

Lindenberg, Germany. Liebherr-Aerospace, a leading European manufacturer of aerospace components, commenced a major expansion project for their plant in Lindenberg, Germany, in 2012. SSI Schaefer, Neunkirchen, was tasked with implementing a new warehouse management solution to streamline the plant's intralogistics processes.

The site posed a unique challenge: the new racking systems needed to be installed in a 15,700-square-metre logistics hall and assembly area for flight control systems that were 20 metres below normal ground level. Werner Grund, SSI Schaefer's Project Leader explains, "The steep incline of the land is responsible for this unusual situation." In other words, the floor of these zones had to be lowered to maximise the available surface area.

Over the course of just a few months, SSI Schaefer succeeded in building an automated high-bay racking system and an automated small parts storage system. Both are connected by conveyor systems to repacking and picking

stations that are at level "0" (i.e. 20 metres above the lowered floors).

The three-aisle high-bay racking, in a single-deep configuration, offers a total of 6,714 pallet positions. These are served by Exyz storage and retrieval machines (SRMs) which put away and retrieve 39 pallets an hour, at an average speed of 220 metres per minute. Four single-mast Schaefer Miniload Cranes (SMC, type 1) – which each put away and retrieve an average of 77.5 containers an hour – are deployed in the four-aisle, double-deep small parts storage system comprising 63,440 container positions. Thanks to SSI Schaefer's Green Crane Technology, travel speed and acceleration can be aligned precisely with actual needs, minimising both wear and electricity consumption.

The introduction of WAMAS logistics software has also helped improve plant productivity. The solution supports the ongoing optimisation of all processes in the new logistics hall in line with actual needs. WAMAS is deployed within a client/server environment, and uses graphics to visualise current inventory. The software therefore offers an at-a-glance overview of plant capacity utilisation, and, in addition, enables rapid analysis and trouble-shooting.

It is clear to Markus Heinrich, Head of Logistics at Liebherr-Aerospace Lindenberg, that they chose the right partner to implement these improvements. He stated: "We had a very good working relationship with SSI Schaefer throughout the entire project – they proved to be very skilled, professional and reliable." The changes have improved the aerospace specialist's ability to respond to fluctuating market conditions within a highly competitive, international business environment.

The three-aisle high-rise racking was installed on a floor that had been lowered by 20 metres.



Eco-friendly intralogistics for Lely's new campus

Maassluis, the Netherlands. The Lely Group is an acknowledged pioneer in the agricultural sector. Its portfolio includes forage harvest machines, automatic livestock feeding systems, mobile barn cleaners, and robotic milking systems.

SSI Schaefer installed in-line shelving at 18 assembly stations on the high-tech production lines at Lely's new innovation campus. This shelving ensures that small parts are always easily accessible, and precisely where they need to be. SSI Schaefer also provided a pallet racking system for Lely's warehouse, for storing materials sold by the metre.

In the future, Lely will also deploy SSI Schaefer LTB containers to reduce waste packaging generated during production, and to minimise the company's environmental footprint.



Pallet racking for storing materials sold by the metre.

Small parts and items available to rent are stored on modular shelving on a mezzanine, increasing efficiency. "Previously, the shelves were distributed around the workshop. Now, everything is centralised; we have saved space and have reduced picking time. What's more, items are stored in a much more structured way," explains Peter Boere, Workshop Team Manager at Lely Industries NV.

Lely's new campus was awarded five stars for exceptional sustainability under the BREEAM certification program. The new, eco-friendly complex was opened in January 2014 by Queen Máxima.



Storage capacity doubled

Dubai, United Arab Emirates. Glenbeigh Construction, a member of the Glenbeigh Group, is one of Ireland's leading construction companies, with operations in the United Kingdom and the United Arab Emirates. The enterprise was founded in 1985, and provides project management with in-house design, response care teams, and pre-engineered low carbon off-site building solutions, for both the private and public sectors.

Recently, Glenbeigh Construction built a warehouse for its sister company Glenbeigh Records Management. This new document management and archiving facility is located in the new aviation and logistics hub at Dubai World Central.

