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for the beverage industry



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assistance system under
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device enables gentle
pelletizing of bags



36 Special logistics solutions
for Turkish importers
and exporters



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Turkey is an attractive location for the intralogistics industry

Turkey has seen strong economic growth in recent years. Stable economic growth along with annual growth rates of five percent and a gross national product that has more than tripled from USD 231 billion to USD 820 billion in the period from 2002 to 2013, have made this country the fastest growing economy within the OECD group of countries. Current reports from TİM, the Turkish Exporters' Assembly, indicate that export has increased by a further four percent to USD 157.6 billion in 2014. At USD 22.3 billion, car sales made up the largest part of this value, followed by textiles and chemical products. Thanks to its geographical location, Turkey has become a stepping stone to other countries in the Middle East, the Balkans, North Africa, CIS states, and Central Asia. Half of its approximately 77 million inhabitants are younger than 30.4 years of age and are well educated. More than 28 million people are

Turkey plans to become one of the top ten leading industrial nations by 2023

employed, thus ensuring that the strength of the Turkish workforce is also integrated in the logistics industry. This young generation is also very consumer-focused, thanks to modern information technology and a well-equipped

media culture. Online trade is also booming in Turkey and cheap personal loans are increasing spending power. This provides e-commerce companies with great opportunities as the demand for logistic centers in the online retail sector is continuously increasing.

The current size of the Turkish logistic sector is estimated at around USD 80 to 100 billion and is expected to increase to USD 106 to 140 billion by 2017. The latter is reason enough for international companies from the intralogistics industry to invest in Turkey as a trade partner or to establish their own production, as detailed in our article on pages 10 and 40. This is why WIN-Materials Handling Eurasia, that will be held in Istanbul for the third time from March 19 to 22, 2015 can look forward to a lot of visitor interest and will provide the necessary basis to gain information about devices, plants, and systems in the intralogistic sector.

If Turkey maintains this level of growth, it will not only become the largest and richest single market within the Middle East but will also be the most interesting and dynamic by far. This is something that the intralogistics industry should take advantage of.

Petra Gottwald

Petra Gottwald



Imprint

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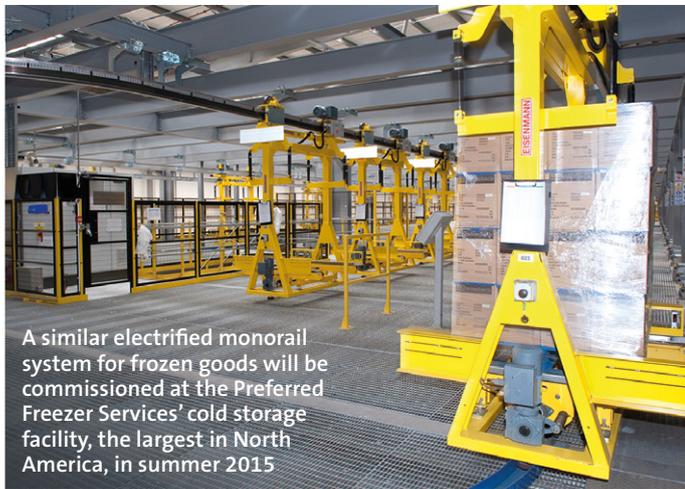
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7th year (2015)

Worldwide News

Eisenmann receives order from USA



A similar electrified monorail system for frozen goods will be commissioned at the Preferred Freezer Services' cold storage facility, the largest in North America, in summer 2015

The temperature-controlled logistics provider, Preferred Freezer Services, has awarded Eisenmann a seven-figure contract to construct an electrified monorail system for its largest and fully automated refrigerated warehouse in Richland, Washington, North America.

In the summer of 2015, an electrified monorail system of around 750 meters will connect the receiving department with the warehouse, picking department, truck loading bay, and railroad spur. Thirty five trolleys will be operating around the clock, seven days a week, moving 6,000 pallets, each weighing approximately 1.5 tons. While traditional refrigerated warehouses rely on human-operated narrow-aisle trucks, "this will be our sixth fully-automated cold storage facility, and we are already planning further projects," states John J. Galiher, CEO, Preferred Freezer Services. "As refrigerated warehouses become increasingly larger, the conveyor systems are becoming more complex. It is very important to us that the facility is flexible, fast, and totally reliable. We were therefore looking for a proven solution."

Preferred Freezer Services is investing over USD 100 million in the new development project, which is being overseen by prime contractor, Dematic. The logistics company is planning four further cold storage facilities this year, two of which will be fully-automated.

www.eisenmann.com

Dematic expands range of solutions

The Dematic Group, the supplier of integrated technologies for the automation of the intralogistics industry, has recently taken over FSU Investments Limited. FSU is the majority shareholder of SDI Group Limited, which is based in Royston, United Kingdom, and manufactures sorting technology for hanging and folded goods. With this investment, Dematic is expanding its range of order processing services for the clothing, retail, and e-commerce markets.

www.dematic.com

Inconso opens a location in Spain

With the opening of a new office in Madrid, Inconso AG from Bad Nauheim, Germany, is now also represented in Spain. Following the expansion in the meantime to ten locations within Germany and the founding of a subsidiary in Lyon, France, the Spanish office is the next step within the strategy of internationalization for the logistics software provider. The office in Madrid will be managed by Stephan Walser, whose repertoire includes 15 years of marketing experience in Spain.

www.inconso.com

Vitronic and TNT have announced their global partnership

Vitronic Dr.-Ing. Stein Bildverarbeitungssysteme GmbH from Wiesbaden, Germany and TNT Nederland BV, one of the world's largest enterprises for express services, have formed a long-term global partnership.

The cooperation includes equipping hubs, gateways and service centers with



up-to-date image processing technologies for recording the data of goods being transported. The first phase of the project includes over 100 locations in Europe. More than 600 systems will be used to read the bar codes of consignments to determine their eligibility for shipping, in addition to reading the barcodes of large envelopes and small packages, while recording 3-D images and measuring and determining their volume and weight. The contract includes the delivery, installation, commissioning and after-sales service of the identification systems.

"We have combined a very close partnership and the technical know-how of both partners", said Maarten Ree Perfect (right in the photo), Transaction Executive at TNT. Gerhard Bär (left in the photo), COO of Vitronic, added: "Being a system house, we are able to adapt the functions of our systems to an individual TNT solution that can then be used globally as standard at TNT."

www.vitronic.com

Nacco Materials Handling acquires Nuvera Fuel Cells

In December 2014, Nacco Materials Handling Group, Inc. ("NMHG"), Cleveland/USA, announced its acquisition of Nuvera Fuel Cells, Inc., Billerica/USA – a leading manufacturer of hydrogen and fuel cells. The deal reinforces the commitment of Hyster Company and Yale Materials Handling Corporation, both operating divisions of NMHG, to provide a broad range of alternative energy solutions to the forklift truck market. The plan is to quickly launch these sustainable technologies on the market and integrate them in many of their own forklift truck range. This acquisition not only ensures that Hyster and Yale can offer configurable fuel cell stack technology but can also provide commercial grade on-site hydrogen generation and refueling capabilities. Retrofitting and servicing will be provided through Nuvera authorized dealers.

www.hyster-yale.com/about-nmhg

Nejat Dagdemir is new General Manager of Marangoni Kaucuk Ticaret



Marangoni Retreading Systems, a company that retreads industrial tires, has appointed Nejat Dagdemir (**image**) as the new General Manager of the Turkish sales subsidiary, Marangoni Kaucuk Ticaret, located in Izmir. Over the last twenty years, Marangoni's Turkish sales subsidiary, has been successfully established and developed by Osman Bayik, who has now retired.

Dagdemir is a mechanical engineer who started his career at Mercedes Benz, and then went on to work at Pirelli, where for many years he held various positions in sales until becoming Business Unit Truck Manager and, finally worked as the Country Representative in the Alliance Tyre Group before joining Marangoni. His extensive experience in the sale of tires and his in-depth knowledge of the market will certainly help Marangoni achieve the growth objectives it has set and to expand its presence on the competitive local market.

www.marangoni.com

VIDEOIMPRESSIONS

The f+h editorial staff attended WIN India 2014/CeMAT India 2014 in New Delhi with a video camera and captured some impressions along the way. We also asked a few decision-makers in the industry sector to give us a statement. Video sequences can be accessed via the link and QR code. Alternatively, the collection of videos can also be accessed via the adjacent QR code or the following group link:
<https://vimeo.com/groups/296364>



Deutsche Messe



Wolfgang Pech, Senior Vice President at Deutsche Messe AG, about the significance of the Indian market.

<https://vimeo.com/118802406>

hannoverimpuls GmbH



Peter Eisenschmidt, project manager at hannoverimpuls, about the role of the Indian market in relation to Europe.

<https://vimeo.com/118802992>

Jungheinrich Lift Truck India



Klaus Simon, Managing Director at Jungheinrich Lift Truck India, about the company's level of development in India.

<https://vimeo.com/118803399>

Turkey set to become attractive logistics location

Materials
Handling

EURASIA

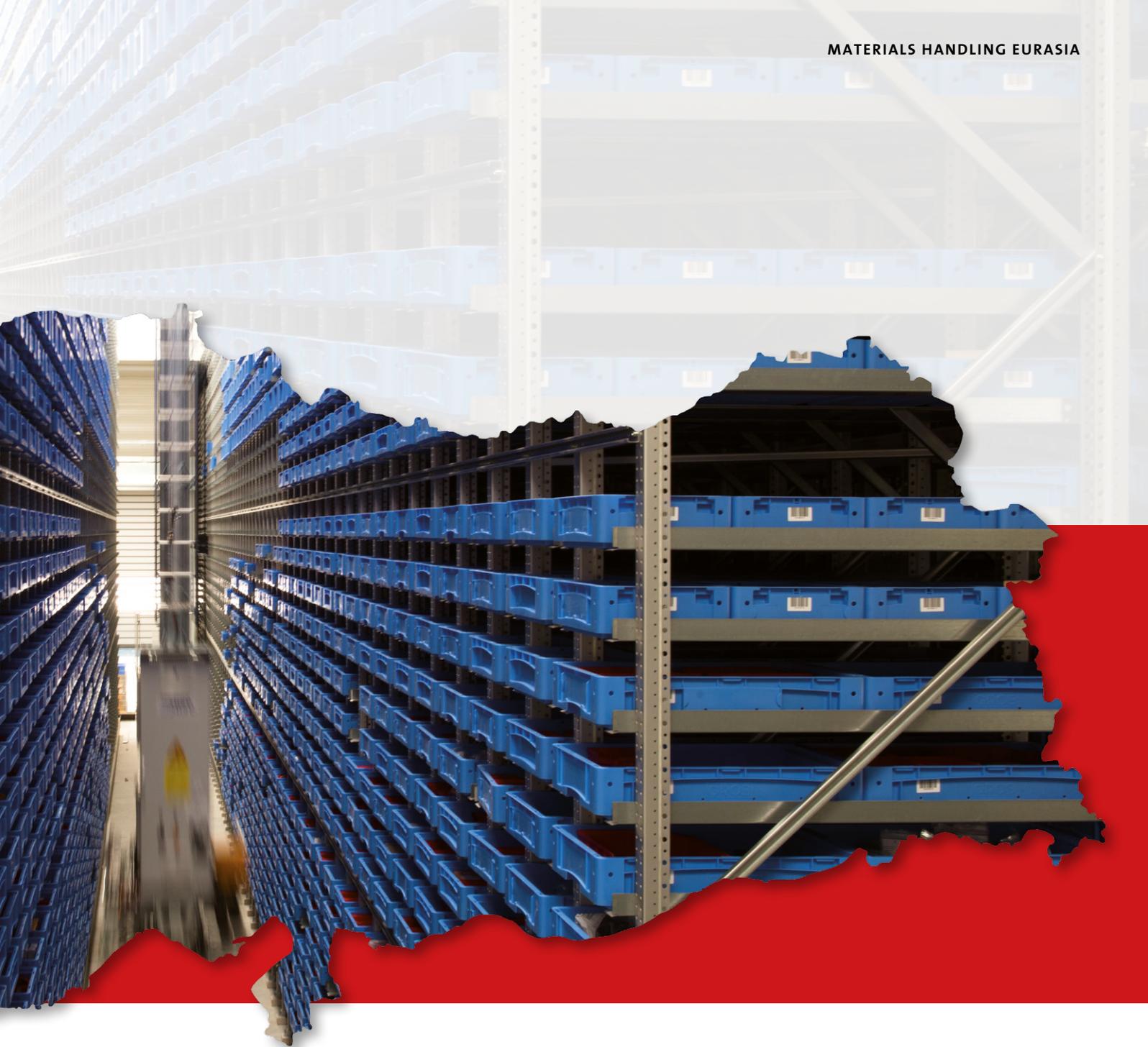
The logistics market in Turkey is developing into an attractive location for international investors. According to estimations by the Turkish logistics association, Loder Lojistik Derneği, the Turkish logistic sector is currently worth USD 80-100 billion and is expected to increase to USD 108-140 billion by 2017. With an average economic growth of 5%, rapidly expanding foreign trade and favorable geographical location providing the West with an economic gateway to the Middle East and Asia, Turkey has become an attractive investment location.