SSI Schaefer was contracted to provide an efficient, secure and reliable solution for the storage

of a significant number of cartons. The intralogistics expert implemented a multi-tier mezzanine system; the racks make full use of available headroom, and can store one million cartons. By leveraging vertical storage, SSI Schaefer eliminated the need for an increased footprint, and doubled the warehouse's capacity.

"SSI Schaefer's racking systems ensured that our clients' critical records are stored in a facility of a high standard, and provide us with prompt access to records; this ensures that we meet our one-hour service-level delivery targets," explains Declan Brady, Managing Director at Glenbeigh Records Management.

The multi-tier mezzanine system can store up to one million cartons.

Made-to-measure warehouse solution for Belimo Americas

Accelerated picking improves material flows and increases throughput.



The combination of manual and automated warehouse systems greatly improves process efficiency and saves time.

Connecticut, USA. SSI Schaefer has implemented a 7,000-square-metre automated warehouse for Belimo Americas, a manufacturer of actuators and control valves.

The scope of services included automated small parts storage with 16,320 tray and container positions, container conveyor systems, a pallet live storage system, narrow-aisle pallet racking, SSI Schaefer's WAMAS logistics software, and goods-to-person workstations for picking, packing, and pre-assembly.

The conveyor system loop serves three picking zones, including the narrow-aisle racking, the live storage system, and the picking workstations, where extremely fast-moving 'AA', fast-moving 'A', and slow-moving 'B' SKUs are stored, respectively. The goods are retrieved by Schaefer Miniload

Cranes (SMC), and are transported from the small parts storage system via containers. The exceptionally low-noise conveyor system and highly ergonomic workstations help create a pleasant and productive working environment.

Once items have been picked and placed in containers, they are sent to packing stations. If parts require pre-assembly, they are conveyed to dedicated workstations before being prepared for shipping. The decoupled workstations ensure process efficiency, and accelerate receiving-to-shipping time.

"The project was delivered on time, and we were able to transition into our new facility as per schedule without interruption to our business and customer service," explains John Coppola, Vice President of Finance and Administration at Belimo Americas.



Design of Klingspor's pallet racking and shuttle-served channel storage systems.

3D-MATRIX Solution® for greater efficiency and scalability

Haiger, Germany. Klingspor is a major player in abrasive technology, distributing over 200 metric tons of grinding wheels and similar materials to 80 countries daily. The enterprise has a portfolio of more than 50,000 products – and as a result, requires highly efficient storage systems. Against this background, Klingspor contracted SSI Schaefer with upgrading their existing distribution centre, with a focus on ensuring timely delivery.

At the production plant in Haiger, SSI Schaefer is installing a three-aisle, double-deep pallet racking system, with 13,400 positions, and a shuttle-served channel storage system with 36,000 container positions. The new configuration will incorporate SSI Schaefer's innovative 3D-MATRIX Solution – which provides outstanding efficiency, flexibility, redundancy and scalability.

Three energy-efficient Exyz storage and retrieval systems will streamline putaway and picking in the 2 x 120-channel pallet racking system. A pallet conveyor system with a programmable logic controller (PLC) connects the 26-metre-high racking system to three picking stations and the receiving and shipping areas. On the other side of the building, a Navette shuttle system – comprising 21 Navette vehicles and nine Navette lifts – serves a 26-metre high channel storage system. This storage system is linked by conveyors to four staging areas located in the extremely high-turnover 'AA' SKU zone, and to four multi-order stations and eight packing stations. In addition, Klingspor plans to introduce SAP EMW (Extended Warehouse Management) software, which will also be implemented by SSI Schaefer. The upgraded warehouse is slated to commence operation in mid-2016 – and will play a key role in the enterprise's future growth.

A tailor-made storage solution

A combination of SSI Schaefer racking components is shortening picking routes, optimising material flow, and improving ergonomics in Schunk's new warehouse.