In view of the positive economic development and associated opportunities as a logistic location and gateway between Asia and Europe, Materials Handling Eurasia, the leading international trade fair for the logistics and intralogistics industry, will be held as part of the WIN - World of Industry event in Turkey from March 19 to 22, 2015. The main focus of the trade fair will include conveyor technology, material handling technology, warehouse technology, and logistics. The events organized in parallel to WIN - World of Industry will focus on topics such as hydraulics and pneumatics, electrical engineering, drive technology, automation, material handling, industrial goods, environmental technology, energy management and measurement technology. The WIN - World of Industry is being organized by Hannover Messe International Istanbul, a subsidiary of Deutschen Messe AG.

Strong growth expected in e-commerce sector

One of the exhibitors at Materials Handling Eurasia will be Jungheinrich, who are using the trade fair to gain a wider audience in the logistic sector. A wide range of devices and services will be displayed. The aim is to convey to visitors that Jungheinrich always develops solutions that are tailored to customer requirements. The German industrial truck manufacturer, based in Hamburg, is expecting an interested professional audience from all over Turkey so that it can present its full range of services. In addition, lots of meetings with potential customers and individuals interested in new logistic projects and requirements in Turkey have been scheduled.

The Swiss manufacturer of conveyor technology, Interroll, is once again exhib-



iting at Materials Handling Eurasia and is relying on the great economic potential the Turkish logistic market has to offer. “As a global supplier of key products for conveying systems, we have particularly gained a lot of experience in the food sector and fast expanding e-commerce sector,” explains Jens Karolyi, Vice President of Corporate Marketing and member of corporate management. “As a logistic location, Turkey is becoming more and more interesting to a lot of companies and in coming years, Turkey could become a global logistic center that is used as a transfer site for markets in Europe, the Middle East, Central Asia, and North Africa.” According to the technology and logistics service provider, Arvato, experts assume that economic growth in Turkey is set to see a double figure increase in coming years, especially in the e-commerce

sector by means of digital distribution channels. This positive development in the supply chain segment is particularly driven by the young generation in Turkey, that is consumption and digitally orientated and has a growing disposable income. According to a study by Jones Lang LaSalle, Turkey is set to become the fastest growing market in the logistic sector with a forecast growth of up to 48 % over the next five years. “A lot of logistic service providers want to expand their activities in Turkey,” states Karolyi. Especially, the cities of Istanbul and Kocaeli, in the north west of the country, should benefit from the boom. Interroll has already been represented with its own company in Istanbul since 2010 from where it provides its full range of products and services, including customer services for Turkey and the Middle East. This year, Interroll

will, amongst other things, be presenting its new modular conveying platform at WIN – Materials Handling Eurasia.

“We have been attending WIN - World of Industry in Istanbul for a while now,” says Emre Yenil, Sales Director for Turkey for the warehouse technology provider, Kardex Remstar. “Existing and potential customers at the trade fair will not only have the chance to talk to our sales team, but will also be able to test our products and solutions in live operation.” In Turkey, industry-specific trade fairs are generally highly rated. This is why Kardex Remstar, is hoping to increase its leads at Materials Handling Eurasia.

Photos: *viastore systems, Fotolia/processing: VFV Grafik*

www.win-fair.com



Continuous growth promotes investment in Turkey

f+h Intralogistics interviews Wilfried Baur, the Managing Director of Jungheinrich Turkey

For decades, Germany has by far been Turkey's largest economic partner. The most important German export goods include machines, electrical goods, vehicles, and components for the automotive industry. Reason enough to talk to Wilfried Baur, the Managing Director of Jungheinrich Istif Makinalari San. Ve. Tic.Ltd.Sti, about the economic importance of the country and its importance as a logistic gateway between Europe and Asia, as well as the requirement for industrial trucks

Turkey has achieved considerable economic growth in the last few years. To what do you attribute the positive economic development of the country?

One of the main reasons for the economic growth in recent years is without doubt down to the young and dynamic population. During the last elections there was no change to the political direction, which ensured continued economic development in Turkey. This in turn has a long-term effect on the increase in foreign investments and the rate of employment. Following the political turmoil in years prior to this, confidence in the economic development of Turkey has been restored. Nowadays, Turkey offers investors safe and attractive framework conditions.

The economic importance of Turkey goes hand in hand with its position as a logistic gateway between Europe and Asia. Where do you believe Turkey is positioned in terms of its development as a logistic location?

The economic development, especially in Asian countries, has increased rapidly. Investors and European companies have been active there more many years now. When you look at a map of the world, it is clear that Turkey forms a link between the European and Asian market. A lot of international companies now take advantage of this logistic location.

From the perspective of the Turkish intralogistics user market, can you pinpoint any key industries?

Especially in the last few years, automated warehouse systems have been successfully introduced in Turkey. This in turn has attracted further investments. A lot of companies are currently focusing on automated warehouses and are therefore making medium- to long-term investment plans. As oil prices are currently low, we are expecting the logistic sector to grow. In this sense, 2015 is sure to be a significant year for a lot of logistic companies.

Jungheinrich has been in business in Turkey since 2000. What corporate strategy objectives have been and remain behind the commitment?

Jungheinrich consistently aligns its actions with customer requirements - of course the same applies in Turkey. On the one hand, the satisfaction of our customers is down to our efficient and environmentally-friendly vehicles and, on the other hand, of course down to our solution-orientated approach. All of this strengthens the relationships with our customers and makes Jungheinrich a reliable partner. This

particularly applies to our after sales service. In Turkey, our customer service team alone consists of thirty employees. That equates to around 30% of our workforce in the country. This figure alone, highlights the importance of our after sales service.

With an extensive portfolio of industrial trucks as well as the Sparte logistic system, Jungheinrich offers a wide range of applications. Do Turkish operators prefer forklifts or conveying systems?

It is safe to say that the Turkish market predominantly used and still uses forklifts. However, interesting developments can be observed in the intralogistics industry. Due to rapid technical developments and an increased focus on costs over the entire life cycle of a vehicle or an intralogistics solution, more and more companies are now opting for system-based solutions. Jungheinrich is excellently positioned in this regard and can provide the best possible advice regardless of the customer's level of automation.

What do you believe is special about the Turkish intralogistics user market?

The Turkish market has developed very positively and continues to expand. Furthermore, Turkey is not just an attractive production location for large European

companies, but as previously mentioned, it is also a transit country towards Asia. Goods are not just shipped within Turkey but are increasingly shipped via Turkey. This is why Turkey has become a fundamental and indispensable logistic hub for Turkish manufacturers and international companies.

What business objectives has Jungheinrich set itself in Turkey for the coming years?

When it comes to electrically driven vehicles, Jungheinrich has been the market leader in Turkey for many years. To further increase our market share in Turkey over the coming years, we will focus on diesel forklifts and torque converters, as well as hydrostatic and narrow aisle trucks with racking systems. In addition, we will be expanding the hire market sector providing short- and long-term rental options, as well as the second hand market sector.

Thank you for talking to us.

Wilfried Baur was interviewed by Reiner Wesselowski, publisher of f+h Intralogistics

Image: Jungheinrich

www.jungheinrich.com.tr

About Jungheinrich

Jungheinrich is one of the world's leading companies in the industrial truck, warehousing and material flow engineering sectors. As a manufacturing service and solution provider in the field of intralogistics, the company, based in Hamburg, Germany, supports its customers with a comprehensive product range that includes forklift trucks, shelving systems, services and consulting. The Jungheinrich share is traded on all German stock exchanges.

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German-Turkish relationship – set the correct focus!

German-Turkish relations are a success story. Unfortunately we have to remind ourselves of that today. Far too much of the negative is in the foreground. Turks in Turkey, especially in the current government, criticized the inadequate integration efforts of the Germans. Turkish politicians are celebrating rallies in Germany, comparable to party days. They want “their” people in Germany to return to the “correct” sense of feeling as a Turk. At the same time anti-migration movements are on the rise. Thank God, counter protests are much stronger and more visible, made up of cosmopolitan Germans who gather in resistance on Germany’s streets. Nevertheless, 150 years after the first commitment of Siemens in the Ottoman Empire, 50 years after the first Turkish “guest workers” took up employment in Germany, it appears as if we had not progressed one iota in the German-Turkish relationship. Politicians do their best to show a positive mood. The integration commissioner of the Federal Government is a Turk. Other Turkish nationals hold influential positions in German politics. But do we really need this competition over authority to interpret whether and how successful integration has been? Foreign observers shake their heads about how cramped the Germans are.

Mistakes were made on both sides

It is true, that many mistakes have been made on both sides. But after decades of intense cooperation between Germans and Turks, this is not at all surprising. On the other hand, relations should be considered a huge success, revealing many similarities between the two countries. Whenever I meet so-called Turkish “guest workers” of the first generation, we can often both agree that the similarities are in majority. Germans and Turks share the same mentality. Turks are sometimes referred to as the “Prussians of the East”. Ambition and entrepreneurial skills have been the driving forces of this generation. Such individuals, who were often no more than 16 or 17 years-of-age when they left their homes to find work in Germany, were the pillars of the German economic miracle.

This is something Germans should never forget.

But it is also important that, after the first energetic generation and their children, some Turks did come to Germany in the years following who mainly sought to take advantage of the German welfare system. This group was (and still is) partially reluctant to adapt to Central European values and beliefs. This issue is often the subject of today’s very emotional debate on integration. But it is wrong to inflate its significance as a central problem of migration. Behavior similar to the aforementioned examples, the positive as well as the negative, can certainly also be found amongst Germans. Both groups of politicians, either those stirring up resentments or bending over backwards to show the opposite, are doing a disservice to migration. A foreigner living in Germany does not automatically become a pillar of the economy when he speaks German at home. And likewise a German-based Turk is not only a good person, if he holds fast to his cultural roots.