Heuchelheim, Germany. Schunk products have become indispensable across a variety of industries. They are used, for example, in cars, ships, electronic devices, wind turbines, space shuttles, medical technology, the solar power industry, and LED lighting. To support its expanding portfolio of products, the enterprise decided to increase its efficiency and combine its warehouses for maintenance materials and equipment for water, gas, and electric installations. Schunk contracted SSI Schaefer to plan and execute the restructuring project.

A new, highly efficient parts storage system has been created on a floor space of around 200 square metres. It is designed to make full use of all available headroom, and has capacity for 5,000 products. Particular emphasis was placed on a compact, clearly structured layout – with short picking routes and ergonomic processes. Stephan Edeling, Project Manager at SSI Schaefer, states: "It wasn't an easy task, as the new facility had less floor space."

To reduce picking errors, SSI Schaefer installed fencing, creating an open zone and an enclosed zone. The enclosed zone has a parts issuing desk and

an integrated receiving area – and only specially-trained warehouse staff may enter. Their task is to handle more complex requests from electricians, to pick and put away components, and to plan inventory (including placing orders for corresponding products). SSI Schaefer equipped the parts issuing desk with drawer shelving.

A track-free mobile racking system with R 3000 modular shelving units allows quick access to stored items. According to Thomas Stipp, Head of Logistics at Schunk: "This is extremely important, as we need to quickly and accurately provide 100 to 150 employees with the right products and materials every day." Very heavy items are moved with pallet trucks and electrically powered forklifts. There are additional modular shelving systems with drawers in the open self-service area, where employees can take whatever components and equipment they need.

Stipp concludes: "We enjoyed a very positive working relationship with SSI Schaefer – they tailored everything to our exact needs. We are now planning the next step – SAP integration – to make our operations even more efficient."

All inventory is now organised to maximise efficiency: fast-moving items are stored at the front of the mobile racking systems, with slow-moving items at the rear.



Faster picking through optimised automation

SSI Schaefer has implemented an automated solution for LANDI Switzerland to create high-availability storage and streamline picking of small parts.

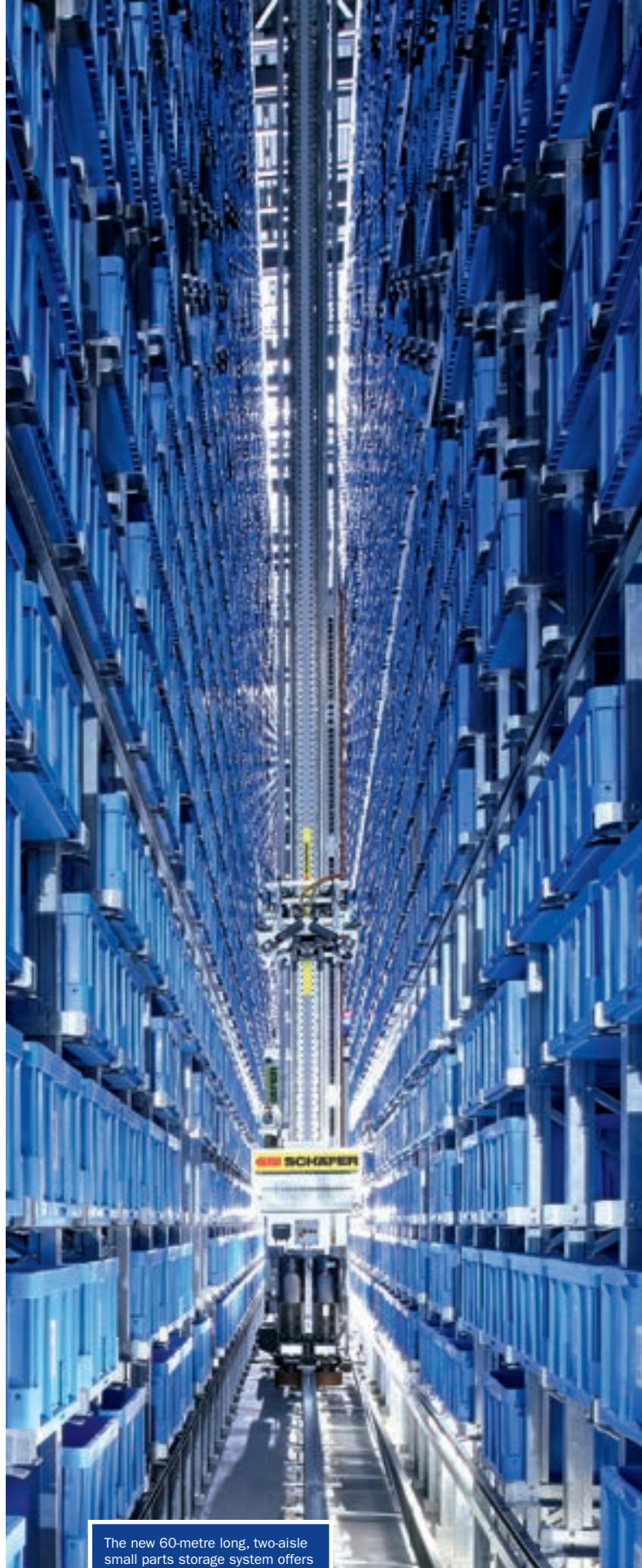
Dotzigen, Switzerland. Since 2002, SSI Schaefer has been working hand-in-glove with LANDI Switzerland to advance the enterprise's intralogistics. Step-by-step, LANDI's manual warehouse has been intelligently re-designed and fitted with specialised equipment and conveyors. Furthermore, WAMAS software has been implemented to manage material flows.

In February 2014, SSI Schaefer installed a 60-metre long, two-aisle automated small parts storage system with a total of 24,000 container positions. Goods were previously stored in conventional modular shelving systems. In this person-to-goods configuration, pickers had to travel long distances which was time-consuming. Today, picking is much more efficient. The new small parts storage system is served by two storage and retrieval machines, and 12 lifting beams, and is integrated into the warehouse's existing IT and conveyor systems. Moreover, SSI Schaefer's WAMAS logistics software optimises putaway and picking processes.

The software also ensures the continuous, timely flow of goods to new multi-purpose workstations, where items are repacked after receipt, inventory data is captured, and small parts are picked to order. As Armin Kaufmann, SSI Schaefer's Project Leader, notes "The multi-purpose configuration of these workstations and their integration into material flows ensures LANDI maximum flexibility for manual processes."

A unique feature of SSI Schaefer's solution is a fully automated staging area for outbound items within the small parts storage system. The area comprises more than 100 storage positions, and guarantees the seamless flow of sequenced containers to the multi-purpose workstations in line with customer orders. This design enables a throughput of 1,200 containers per hour, and allows rapid picking from storage.

"SSI Schaefer's automated solution and its goods-to-person picking processes have helped us increase our throughput from 60 items per worker per hour to 300 items, in conjunction with a zero-error rate," explains Urs Rogo, Logistics Project Leader at LANDI Switzerland. "We are very happy with how the project went, and with the results."



The new 60-metre long, two-aisle small parts storage system offers a total of 24,000 container positions.



Medium- and slow-moving 'B' and 'C' products are stored in a modular shelving system on the second floor.

Multi-tier storage solution

Burton-on-Trent, United Kingdom. NBTY is a global manufacturer and distributor, specialising in high-quality nutritional supplements. The company supplies over 22,000 products under a number of its own and third-party brands. One such brand is Holland & Barrett, a Europe-wide retailer of vitamins, minerals, herbal supplements and organic health products. Holland & Barrett operates over 620 stores in the UK and Ireland, and has a successful and ever-expanding online business.

NBTY's high-street and online branches were originally supplied by a distribution centre in Burton-on-Trent, Staffordshire, where tasks were performed manually. However, there was constantly increasing pressure to keep up with daily demand. To enable NBTY to reliably serve Holland & Barrett's online customers, SSI Schaefer installed an automated system at the existing distribution centre, completely transforming the distributor's e-commerce capabilities.