Turkey’s strengths

It is much more important to highlight real and existing problems and challenges in German-Turkish economic policy. Let’s begin with the lament that Turkey does not belong to Europe. This may be a purely legal case of contractual law – caused by the EU’s reluctance to continue the integration process. In Turkey, more and more frustrated voices are growing louder, calling on the government to give up because of the very long administrative process. Meanwhile, many sectors of the Turkish and European economies have intertwined very closely for many years now, whether it be in the textile industry or glass-production but also suppliers to the automotive and the construction industry. Turkish products are highly regarded in Germany on the basis of their quality and technical precision. As we know from our own experience, it is a big drawback, that Turkish companies are not always fully aware of their own strengths. Still, they often act as suppliers and are reluctant to bring their own products and brands to the German market. But acting as a supplier also entails significant depen-

dence on customers. This type of economic relations depends primarily on the price level. What happens is, that when German companies find cheaper suppliers in other countries, has already been witnessed by the Turkish textile industry, for instance. Several years ago, German textiles merchants shifted their focus en masse to cheaper South-east-Asian suppliers to cut costs.

But this false modesty is misplaced. Turkish products display a high standard of quality and Turkish companies all have good chances of establishing their own brands in the Central European market. If there is a need for more Europe, then it are the Turkish managers, who should see Europe as a target market for their own products. The Economic Development Corporation “hannoverimpuls”, with its “turk-alman Business Center” (taBC), accompanies Turkish businessmen on their way to the German market. A wide network of contacts, such as the Association “Turkish Machinery”, which has its German headquarters in Lower Saxony, gives partners access to far-reaching opportunities in Germany. This is precisely where the focus of the Turkish-German relationship has to be set – very quickly and pragmatically. Political rhetoric is of little use when it detracts from the economic base.

www.hannoverimpuls.com



Peter Eisenschmidt, hannoverimpuls GmbH



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Optimizing, controlling and monitoring

the value chain

Markus Meißner

What were the most important topics for the logistics industry in 2014? According to a survey among the members of the Federal German logistics association (Bundesvereinigung Logistik), it was all about increasing costs and more demanding customer requirements. Plus, companies' supply chains are becoming more and more complex and international. Supply chain visibility continuous transparency across the entire supply chain is at the core of this challenge.

Markus Meißner is Managing Director at AEB GmbH, Stuttgart/Germany

Supply chain visibility has several dimensions, including the visibility of inventory levels. Normally, companies aim to reduce inventory levels to hold only the minimum stock required while simultaneously increasing their supply capacities. However, long delivery times and low inventory levels make the supply chain susceptible to disruptions. In order to be able to respond quickly and efficiently to supply chain disruptions, companies require visibility of the entire inventory, of the status of deliveries and shipments, as well as functioning interfaces with supply chain partners. Only then are they able to change from, for example, sea to air freight, or order stock from another warehouse.

Based on the transparency of inventory levels, the continuous tracking of the flow of goods, shipments, and orders is a key aspect of supply chain visibility, particularly with regards to the potential impact on availability and service quality for the next step within the network. Transparency on service agreements and targets concerning lead times and continuously updated delivery times help to identify deviations and potential performance issues at an early stage, enabling companies to take immediate action.

Restricting costs and risks

In addition to a transparency of inventory levels, transparency of costs also represents

Five steps towards supply chain visibility

The staged model by the Gartner market research institute provides a range of measures for comprehensive supply chain transparency

1	Integrating supply chain partners	Companies must be structured in a way that allows interfaces with external partners
2	Technical collaboration	Relevant information and interfaces must be identified at a technical level and operating procedures as well as measures must be defined
3	Collecting relevant data	Information identified as relevant must be collated and compiled
4	Operative collaboration	Includes communication between supply chain partners using different channels and collaboration within specified processes
5	Scenarios	Different scenarios can be simulated using the collected data, thereby contributing to process optimization

an important dimension in the supply chain when it comes to cost reductions. Only if you have an overview of your cost drivers will you be able to cut spending in the long run. In this context, transport costs account for the largest share of costs within the supply chain. Any company wishing to take ap-

evaluated, manually. That's why it is almost impossible to optimize supply chain transparency without deploying software.

Sophisticated visibility software is usually designed as a solution that collates the information from all supply chain partners. Standard adapters and methods en-

Companies which have achieved a high level of supply chain visibility also benefit from higher supply chain performance levels

propriate steps towards optimization should identify the cost drivers within its own supply chain and ask the following questions:

- What are the freight costs of any given product?
- How high are the transport costs for supplying my key accounts?
- Which route makes up the largest share of costs?

The results then enable companies to initiate specific measures, such as new tenders or negotiating more cost-effective service levels for less critical products.

A further, vital dimension of supply chain visibility is transparency of risks throughout the supply chain. The key questions are: which areas within the supply chain carry the greatest risk? Which measures and precautions should be implemented against which risks? However, it isn't easy to answer these questions. Only when dependencies and their effects have been identified is it possible to take suitable countermeasures as part of risk management, e.g. multiple sourcing (several suppliers per item) or higher safety stocks for individual components and items.

Integrating supply chain partners

In many cases, companies only have an overview of internal company production processes, but not of the entire supply chain. However, integrating external partners, such as suppliers or logistics service providers, is crucial to achieving comprehensive and continuous transparency throughout the supply chain. This also forms the basis for the model by the Gartner market research institute, which lists five layers for comprehensive transparency (**table**).

Due to the growing complexity of today's supply chains, monitoring their performance results in large amounts of data, which can hardly be managed, let alone

able fast, easy and cost-effective integration of suppliers and transport service providers in processes, systems, and information flows. The resulting, consolidated information can be applied to different scenarios to optimize processes and may also be shared with customers. The resulting process transparency helps to improve service levels and meet increasing customer requirements.

Operative supply chain visibility – meaning an overview of all processes within the supply chain, from suppliers to end customers – leads to higher service levels, better protection from risks, and cost savings and can therefore give companies a significant competitive edge. It is hardly surprising that this topic has been on supply chain managers' agenda for a long time.

Photos: Fotolia/processing: VFV Grafik

www.aeb.com



About AEB

AEB is a leading provider of supply chain logistics software and has been delivering solutions to customers for over thirty years. The company has over 6,000 customers worldwide and is headquartered in Stuttgart, Germany, supported by offices in the UK, Switzerland, Singapore and the US. AEB's core product – Assist4 – is the comprehensive solution suite for all logistics processes in global business. Assist4 offers a complete set of business services for end-to-end logistics, including international goods movements, making it possible to standardise and automate business processes in supply chain execution. The software also creates transparency and provides a reliable basis for making the right decisions about the planning, monitoring, control and continual optimisation of supply networks, even beyond the boundaries of the business. The software suite offers full functionality via a wide range of modules including Visibility & Collaboration Platform, Order Management, Warehouse Management, Transport & Freight Management, Customs Management and Compliance & Risk Management.

How software can help

Any software deployed to provide comprehensive support for supply chain visibility should offer the following components and functionalities:

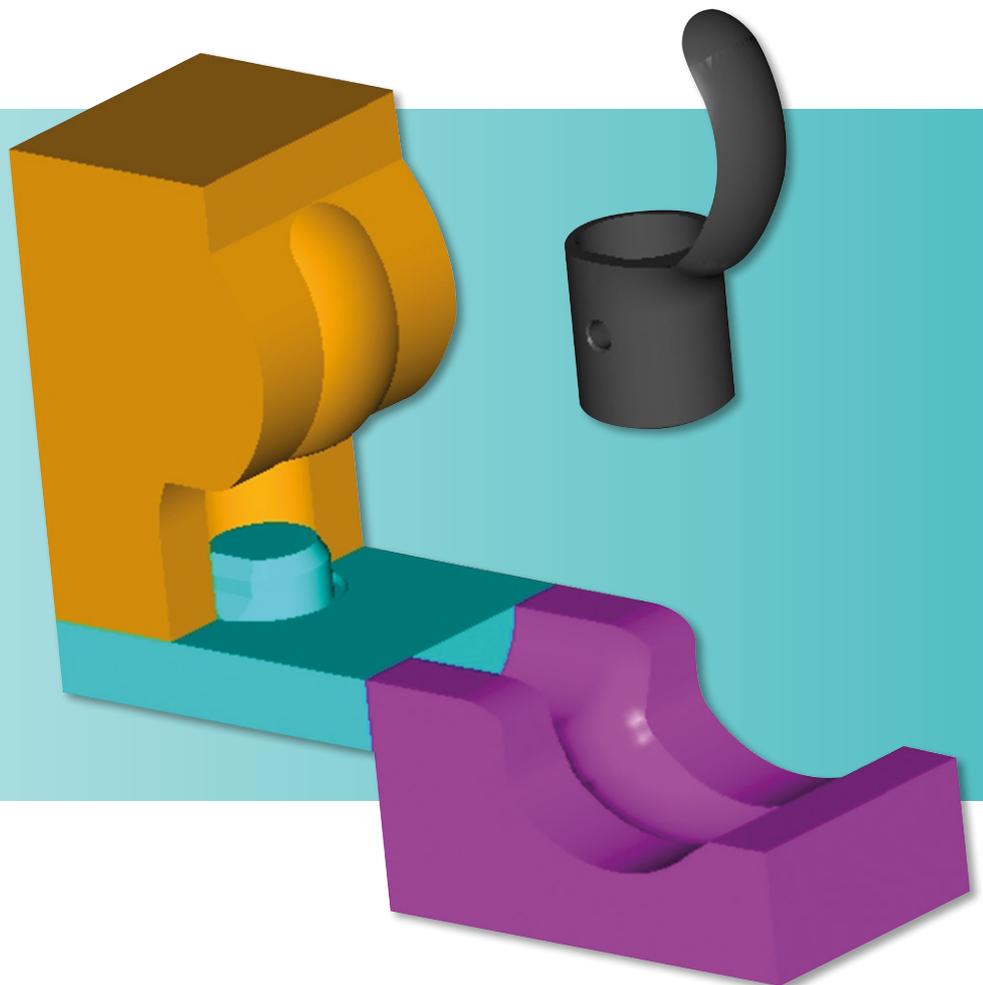
- Integration platform translates information from different sources into a uniform format.
- Information platform provides the information collated from different sources in one central hub.
- Supply chain planning all sub-processes, including milestones, must be mapped in the software to enable optimization.
- Monitoring milestones and lead times define the event chain and form the basis for proactive monitoring.
- Alerting a system that triggers alerts is required for notifications and performance monitoring, e.g. in the event of disruptions or non-compliance with milestones.
- Reporting bthis function collates, consolidates and evaluates data from all integrated systems. This facilitates process optimization and retrospective analysis of disruptions.

Source: AEB

Individual transport packaging from 3D printers

Jörg Loges

Most of all small-scale series or sensitive prototypes that are very expensive to manufacture require safe transport packaging. Producing customized packaging using 3D printers is an alternative to producing costly, traditional packaging. The first results of a corresponding research project by the Institute for Packaging Technology are now available.



01 The left chamber of the 3D printer features the Miscanthus powder used to print the object in the operating space on the right-hand side

Dipl.-Ing. Jörg Loges is the deputy manager at the Institute for Packaging Technology (IfV) at VVL e. V., Dortmund/Germany

Securely packaging unique custom builds or small-scale series is often a tough challenge for logistics. As a result, developing dedicated packaging is often not profitable because the incurred development and production costs cannot be compensated for by producing a large number of packaging units. This makes each individual packaging unit very costly and customers are usually not prepared to pay significant amounts for packaging. However, small-scale series products or prototypes in particular are often very costly to produce and very sensitive to transport loads. Suitable packaging is particularly important to protect said goods from damage. A currently on-going research project at the Institute for Packaging Technology (IfV) at VVL e. V., Dortmund, with partners in industry as well as research and development is developing a packaging concept for small-scale series or individual parts using Miscanthus as a renewable resource and raw material in conjunction with a suitable 3D printing procedure.