In order to cope with NBTY's growing product range and inventory, and to increase available storage space, SSI Schaefer built a two-storey mezzanine with pallet racking beneath it. This has enabled NBTY to store bulk and replenishment goods, both in large cartons and on pallets, at ground floor level. In addition, SSI Schaefer installed a live storage system on the first floor of the mezzanine for fast-moving 'A' products, and modular shelving on the second floor for medium- and slow-moving 'B' and 'C' products.

In the fully flexible picking zones on both floors, shipping cartons are transported only to the zones that hold order-required products. An ex-

tensive conveyor system connects all levels and zones, and moves order-picking and replenishment cartons to the picking floors. This conveyor leads to a series of packing benches, where documents are placed in the cartons before they are sealed and labelled.

The solution combines a multi-tier mezzanine picking tower with pallet racking on the ground floor, live storage picking on the first floor and a combination of live storage picking and shelf picking on the top floor.

"The new automated system is faster, more efficient and more accurate, helping us meet our online requirements. It also offers us a scalable solution to our e-commerce enterprise, enabling us to choose the level of automation to complement the level of demand", says Mark Kendrick, Group Distribution Director at NBTY.

Facts and figures

Project objectives:

- End-to-end automation of material flows
- Improved basis for e-commerce
- Constant availability
- Highly precise picking

Our scope of services:

- Two-storey mezzanine with modular shelving system
- Pallet racking, long-span racking
- Eight storage and retrieval systems for pallets
- Live storage system for cartons
- Extensive conveyor system for cartons
- WAMAS warehouse management software

Turnkey high-bay warehouse for frozen meatballs

Dafgård's frozen ready meals are stored at -28°C in a state-of-the-art automated warehouse.



3D graphic of Dafgård's cold storage warehouse in Källby, Sweden.

Källby, Sweden. Swedish family-owned company Dafgård has been developing and supplying high-quality ready meals since the 1930s. Today, Dafgård is Sweden's preferred brand of ready-made meals, producing 40 million Billy's pizzas every year and 400,000 meatballs every hour.

To solve the problem of limited storage space at their site in Källby, Dafgård tasked SSI Schaefer, Giebelstadt, with the construction of a new cold storage warehouse capable of storing products at -28°C. This high-bay facility will have a height of 35 metres, and be equipped with a state-of-the-art oxygen-reduction fire prevention system. In addition, there will be six energy-efficient Exyz machines for double-deep storage and retrieval. These devices will serve a total of approximately 30,000 pallet positions. Moreover, SSI Schaefer's scope of supply includes a new distribution zone, WAMAS logistics software, and a sophisticated conveyor system, directly linked to the production plant.

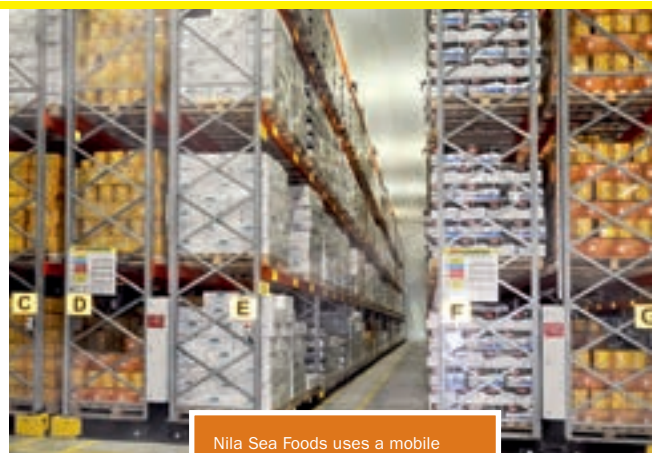
Construction of the new cold storage warehouse has just commenced, and is scheduled to be completed in December 2015. It will significantly improve the efficiency of Dafgård's logistics by enabling easy delivery date monitoring, more accurate inventory control, and faster loading of trucks.

Space-saving seafood storage

Tuticorin, India. Nila Sea Foods specialises in seafood products, and offers a range of over 45 SKUs, including lobster, cephalopod, crab, fish and shrimp.

Until recently, Nila Sea Foods stored its frozen products in its own cold storage warehouse, and at facilities operated by third-party logistics providers. However, limited storage space made it difficult to directly access all SKUs. Nila Sea Foods' mission is to supply its high-quality goods on time, to ensure end-to-end product traceability, and to safeguard the cold chain at all times. For this reason, SSI Schaefer was tasked with upgrading the existing warehouse. A key role is played by a mobile racking system with a total of 1,830 pallet positions. This has enabled more efficient use of available space.

"The automatic racking system helps us to increase our productivity and reduce product damage. Moreover, it consumes less electricity, takes up less space, and includes more safety measures. This allows us to easily handle and trace products," explains Mr Chandran, General Manager of Nila Sea Foods.



Nila Sea Foods uses a mobile racking system to store its frozen seafood products.

WAMAS® streamlines operations at sub-zero temperatures

Rothenburg, Switzerland. Pistor is Switzerland's leading supplier of food products to bakeries, patisseries, and confectioners, and a key wholesaler within the restaurant industry. The business recently tasked SSI Schaefer with constructing a logistics centre for its fresh and frozen items. This is the third time Pistor has chosen SSI Schaefer to provide a state-of-the-art intralogistics solution – in 1997, it implemented WAMAS, and in 2011 it built a new distribution centre.

Pistor's new 5000-square-metre freezer warehouse, nicknamed the "Ice Cube" by the staff, is supported by WAMAS. WAMAS manages the warehouse's operations, logistics and support processes. The software is deployed to control the flow of goods to and from more than 5,000 pallet positions and 76,000 tray positions at a temperature of -24°C.

Incoming goods arrive on pallets, and data is captured by WAMAS using handheld devices. A conveyor system then moves the items to the freezer area, where they are put away in double-deep storage in the new two-aisle high-bay store.

The items are manually transferred from pallets to trays at repacking stations. A Schaefer Miniload Crane (SMC 1) storage and retrieval system then places the trays into a 12-aisle automated small parts storage system.

The shipping area is the highlight of the new facility. The trays are automatically retrieved from the small parts storage system on trolleys in preparation for shipping. They are sent to a sorting unit via buffer conveyors, and are organised into a defined sequence by WAMAS before they arrive at the packaging area. Transfer from the small parts storage system to the ergonomic packaging area is automated from end to end. This enables packaging tasks to be performed at above zero temperatures (1°C), creating a more pleasant working environment. Due to the compact sequencing of the trolleys, the frozen products are only exposed to above-zero temperatures for a limited time.