Individual packaging for individual products

Prototypes are often very valuable and hence require adequate protection, e. g. if the produced wax model is transported to precision casting. Developing adapted packaging can take a long time and become very costly. However, generative production methods (i. e. primary forming), and 3D printing is such a method, allow to reduce production costs and time. In the event that a customized product requires dedicated packaging, it is possible to quickly and cost-effectively produce it using generative procedures.

For this purpose, the available CAD data from the prototype is applied and converted into a “negative image” using software that is currently in development. After having made the corresponding adaptations, this negative image already corresponds to the desired packaging shape (**lead image**). In order to especially live up to the sustainable nature of this research project Miscanthus

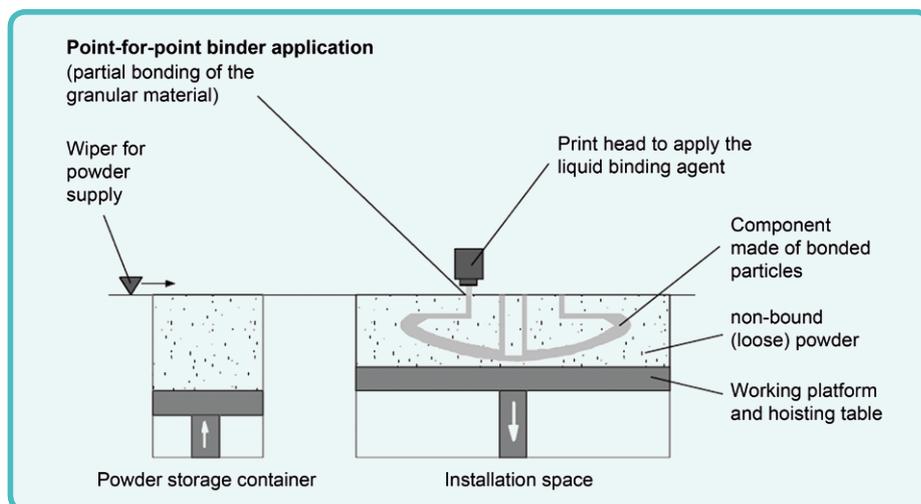
straw is employed for pressing, a material already in use as insulation for timbered houses or as fuel. The material is prepared for 3D printing so that a mixture of very fine, short fiber components is available for processing. Such preparation procedures are already available, however, the use of such particular preparation fractions has not been analyzed closely enough.

The production process

The commercially available 3D printer (Figure 01) used as part of the project to print the prepared Miscanthus powder into packaging in a powder-binder process consists of a supply container and an operating area (Figure 02). Both printer system parts are equipped with a base that moves along the Z axis, the supply container base moves upwards and the operating area base moves downwards. The system is additionally equipped with a print head that is attached to a carriage, enabling the print head to move along the X and Y axis. The bottom side of the carriage features a slide to ensure the material is transferred from the supply container to the operating area.

Before such a simple systems engineering setup is able to produce any packaging the product is sliced into layers on a computer. Said layers are then transferred to the system one after the other and the print head produces them from the powder material. A binder which has to be precisely adapted to the powder is used for printing. This method is employed to create the three-dimensional object, layer for layer (Figure 03).

In this process, the outline must be extremely precisely produced to prevent any mechanical loads on geometrical parts and hence damage to the product intended for packaging. The packaging's level of precision correlates with the selected thickness



02 Principle of 3D printing using the powder-binder method

of the layers which, in turn, depend on the powder used. Comprehensive trial series are currently analyzing the correct layer thickness suitable for the prepared, powdery Miscanthus straw. In this process, it is important to take into account that there are still fiber components available which potentially increase the stability of the parts to be produced, but have negative effects on the formation of the layers. As a result, it may be necessary to increase the thickness of the layers, even if this, on the other hand, would negatively influence the precise shape of the packaging.

At the same time, a host of organic substances are available as binders which are currently being analyzed regarding their suitability. In this process, the material used must safeguard the final product is suitable for composting.

Benefits and status of research and development

As 3D printing makes mold design for packaging production obsolete, we can expect significant savings as a result of adapted packaging production for small-scale series and unique, custom builds. Furthermore, it will be possible to considerably reduce the necessary storage facilities to supply packaging materials as printed packaging merely requires powder and binder which can be stored off site, in silos. As a consequence, the lower degree of locked capital, released as a result of the packaging that is no longer required, quickly compensates for the investment in a 3D printer.

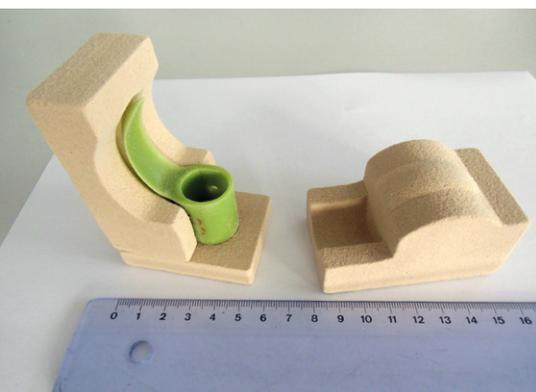
However, to ensure future applications of generative procedures to produce packaging it is necessary to analyze the material

About IfV

Developing and testing packaging are amongst the core activities of the Institute for Packaging Technology (IfV). This includes status and weak-point analyses, investigations regarding profitability and designing packaging to suit the requirements. With regard to their suitability the IfV simulate and optimize the transport, transfer and storage loads of packaging and loading units. The IfV continues to act as a co-organizer for specialist conferences as well as research and development seminars.

technology of the raw materials used, particularly Miscanthus. We currently do not have scientific data available in this area that allows us to define the achievable strength values of printed materials as well as their suitability for transport protection and braces. Additionally, there are no empirical values on the use of organic fillers in professional applications. Apart from developing a robust and sustainable printing procedure, the achievable level of protective properties for packaging produced in this way is crucial, e.g. based on the high degree of production precision and the option to also create complex geometrical shapes.

Photos: Lead photo: Beckmann Institut für Technologieentwicklung e. V., 01, 03 IfV; 02 Author



03 Printed transport packaging for the cut wax model

The electric 8FBMT25 forklift from Toyota is being put to the test



The industrial truck manufacturer, Toyota, has set itself quite a challenge when developing the 8FBMT25 electric forklift from the Traigo 80 range. The new forklift, which has been on the market since 2013, is designed to be more energy efficient, more productive and easier to operate than its predecessor, the 7FBMF model. Our checks will put these claims to the test.

Overview of the test results

Manufacturer/type	Speed in km/h with a load of 1,600 kg	Acceleration in seconds over 27 m	Lifting speed in cm/s with a load of 1,600 kg	Palette turnover per 8 hours
Toyota/Traigo 80 Driving mode H	16.58	7.7	45.05	325
Toyota/Traigo 80 Driving mode P	14.88	8.9	39.42	310
Toyota/Traigo 80 Driving mode S	13.49	10.5	38.46	290
1)	16.49	8.54	46.68	317

1) Average value of the previously tested forklifts in this segment

Source: Anderson Testing/f+h

Today, the main focus of testing is the 8FBMT25/Traigo 80 electric forklift from Toyota, which was launched on the market in 2013 and has a load bearing capacity of 2.5 tons. This forklift is part of the electric forklift range that has a load bearing capacity ranging from 2 to 3.5 tons and is the successor model of the 7FBMF which we tested in 2003. According to the designers, the new forklift should be more productive, cost-efficient, and easier to operate in comparison to its predecessor.

The test forklift is the long model. This version has a maximum capacity to accommodate a 775 Ah/80 V battery (image 01). In addition to this model, Toyota also provides a “short” version (8FBMKT) with a shorter overall length that is suitable for batteries of up to 625 Ah.

Robust and stable – In a nutshell, this was the first impression that the Traigo 80 (with 80 V battery) made on us. Nearly all of the body panels on this forklift, such as the cover on the battery compartment, side panels and access areas, are made of steel. Plastic parts, such as the instrument panel, are made of an impact resistant material that also gives a robust and stable impression.

Visibility conditions and mast design

When glancing through the overhead guard we noticed that it ensures excellent visibility for working at great heights, which is predominantly due to the slim profiles and large distance between them.

With the more powerful motors, sensible arrangement of components, such as the

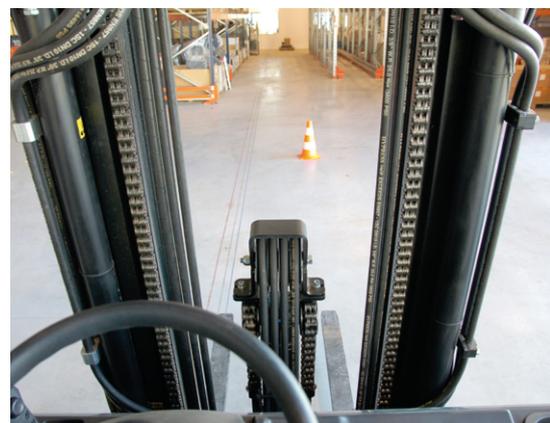


01 The forklift guarantees long operating periods with the 775 Ah/80 V battery on board

control units and shorter cables (to noticeably reduce any loss of energy) and the new design of the mast, Toyota wants to significantly improve the performance of the Traigo 80.

Additionally, the new and wider design of the mast (image 02) provides the driver with a good view of the load and fork. As the mast profiles are pushed together using a sophisticated design, this ensures that the longitudinal view, i.e. along the side of the mast, is also good.

However, visibility conditions are limited by the size of the blind spot as a side shifting device is attached to the fork carrier of the mast instead of being integrated. This design further increases the blind spot as a larger fork carrier is required.



02 The wide design of the mast provides the driver with a good view of the load and fork

Test consumption [kWh]	Practical operating period in hours:minutes (with max. battery size incl. regeneration)
7.57  (18.60 kWh/100 pallets)	10:09 
6.21  (16.00 kWh/100 pallets)	11:59 
5.38  (14.0 kWh/100 pallets)	13:49 
8.07  (20.40 kWh/100 pallets)	7:55  (656 Ah battery)



03 The mini levers can be used to intuitively and accurately initiate the mast functions

The lifting and lowering speeds of the mast that we measured were perfectly acceptable. The mini levers (**image 03**) on the right armrest also ensure that the mast functions are simple and accurate to initiate. We were also satisfied with the amount of mast dampening that

is also available in the lowest fork position. However, we did notice a weak point when lowering the loaded fork. This process exhibited a larger amount of play and

torsion between the mast profiles and the entire mast construction, which is a lot more noticeable than we usually expect from Toyota forklifts.

Features that increase comfort

As is often the case with forklifts in this load bearing capacity class, the manufacturer’s desire to integrate a battery that is as large as possible, minimize the length of the fork-

lift, and provide generous access areas means that compromises have to be made. On the Traigo 80 this compromise has been made on the layout of the step (**image 04**). With a distance of 540 mm from the floor, we can only just refer to this as a comfortable means of access. This means that shorter drivers will have to exert a bit more effort when getting in to the forklift. However, as a virtual trade-off the step is deep enough that it increases safety when getting in and out of the forklift. The contrasting colors of the non-slip steel grates even make them easy to see when stepping off the forklift, thus enhancing safety.

The generous amount of unobstructed space on the floor of the cabin ensures excellent driver comfort (**image 05**). Another contributing factor to the comfort of the driver are the rounded contours in the vicinity of the access area and battery compartment of the device. We also particularly appreciate that the lock for the battery cover is not located in the vicinity of the driver shaft thus preventing any inconvenient contact with the mechanics.