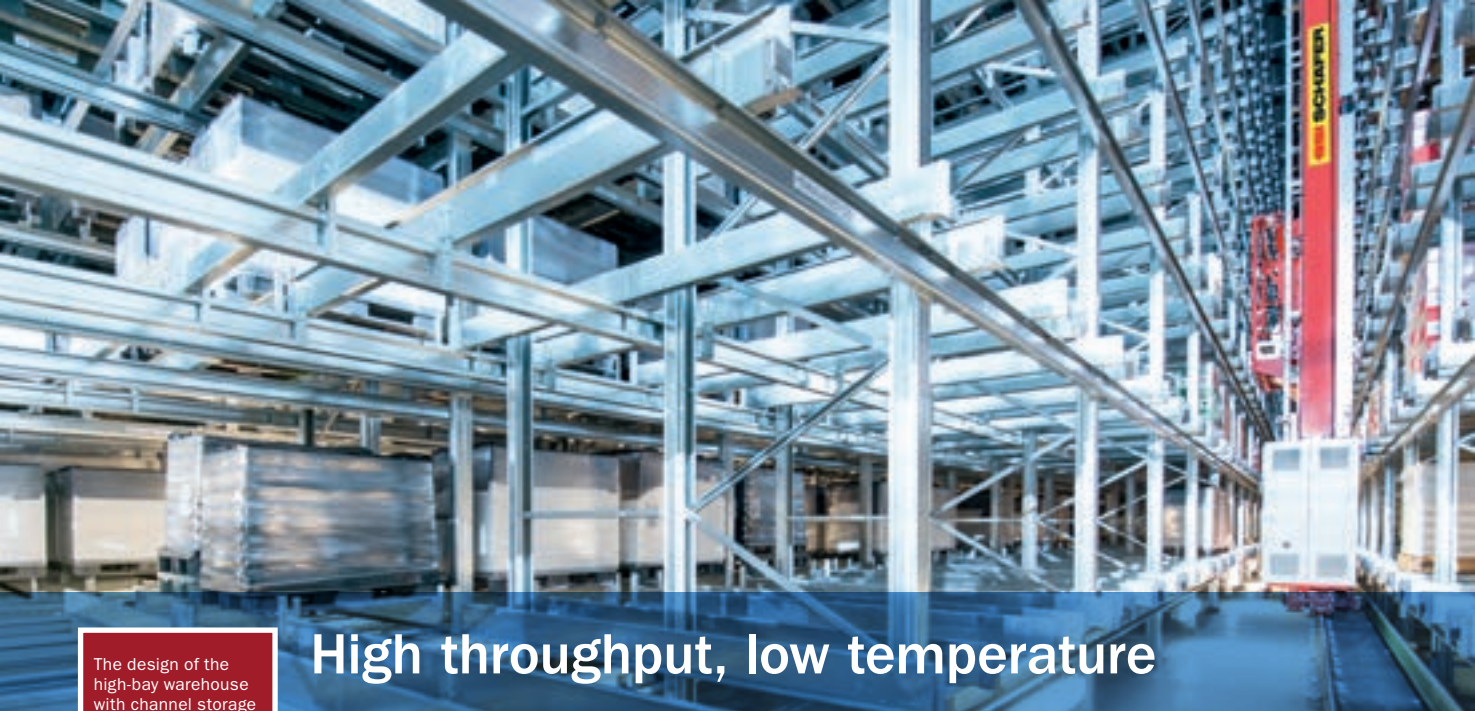
"The Rothenburg project was complex, with a high degree of automation. Products need to be stored at sub-zero temperatures, and government agencies imposed strict requirements. Despite these challenges, it was very successful," states Richard Betschart, Head of Logistics at Pistor.



Trays are put away and picked by means of a Schaefer Miniload Crane (SMC 1) storage and retrieval system.



WAMAS manages the warehouse's operations, logistics and support processes.



The design of the high-bay warehouse with channel storage increases Tine's storage flexibility and inventory turnover for new products.

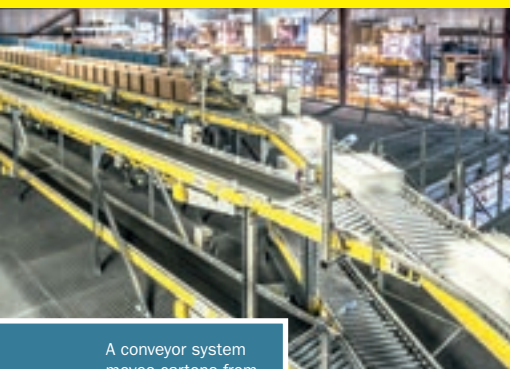
High throughput, low temperature

Jæren near Nærbø, Norway. Tine processes 200 million litres of milk a year to manufacture some 300 dairy products. This creates significant storage and picking challenges, but SSI Schaefer, Giebelstadt, is up to the task.

At the core of SSI Schaefer's logistics solution is a temperature-controlled high-bay warehouse (HBW), with close to 7,200 pallet positions. Due to the sensitive nature of its goods, the cooling system is equipped with an oxygen-reduction fire prevention system. Putaway and picking tasks are performed by four storage and retrieval machines (SRMs), with a throughput of 33 pallets per hour. "The SRMs and their components are ideal for operation in temperature-controlled warehouses," states Peter Lambrecht, Head of Project Management at SSI Schaefer.

The SRMs are equipped with shuttles as load-handling devices, enabling three- to four-deep storage in the rack channels. "The HBW's design, with a channel storage system, improves storage flexibility and throughput of newly introduced products," explains Ingvar Løge, manager of the new warehouse in Jæren. A 400-metre long pallet conveyor system connects the HBW with the production and shipping areas.

SSI Schaefer's WAMAS logistics software manages and monitors warehouse processes. The cold chain is maintained through a combination of automation, software, and storage and picking systems. Furthermore, WAMAS helps streamline the entire supply chain, from farm to supermarket freezer.



A conveyor system moves cartons from the packaging zone to the buffer area.

Pasta made in Canada

Brampton, Canada. Founded in 1989, Italtasta has achieved outstanding success through its commitment to excellent service, quality, and customer satisfaction. Its team, including ten pasta specialists with extensive experience in their craft, ensure that Italtasta enjoys wide recognition in Canada's food service sector, and is the No. 1 retail pasta brand in Ontario.

However, Italtasta's continuous growth created real challenges for its packaging department. Space constraints in production, and poorly structured warehouse processes posed a risk to employee and food safety.

For this reason, Italtasta tasked SSI Schaefer with automating and restructuring the corresponding processes – without disrupting ongoing operations. SSI Schaefer's solution was to construct a bridge, with two integrated conveyors, to connect the manufacturing plant to the adjacent building used to hold finished goods. The conveyors move cartons from 21 packaging lines to the buffer area, where they are sorted and stacked before being sent to one of four automated palletising stations. Here, they are palletised, shrink-wrapped, labelled, and prepared for shipping.

The solution has enhanced efficiency, improved staff working conditions, and increased space available for equipment – now, there is nothing standing in the way of Italtasta's progress.

Vietnam's high-tech dairy distribution centre

WAMAS® software and process automation ensure high throughput for Vinamilk in Vietnam.

Binh Duong, Vietnam. Vinamilk is Vietnam's leading dairy product manufacturer, processing 400 million litres of milk annually. The company meets much of the country's market demand, and has recently established the Ben Cat District Facility on a 200,000-square-metre site. This huge factory requires sophisticated intralogistics to ensure the smooth flow of goods.

In the manufacturing department, the dairy products are packaged in Tetra Paks. These are then boxed, shrink-wrapped and palletised, before being moved to a smart warehouse, built by SSI Schaefer, via two transfer stations. The key to process automation within the warehouse is a rail-guided vehicle (RGV) system, with a total length exceeding 370 metres, and 15 vehicles. The RGV moves pallets from the manufacturing department to any required storage position within the logistics centre. "It is the first time that SSI Schaefer has installed an electrified RGV system for intralogistics flows in South-East Asia," explains Carsten Spiegelberg, General Manager for Systems and Automation, Schaefer Systems International Pte. Ltd., Singapore.

Each RGV carries two pallets simultaneously at a speed of 90 metres per minute to the transfer spurs for the automated storage and retrieval machines (SRMs). Eight Exyz SRMs serve some 28,000 pallet positions within the earthquake-proof high-bay warehouse.

For the outbound process, the pallets are transferred via a conveyor to eight shipping lanes. A vertical conveyor moves pallets that require pre-picking to an upper floor. WAMAS logistics software ensures route-optimised picking while taking into account constraints imposed by the need for stable, volume-optimised pallet loads. Once picking is complete, the logistics software sequences the movement of pallets to the shipping area on the lower floor in line with customer orders.

Despite highly complex goods flows, it is possible to move 188 pallets per hour to the shipping department. "SSI Schaefer's logistics software streamlines our processes and accelerates throughput; moreover, it has reduced our error rate to almost zero. The solution as a whole provides excellent support for our growth strategy," emphasises Trinh Quoc Dung, Vinamilk Factory Manager.



Eight energy-efficient Exyz SRMs perform pallet putaway and retrieval.

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