The continuously adjustable steering column that is equipped with a memory function (**image 06**) is also advantageous. Using this function, the steering column can easily be returned to the right position after it has been moved forward to open the battery compartment cover.

Due to the synchronization, the steering wheel must always be positioned in a clockwise direction of “twenty to the hour” to ensure safe operation when driving straight ahead. This is one of several functions that are part of the System of Active Stability (SAS) that Toyota has been using for several years now. Further features of this system, for example, include the steering axle stabilizer, automatic restriction of the tilt angle and tilt speed of the mast when the fork is elevated and automatic horizontal positioning of the fork when tilting.

Our test forklift is also equipped with a display (**image 07**) that shows the approximate weight of the load being lifted and which enables the service technician to adjust the controls when driving around corners. In addition to the standard display of the operating hours and selected operat-



04 A smaller distance to the floor would certainly increase the comfort when getting on and off



05 The generously proportioned footwell provides a lot of leg room and is free of obstacles

Evaluation

- + Operating comfort
- + Robust design
- + Low energy consumption
- Mast movement when lowering with a load
- Storage space
- Access height

ing program, this display also indicates the tilt angle and position of the steered wheels on the rear axle.

Performance profile

We operated the Traigo 80 in the following three operating modes to measure the productivity and consumption: “H” (high performance), “P” (performance) and “S” (standard). It must be noted that “H” mode

is a high performance program that is really only designed for long distances without a lot of curves.

Operating mode “P” is the best in so far as handling the forklift is concerned. Mode “S” is eco mode and is suitable for longer periods of use. The claim by Toyota that the Traigo 80 is around 20% more economical than its previous model, which we tested in 2003, was confirmed by the tests we completed.

In all of the settings, the forklift is more economical than the average of all the forklifts tested by us in this load bearing capacity class. Additionally, the device can always be used for a full working day.

The forklift is 4.6% less productive in mode “P” than in mode “H”, although this mode does save 16% energy. In mode “S” the test forklift is 6% less productive than in mode “P”, however it does save 13.3% more energy in comparison to mode “P”. If the operator’s main focus is on the highest possible amount of operating hours and not on a high palette turnover, mode “S” will provide an energy saving of 28.9% in comparison to mode “H”.

If you combine the test as well as the measured and subjective results, it can be concluded that Toyota did its homework when developing and designing the Traigo 80.

Text/Photos: Theo Egberts, Andersom Testing

Information on the test forklift	
Dimensions and technical data	
Length to the fork face	2,429 mm
Overall width	1,195 mm
Mast height (retracted)	2,235 mm
Frame height	2,215 mm
Forks (LxWxD)	1,150 × 100 × 40 mm
Wheel base	1,720 mm
Ground clearance	90 mm
Projection of front axle up to the fork face	420 mm
Projection on rear side	289 mm
Aisle width	3,958 mm
Maximum permissible load of the test forklift (according to load diagram)	2,500 kg
Centre of gravity of the load	500 mm
Maximum lifting height	4,730 mm
Lifting height with maximum load of 2500 kg	4,730 mm
Free lift without load guards	1,576 mm
Forward/backward tilt angle of lifting mast	4.5°/6°
Speeds	
Lifting speed with 2/3 of the max. load/without a load (mode H)	45.05/61.43 cm/s
Lifting speed with 2/3 of the max. load/without a load (mode P)	39.42/58.40 cm/s
Lifting speed with 2/3 of the max. load/without a load (mode S)	38.46/47.78 cm/s
Lowering speed with 2/3 of the max. load/without a load (mode H)	54.37/40.78 cm/s
Lowering speed with 2/3 of the max. load/without a load (mode P)	54.37/40.78 cm/s
Lowering speed with 2/3 of the max. load/without a load (mode S)	54.37/40.78 cm/s
Forward/reversing driving speed with 2/3 of the max. load (mode H)	18.05/18.06 km/h
Forward/reversing driving speed with 2/3 of the max. load (mode P)	15.56/15.56 km/h
Forward/reversing driving speed with 2/3 of the max. load (mode S)	13.49/13.49 km/h
Drive technology	
Drive motor	20 kW
Lifting motor	25.50 kW
Battery capacity of test forklift	80 V, 775 Ah
Stability	
Net weight/percentage of rear axle	4,809 kg/49.78 %
Weight at max. load/percentage of rear axle	7,309 kg/14.45 %
Wheels	
Front/rear dimensions	23 × 9 – 10/18 × 7 – 8
Manufacturer/brand	Marangoni
(All of the details are based on research and measurements completed by the test team and can deviate from the manufacturer’s specifications)	

Source: Andersom Testing/f+h

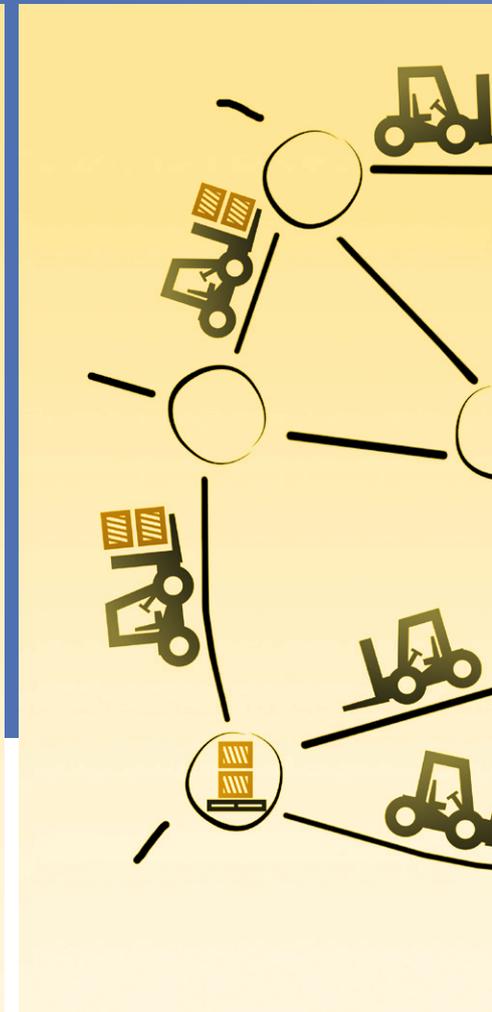
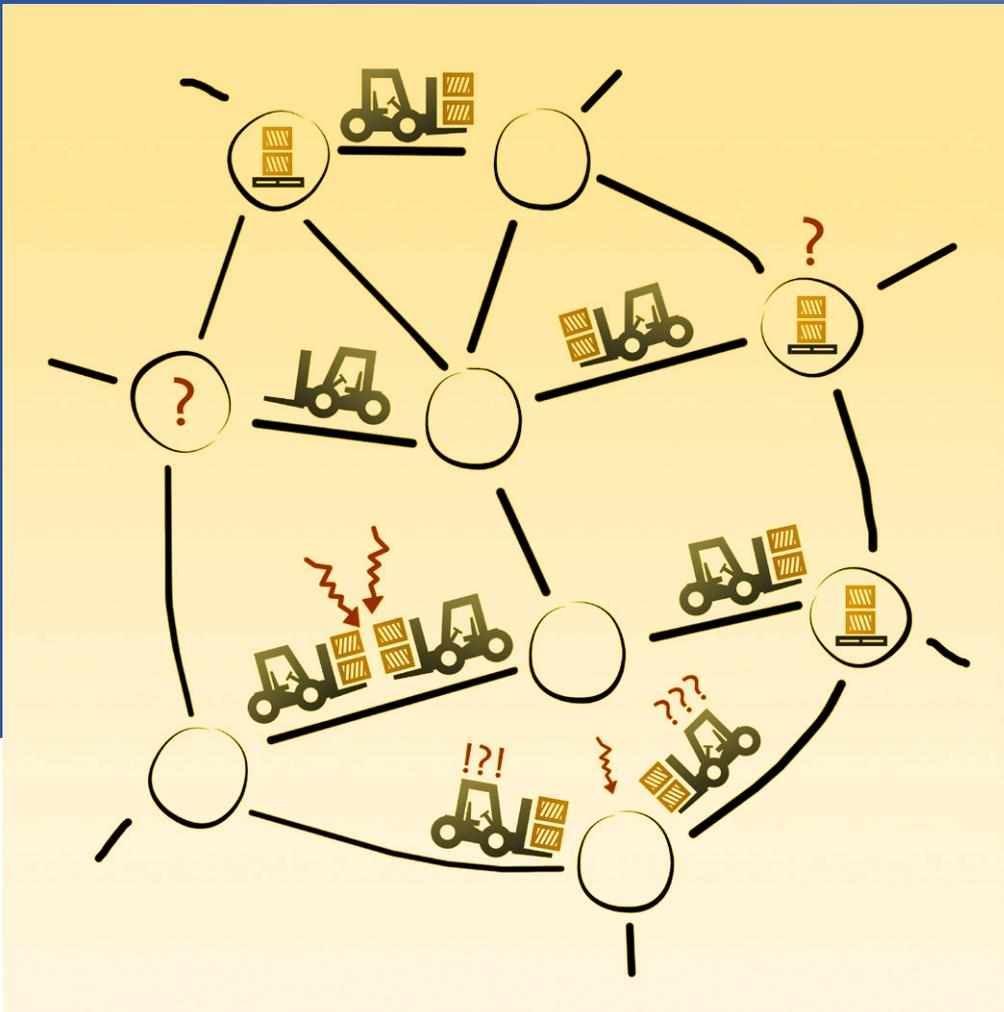


06 The memory function enables the steering column to return to the right position



07 The compact display provides the driver with an extensive amount of information

Fleet management helps saving costs



As part of a fleet management project, Stöcklin Logistik AG performed an extensive analysis at the consumer goods manufacturer, M-Industrie, which ultimately resulted in an integrated fleet management system. The intralogistics system and industrial truck manufacturer used pilot companies of the consumer goods manufacturer to demonstrate how operating costs can be reduced while increasing the security and efficiency of processes.

M-Industrie, a Swiss group of companies, consists of eighteen companies in Switzerland and three operations abroad. Ranging from jam to detergent, the group manufactures more than 20,000 different products, and is thus, according to the company's own information, one of the largest manufacturers of store brands.

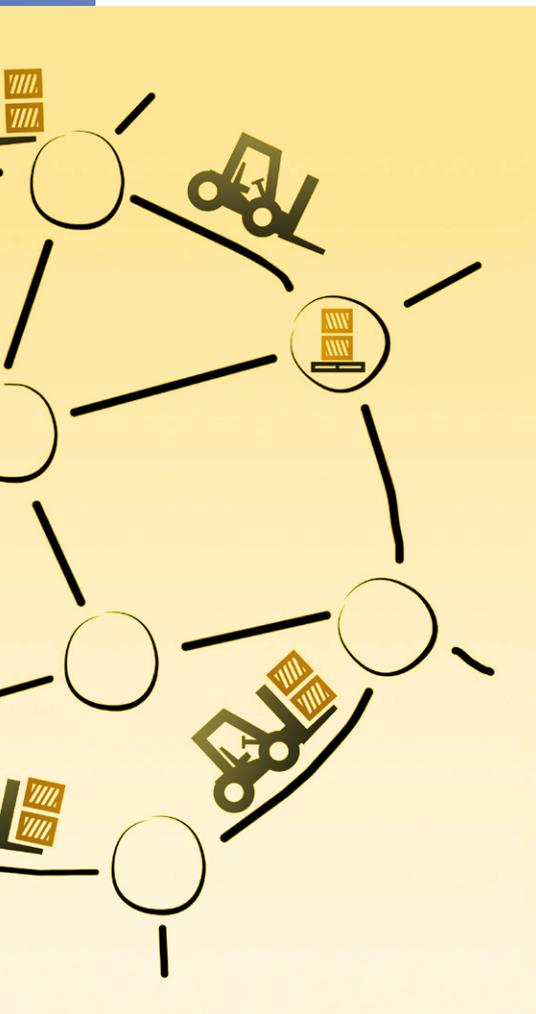
M-Industrie operates fleets of industrial trucks at around thirty locations. These fleets are continuously being updated taking the individual requirements of the specific companies into consideration. This means that today more than 1,200 industrial trucks are in use and are being utilized differently by each company depending on the type of vehicle, suppliers, financing, servicing, and spare part procurement/management.

The main focus of the fleet analysis commissioned by M-Industrie and completed

by Stöcklin Logistik was to check the use of the relevant vehicles as well as the quantitative requirements and designation of device specifications. The aim of the analysis was to minimize operating and maintenance costs, while improving replacement costs and financing conditions.

Identify potential to ensure sustainable operations

Estavayer Lait SA (ELSA) is one of the companies which belongs to the M-Industrie. Its headquarter is based in Estavayer-le-Lac, a town in the canton of Freiburg, where it operates the largest dairy. Due to the high level of automation in the production, the company is able to process more than 269 million kilograms of milk per year and can thus provide a wide range of dairy products. Various Swiss cheese, as well as



Before the optimization measures were implemented by Stöcklin, some of these forklifts were operating on a continuous basis (4,000 hours/year) with up to three replacement batteries per device. By using the energy-efficient lithium ion systems from Stöcklin-Power, the devices are able to operate with one battery only, along with brief interim charging. As the device can now be operated for three shifts without the need of a battery change, this saves up to 30 minutes per day and per employee. Maintenance work on the battery, such as refilling water, is also no longer required. Operational restrictions no longer apply as gassing does not occur. As power requirements during charging have been reduced by around thirty percent, there has been a positive impact on the sustainability of energy bills.

In contrast to comparable systems that use lithium cobalt cells, which are often not completely risk-free, and that operate with charge factors of 1.0 (discharged battery is charged within one hour), the lithium ion system from Stöcklin Logistik uses lithium iron phosphate cells. With a charge factor of 0.5 (discharged battery is charged in max. two hours), the energy system guarantees a battery service life of 5,000 charging cycles (at 80 percent discharge). A specially developed, active battery management system reliably monitors and protects the rechargeable battery. The temperature, voltage, current, and charge state is permanently

and accurately measured. Overheating, overcharging, and total discharge is thus not possible.

Secure and efficient picking

Stöcklin is implementing its ESPK 20 pickers to effectively assist in the various picking areas at ELSA. The determining factors for this measure are the compact dimensions, ergonomic design and compatibility of the devices. Each industrial truck is equipped with a 2.5 kW three-phase motor with a directly connected steering motor and the relevant CAN bus compatible electronic controls. The picker forklifts are steered using spherically suspended tiller heads with control elements for driving and the hydraulics. Driving is only possible when the driver is standing on the designated contact mat in the cab.

As this device is equipped with terrain compensation and automatic speed reduction around curves, it has excellent driving characteristics even at high speeds of 14 km/h. The energy that is released during electronic deceleration can be reused by means of current regeneration. The alternating current drive and steering motors of the ESPL 20 are also energy-efficient and thus have an environmentally-friendly design.

To further improve efficiency and safety when loading trucks, amongst other things, ergonomically designed type EDP 20 elevat-

imported cheese from France, Germany and Denmark is distributed via its own logistic platform.

As part of the examination, the original comprehensive fleet of 120 forklift vehicles at ELSA was reduced by around ten percent to 109 units. Equal and similar optimization potential was identified, developed and gradually implemented as part of a uniformly coordinated fleet management system for the entire M-Industrie group.

Stöcklin type ESI 1600 electric platform stackers (**Image 01**) with double stacking function and lift of 1,800 mm are used in the truck loading, block storage, racking storage and picking areas in Estavayer-le-Lac. The industrial trucks are either equipped with a driver's cab or driver's seat and are fitted with an alternating current drive. Thanks to their compact design, the industrial trucks are particularly suitable in tight rack aisles.



01 Type ESI 1600 electric platform stacker loading a pallet at the conveyor system



About Stöcklin

Stöcklin Logistik AG – conveyor and storage technology – based in Dornach/Switzerland specialises in the planning, development, design, sales, production, commissioning, modernisation and servicing of complete systems in intralogistics and the development and manufacture of industrial trucks. In its own production facility and modern infrastructure, Stöcklin develops products from simple hand lift trucks to conveyor systems, storage and retrieval systems for any charge carriers, up to complete intralogistics systems. A special feature of this Swiss company with around 500 employees worldwide, is its role as a general contractor for the entire intralogistics area.

ing transporters (**Image 02**) and type EDD 12 platform stackers with support arm lift and double stacking function including finely adjustable and speed-controlled lift drives are used.

External devices complement fleet of vehicles

As a general importer for Switzerland, Stöcklin Logistik has integrated counterbalanced forklifts manufactured by Hyundai into the fleet management system. ELSA is using type 16B-9 electric four-wheeled forklifts with a load capacity of 1.6 tons and lifting heights of 3.7 and 5 m. Type 32B-9 electric four-wheeled forklifts (**Image 03**) with a load capacity of 3.2 tons and a lifting height

of 6.1 m. All devices are equipped with two alternating current drive motors, which improve maneuverability and increase efficiency. The equipment also includes maintenance-free water disc brakes that generate little heat and thus have increased brake power.

To ensure the safety of operators without mounting seat belts, type 16B-9 devices are equipped with a bodyguard system and 32B-9 vehicles are equipped with a complete driver's cab. The bodyguard system is linked to an immobilizer so that the driver can only start to move the vehicle once the system is securely closed.

When it comes to operating the device, the forklift driver can optionally use the fingertip controls which offer an ergonomic and accurately controlled solution to enable precise lifting and lowering.

The lateral battery replacement flap that can be swiveled by 180° ensures that batteries can be replaced simply and quickly, especially during peak operating times. The halogen headlights, LED tail combination lights and tail reflectors are provided as standard and also improve visibility and increase safety for the driver.

The complete fleet, which includes 20 % external devices, is maintained by Stöcklin service technicians who visit the site at regular intervals as part of a full-service agreement. Stöcklin-Power-Fleet is an information tool providing an extensive management system that continuously monitors and optimizes the fleet of forklifts. The fleet management tool can be expanded upwards in three stages thus enabling a detailed and transparent analysis regardless of the industrial truck brand. This means that the efficiency and security of each forklift can be improved. ELSA predominantly uses stage 1 in which a cross-comparison of the vehicle history (maintenance, repairs, dam-

ages, batteries, etc.), operational demands and evaluations can be accessed online at any time. Stage 2 also includes the award of drivers' licenses. Once the third expansion stage has been completed, real-time data transmission with bi-directional notifications and vehicle positioning is possible.

On a qualitative and quantitative basis, this flexible fleet management system from Stöcklin Logistik meets the operator's expectation of a comprehensive carefree package. Nowadays the fleet is much more productive and availability on the move has improved. The operator has thus been able to free up capacity and concentrate on core tasks.

Photos: Lead photo: VFV Grafik, 01 – 03 Stöcklin

www.stoeklin.com



02 The ergonomically designed EDP 20 elevating transporters are used in the incoming goods department



03 The counterbalanced forklifts are equipped with a complete driver's cab for outdoor use

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12

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11

BEUMER fillpac R

0.18 kg

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Schwenk Putztechnik relies on the Beumer twin-belt turning device for gentle palletizing of bags

The reasons which brought Schwenk Putztechnik GmbH & Co. KG, Ulm/Germany, to opt for the Beumer Group GmbH & Co. KG palletizing technology were longer maintenance intervals, more efficient production and an optimized stack configuration with regard to storage and sales. The single-source provider from Beckum/Germany supplied three high-capacity layer palletisers type Beumer paletpac. All of them are equipped with the newly developed Beumer twin-belt turning device, which enables bags filled with building material to be turned gently and stacks them in the correct position on pallets ensuring their dimensional stability. The twin-belt turning device can be rapidly adapted to various bag sizes.

Dry mortar are prefabricated mixtures composed of mineral binding agents as cement, limestone, gypsum as well as sand, rock dust and further additives. On the building site the craftsmen have to mix them merely with water and they are ready for use. Owing to the avoidance of possible mixing errors, the producer can ensure a constant high product quality of this building material. Schwenk Putztechnik GmbH & Co. KG headquartered in Ulm/Germany is a manufacturer of sustainable and ecological dry mortar. The company has produced its materials for more than 160 years in seven plants. "We set great value on presenting our products in an optimum way in the building material trade," says Martin Markus. At Schwenk Putztechnik he manages the plants in Eigeltingen and Allmendingen both Germany. Regarding the manufacturing process, the company focuses on trouble-free transport, palletizing process and packaging.

Safe handling of bags

"Our previous palletizing solution caused considerable problems during the turning of the bags. Due to jerky movements the

bags were deformed and sometimes even torn", remembers Peter Richter, deputy factory manager in Allmendingen. The building material manufacturer was not able to ensure a proper and constant appearance of the palletized bags. Schwenk Putztechnik not only wanted to achieve an improved and steady stacking result, but also wanted to increase the production capacity, reduce the dust emissions and prolong the maintenance intervals.

During their researches for a suitable supplier, the building material manufacturer found Beumer Group. The single-source provider from Beckum/Germany supplies sustainable systems for filling, palletizing and packaging technology from one source. The internationally active company is looking back on years of experience in the building material industry. „In cooperation with Schwenk Putztechnik we developed a solution which covers the requirements of both production plants," Peter Schmidt reports. As sales manager he was responsible for the project and has managed the palletizing and packaging technology business segment at Beumer Group since January 2014.

Gentle palletising is ensured

Beumer Group presented the high-capacity layer palletizer Beumer paletpac to the building material manufacturer. This construction series enables to stack bags filled

About Beumer



Beumer Group is an international manufacturing leader in intralogistics in the fields of conveying, loading, palletizing, packaging, sortation and distribution technology. Together with Crisplant a/s and Enexco Teknologies India Limited, the Beumer Group employed some 3,700 people in 2013. The group generated an annual turnover of approximately 627 million euros. With its subsidiaries and sales agencies, the group is present in many industries worldwide.

with bulk material on pallets layer by layer. Due to the geometric precision during layer and stack formation, stable bag stacks are formed. Beumer supplied a system able to palletize 1,800 bags per hour as well as a system with a capacity of 2,500 bags per hour. In both plants the employees can adapt the palletizer quickly and easily to different bag sizes without the use of tools. With a pack height of up to 2,400 millimeters, the Beumer paletpac stacks bags on any commonly used pallet size and in all technically possible packing patterns. A multi-program interface enables the user to



01 The Beumer paletpac forms exact, stable and thus space-saving bag stacks



02 The twin-belt turning device: Two parallelly driven belt conveyors, which are driven with different speeds during the turning process, bring the bags gently into the required position

set parameters easily and quickly. The new Human Machine Interface (HMI) ensures a user-friendly operation of the system. This control terminal provides the employee with an easily understandable and intuitive interaction, enabling the user to learn the system rapidly and to define efficient working sequences after just a short training and introduction period.

Stable stack formation

“In order to turn the bags rapidly and gently to the required position ensuring their dimensional stability, the systems are provided with our newly developed twin-belt turning device. In regards to the stackability, this device offers an immense advantage when compared with conventional turning processes,” Peter Schmidt explains. The system component moves the bags without stressing them from a mechanical viewpoint. Instead, two parallelly driven belt

conveyors are used, which, during the turning process, are driven with different speeds bringing the bags gently into the desired position. The intelligent control of the twin-belt turning device involves the physical properties of the items to be packed in order to achieve an exact positioning preset by the respective packing pattern. In case of changes in bag sizes, all relevant parameters are registered and controlled just via software. For this, the system reverts to an active control loop. The regulation of the drives is carried out by frequency converters, thus developing a gentle, regular rotation and ensuring that the bagged products are not deformed. This results in constant stack results for the whole service life of the system. Ready packed pallets can be stacked on top of each other in a space-saving and safe way.

A further advantage is that time-consuming modifications in case of changed bag sizes are no longer required. „The operator

only has to enter the bag length and the bag width. Then the system brings the bag into the corresponding position,” explains Bernhard Temming, service manager at Beumer. On the basis of the modular structure, the twin-belt turning device can be retrofitted even in already existing palletizing systems in a trouble-free way.

Quiet and efficient

A further reason for Schwenk Putztechnik to opt for the Beumer systems was their efficient operation. In addition to capital costs, operational costs, spare parts costs and also maintenance costs play an important role. “These are better reduced with the twin-belt turning device than with other turning devices,” recognizes service manager Bernhard Temming. “The mere automated product change avoids idle times,” and as the system component abstains from cost-intensive mechanical components, this optimizes the maintenance and repair costs in the long term and reduces the life-cycle costs. “Comparable solutions of competitors for the layer preparation rely on pneumatic elements with correspondingly high operational costs. In our twin-belt turning devices work is done by energy efficient synchronous servomotors,” explains Temming. The relinquishment of mechanical parts additionally lowers noises during operation. Peter Schmidt is convinced that this is a strength that happens especially in the day-to-day operations, providing for an improved working atmosphere and inuring to the benefit of the skilled personnel of the building material manufacturer in their daily working sequence.

For this project Beumer took over the whole handling – from projection up to installation. The experts of the Beumer Customer Support take care of the optimization and maintenance of the systems, therefore, they are always available. In case of acute problems, the building material manufacturer can contact the Beumer Hotline around the clock. An online connection with the machine permits to carry out a rapid fault analyses. “We are very satisfied with the service. This was a further important aspect which led us to opt for Beumer,” says Martin Markus.

Photos: Beumer Group

www.beumergroup.com

03 In order to reach a precise packing pattern dependent positioning, the intelligent control of the twin-belt turning device involves the physical properties of the items to be packed



Impressions of CeMAT Russia 2014



The leading position of CeMAT Russia as the most important intralogistics trade show in Russia was clear again in this the fifth year of the event. Exhibits ranged from semi-automated solutions to fully

automatic storage. Presentations covered all the elements of intralogistics, from industrial trucks to conveyor systems, storage, order picking and software. „We have noted growing interest in intralogistics systems among visitors to CeMAT Russia“, says Bernd Rohde, Director of CeMAT worldwide, Deutsche Messe AG.

(Note: parts of the video are in German and Russian)

Warehouse system works without conventional conveyor technology

The newly developed, flexible and scalable warehouse system from Flexi Robots works without conventional conveyor technology. The “Katze” (“cat”) rail-based transfer car and “Giraffe” (“giraffe”), a combination of the racking control device and shuttle, decouple the processes in the warehouse area. New designs in which storage, buffering, and sequencing are integrated into one system can now be implemented. The manufacturer’s flexible 3D solutions ensure that individual loading equipment can be transported from any position in the system across all the aisles to any other position within the system without having to leave it. During this process, the transport media used within the warehouse area is consistently operated separately and in parallel. This improves the access



dynamics, increases storage density, and enables

storage removals to be sequenced in the storage system. The complete system can be scaled as required. This means that several “cats” can be integrated in the rack construction, and workplaces or station can be connected at any position. At the same time, the system design enables several “giraffes” to be installed above and next to each other in one aisle.

www.flexirobots.com

Data glasses guarantee high picking accuracy

Picavi data glasses picking system from Logcom is ready for the market. The company is a high tech startup that is adapting picking with innovative data glasses specifically for branches with high picking rates. The entire “Picavi” concept was developed by experts with decades of experience in the intralogistics industry. Only the current information that is applicable to the order picker is displayed on the data glasses. This ensures that staff are strictly directed through the working process and have both hands free. The system guarantees a high level of picking accuracy and optimized routes are reliably adhered to. New employees can quickly learn to follow situational instructions.

www.logcom.de



New laser-distance sensor from Telemecanique for crane

Telemecanique Sensors has launched Osi Sense XUK9T, a crane sensor with directly integrated anti-collision and tandem functions. This sensor is particularly suitable for overhead cranes and was developed in accordance with the applicable industry specifications. The sensor measurement process is based on the time of flight (ToF) process,

whereby the speed of light is used to measure the distance to the object or reflector over time. The 50x50 mm device is easy to integrate into systems thanks to the rotatable plug connector that has a range of up to 70 m to the reflector. The device also has an excellent coverage rate of 500 Hz for fast applications. As the device has three inputs and three outputs, a M12 plug connector with eight pins is provided for the connections. No protective measures are required as the sensors meet the requirements of laser class 1.

www.schneider-electric.com

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SSI Schaefer brings customized solution to the beverage industry



SSI Schaefer realized one of the most modern distribution centers in the European beverage industry for the Norwegian logistic company Vectura AS, which is owned by leading manufacturer and supplier of wine and liquor in Northern Europe, ArcusGruppen AS, both based in Hagan. Intelligent material flows from pallet to single-bottle shipping, the logistics software Wamas perfectly attuned to the complex processes and picking strategies, as well as custom designed plant technology and automation provide a throughput of more than 2,500 picked pallets per day.

Vectura planned their new distribution center in Gjelleråsen near Oslo according to the proposition of increasing capacity, efficiency, and service. The order for the turn-key realization of the distribution center adjacent to the manufacturing plants was awarded to SSI Schaefer as general contractor for the intra-logistics. 50 % of the alcohol distribution in Norway is done via the distribution center by now. 8,000 different items, a total of almost 10 million bottles of wine and liquor of known brands are

stored there. 220,000 bottles are shipped daily from Gjelleråsen to all of Scandinavia and the Baltics. Such a high throughput is made possible by an intelligent system design and arrangement of material flow.

This is likewise true for the interaction of the installed technical components as the layout and the link of the logistics software Wamas by SSI Schaefer to the superimposed SAP system by Vectura. “The challenge for the IT was to group all beverages together to an ABC classification and

then sequentially attune the picking processes of whole pallets of boxed items to single bottles,” explains Dr. Jens Derner, director of IT projects at SSI Schaefer. “Hence, Wamas was adjusted in such a way that all picking processes are sequentially controlled among each other as well as in their holistic interaction in order to guarantee utmost efficiency in shipping by an optimal consolidation of orders.”

Directly linked to the manufacturing building, the new high-bay warehouse rises more than 30 m high. More than 31,000 locations for Euro pallets are installed in the pallet warehouse with eight aisles. Stocking is done in a mix of single and double deep storage. “This heightens efficiency for accesses and transfers,” says Peter Lambrecht, head of project management at SSI Schaefer. Locations are designed in such a way that there is space for three Euro pallets or two ISO pallets used for overseas shipping. “With labeling as well as with the assignment of storage locations, the warehouse management, and retrieval processes Wamas has to distinguish between the two

types of pallets in order to control the processes according to the demand," says Dr. Derner.

Two different material flows are to be controlled already for the storing processes. From the bottling plant, automated guided vehicles receive and transport storage pallets from in-house production. Navigated by laser, they transfer the pallets to a monorail system that circulates to all storage and picking areas at first the in-bound passes of the high-bay warehouse. The pallets are received by pallet cranes and gradually stored into the temperature controlled high-bay warehouse with 14° to 17° Celsius. "In doing so Wamas controls the allocation of storage positions according to the demand frequency," Derner explains. "The less an item is demanded, the sooner it will be stored in the back of the double-deep storage positions or else transferred to one of the other 97 storage positions in the 13 levels high warehouse aisles."

Parallel to that, delivered goods from outside productions are stored. The respective pallets are gathered by way of two in-feed lines. They either lead delivered Euro pallets to a transfer position for monorails after a contour check or – if they need to be packaged – they lead them via a transfer carriage to a robot. It takes off excessive height and creates new, storable pallets (**Image 01**). Subsequently, the new pallets will automatically be foil wrapped and lead toward the monorail afterwards. It takes the pallets to the high-bay warehouse (**Image 02**). Delivered industrial pallets are actuated by the in-feed lines at two re-packing places in the goods-in section. There, goods are manually re-packed onto Euro pallets that are also transferred to the monorail after foil wrapping and stored in the high-bay warehouse.

For order fulfillment, the respective picking areas for box picking and single-bottle picking are served from the high-bay warehouse. "Replenishing is automatically done – controlled by Wamas," says Dr. Derner. For this purpose, the area for both order types are subdivided in storage segments for frequently ordered items (AA), fast moving items (A) as well as slow moving items (B/C). For the replenishment of box picking, the monorail first leads the pallets to the areas for AA box picking. There, the pallets are received by two transfer carriages. They serve 120 gravity conveying lanes for three pallets each that are located at the sides of the conveying lines. There is a total

of 360 pallet storage locations available for AA box picking.

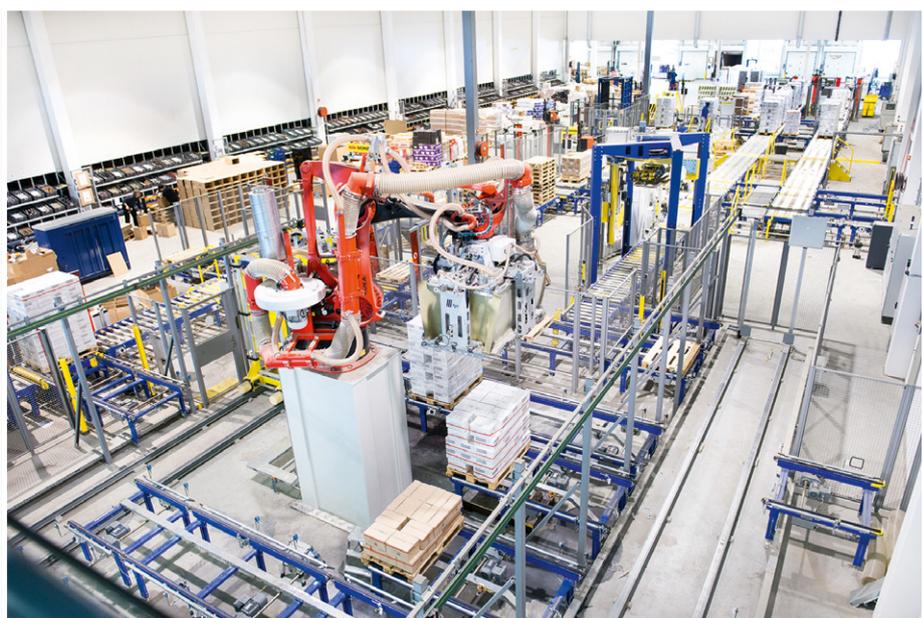
Furthermore, at the end of the conveying line feeding the AA picking stations there are pallet transfer stations. There, forklift trucks take the replenishment of pallets for the A-box picking from the transfer carriages. For storing the pallets for A-box picking, an eight-aisle, static rack storage with 2,900 storage positions was built. "Order picking of frequent ordered boxes is done in both storage areas according to the person-to-goods principle from the whole pallet," explains Bo Mortensen, Sales Manager SSI Schaefer Nordic Region. Supported by a pick-by-voice system, the order boxes are arranged on picking carriages and then palletized.

An operating platform was installed for picking the boxed B and C items in the distribution center. There, work stations were created where the pallets advanced by monorail from the high-bay warehouse are presented ergonomically optimized in specially designed transfer locations. The order boxes are picked via display prompt from single storage pallets up to six mixed order pallets. "One pallet can contain orders to up to eight different customers," says Derner. "This means that the software has to be programmed for continuous process control from the start as picking and compilation of single boxes already has to consid-

er delivery routes for the consolidation of the orders in shipping."

At the end of picking the monorail transports the partial pallets back to the high-bay warehouse. Fork lift trucks finally merge the order boxes picked in the AA, A, and B/C areas in a separate consolidation area where they are temporarily stored. There, the completed pallets for each respective order are delivered directly from the monorail. "All these processes of the replenishment supply can moreover be done directly with the pallets from the goods receiving," explains Lambrecht. "So the material flows and challenges for the software have been very complex."

A further specialty of the plant is the obligation that Vectura as a provider to hotels and restaurants has also to supply single bottles to remote areas of Norway. "Besides the complex processes for the box and completed pallets picking in the distribution center in Gjelleråsen, a structured and sequenced single bottle picking had to be implemented, too," says Mortensen. "This segment is also divided into fast moving and B/C-items." Via a bypass of the monorail, the pallets are moved from the high-bay warehouse to a manual work station where items are repacked from boxes into totes of up to 30 bottles. The totes of type LTF6280 are stored by the storage and retrieval machines, the Schaefer Miniload



01 De-palletizing robots take off excessive heights and create new, storable pallets



02 The monorail system circulates to all storage and picking areas



03 Picking of the fast-moving bottles with pick-by-voice

Cranes, in a two-aisle miniloader with nearly 14,000 storage positions. At the manual workstation B- and C-items are presented and picked into shipping boxes. At the side of the miniloader 85 gravity roller conveyors with three box storage positions each are served by the crane. With pick-by-voice support, the picking of the fast-moving single bottles is done directly into the shipping boxes (**Image 03**). After completion of the single bottle-picking the shipping boxes from the B/C-bottle-picking and the A-bottle-picking are consolidated on pallets. The monorail then moves the pallets into the consolidation area. If necessary, the orders will be completed with items from the keg-warehouse, the Bag-in-Box-warehouse and by quarter pallets - an area has been implemented in the warehouse just for this reason. At two in-feed positions in the consolidation area the orders are then forwarded to a conveying system. It moves the palletized orders to a foil stretcher. Then shuttle cars deliver the ready-for-transport shipping pallets on 21 gravity roller conveyors with a capacity of eleven pallets each.

“The unique combination of intelligent material flow design and high-performance components on the one hand as well as the reliable control by an excellent tailored warehouse management system on the other hand have significantly increased our capacity, efficiency and our service degree”, summarizes Lorna Stangeland, CEO at Vectura. “Despite the complex processes from the mix of completed pallets, box and single bottle picking, we had a throughput of 2,500 pallets every day in the shipping area since the completion of the distribution center in November 2012, which we were able to manage without problems.

Photos: SSI Schaefer

www.ssi-schaefer.com



About SSI Schaefer

The product range of SSI Schaefer/Fritz Schaefer GmbH, Neunkirchen/Germany – at the same time international headquarters of the SSI Schaefer Group – includes the core area of warehouse equipment as well as workshop, plant and office equipment, plus a variety of waste collection and recycling containers. Typical products are storage and transport containers, shelving, pallet racks, cantilever and mobile racking systems, which form the basis of manually operated or fully automated storage systems. Fritz Schaefer founded the company in 1937, and today SSI Schaefer has offices around the world.

SSI Schaefer Noell GmbH, Giebelstadt/Germany, complements the service portfolio as a specialist for comprehensive logistics systems. As a general contractor the company has already implemented more than 300 logistics systems worldwide. The range goes from system planning and consulting to the implementation of turn-key systems and customized after-sales services. The portfolio is completed by innovative IT solutions complying with inhouse standards as well as SAP technology standards.

SSI Schaefer Peem GmbH, Graz/Austria, specializes in modular order-picking technology. The company designs, develops and produces highly-dynamic small parts conveyor systems and automatic order-picking systems including customized software.

As a general contractor, Salomon Automation GmbH, Friesach near Graz/Austria, provides complete, customized solutions for manual and fully automated warehouse systems. The company supports its customers in every aspect, from the solution-finding and software implementation process to the training of the warehouse staff. With the logistics software WAMAS, Salomon Automation contributes to comprehensive visualization and optimization of the customers' warehouse processes.

Witron quickly implements retrofit project

The maintenance experts at Witron Logistik + Informatik in Parkstein, Germany only had four months to extensively modernize an aging dry food replenishment storage location in Layton, USA. The system consists of 12,800 pallet bays and was originally created and placed into operation 24 years ago.

With a turnover of around USD 98 billion, the independent food retailer, The Kroger Co. with its headquarters in Cincinnati, USA, is one of the largest retailers in the world. The company has collaborated with the prime logistic contractor, Witron, for more than 15 years during which time they have implemented nine automation projects to date.

Nowadays, the Witron systems are implemented in the food retail section, drugstore division, dry food department, as well as the fresh and frozen food sectors at Kroger.

At the end of October 2013, Witron completed the largest intralogistics modernization project at Kroger to date – an undertaking which was a challenging task and had a tight schedule.

Project experience pays off

In accordance with previous implementation, scheduling and emergency concept plans, the team of experts from Witron started to replace seven racking storage and retrieval vehicles in July 2013. These were replaced with six new 25 m tall devices with turning and sliding fork. The seventh of the 120 m long storage aisles at the high-bay warehouse remained free to ensure better access to the system for any future maintenance work. The prime contractor replaced the original loading and unloading conveyor system in the front zone with more up-to-date technology from the company Binder.

With the help of the new racking storage and retrieval vehicles, all North American

GMA (Grocery Manufacturers' Association) pallets can now be transported without using additional system pallets at a handling capacity of 46 individual operations per racking storage and retrieval vehicle.

The existing S5 controls have been replaced with up-to-date S7 control technology. All of the conveyor technology processes are now coordinated by a new material flow computer from Witron. To control all of the processes in the high-bay warehouse, the operator also opted for a warehouse management system from Witron and thus replaced the previously used warehouse management system supplied by an American provider.

In addition to the assembly and disassembly, the prime contractor also coordinated all of the work steps with suppliers and customers. „Even though the logistics center was not originally implemented by us, we were able to quickly familiarize ourselves with all of the task details thank to our specialist restructuring knowledge,“ explains Brian Sherman, project manager at Witron. „This was a decisive factor for ensuring that tight time restrictions were adhered to.“

The restructuring and commissioning work at the replenishment storage location was completed during ongoing operation by working night shifts, at weekends and during non-operating periods. Sherman: „Kroger supplies several hundred shops from its site in Layton. This is why the connected picking process could not be affected in any way. We therefore opted for a gradual

replacement of the components. The crucial factor of the success strategy was to mechanically uninstall and reinstall the racking storage and retrieval vehicles, including the corresponding loading and unloading conveyor systems, in pairs. The PLC and material flow computer were commissioned at the same time, following which the product was placed into operation.“

The project was completed within the specified time frame and the employees in the picking department, as well as the customers in the branches hardly noticed the change. Thanks to the new IT, control system and mechanics, the high-bay warehouse in Layton is now back in line with the latest state of technology.

Photos: Witron

www.witron.com

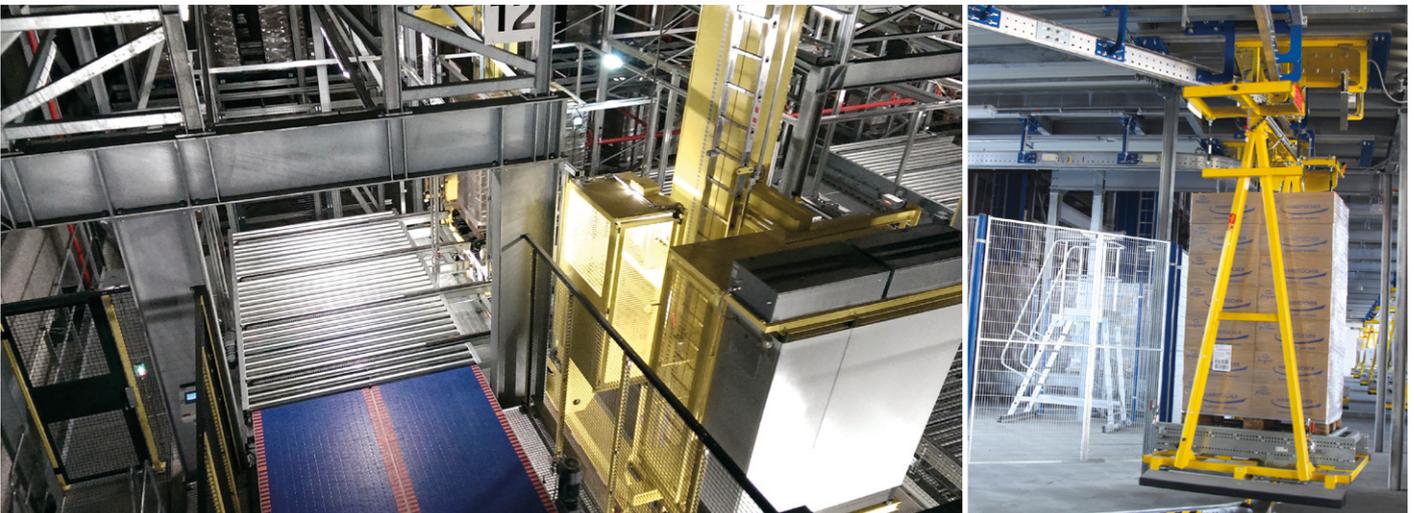
About Witron



The company Witron Logistik + Informatik GmbH, which was founded in 1971 by graduate engineer Walter Winkler, plans, implements, and operates automated logistic material handling systems for the trade and industrial sectors. The company provides solutions from a single source for information and control technology right through to mechanical construction and production. With its headquarters in Parkstein, Germany, the company makes an annual turnover EUR 265 million (as at 2013) and employs approx. 2000 staff. The German company has branches in the Netherlands, USA, Canada, England, Spain, and France.



The modular warehouse management system from Hörmann Logistik permits effective processes



Depending on the branch, tasks of the company and objective, intralogistics are demanded in a multifaceted manner. Examples from the industry have shown how the respective tasks can be solved conceptually and technically. The role of a warehouse management system that can be applied flexibly in the process is clear when an individual management of the flow of goods is required in the individual functional areas.

Kern & Sohn GmbH, weighing technology suppliers, was able to present continuous growth of the company over the past years. Intralogistics could not keep pace with this commercial success. In order to optimize the material flow, the Protéma Unternehmensberatung GmbH consultants therefore developed an overall concept that, next to a new logistics and assembly concept, also included the new construction of a plant and logistics building. The backbone of the new processes is an automatic pallet high bay warehouse and an

automated small parts warehouse. For the implementation including the linked picking locations, Hörmann Logistik GmbH from Munich, Germany was awarded the prime contractor contract.

A decisive factor that Hörmann Logistik was awarded the contract was the concept developed for the automated small parts warehouse where cardboard boxes and small load carries of different sizes could be stored. The automated small parts warehouse is integrated in the silo of the 25 m high pallet high bay warehouse. Thus, the

small parts warehouse also has a height of 25 m. This height could only be implemented by the use of a special construction for the racking storage and retrieval vehicles – a solution where only one traction drive drives the running gear as well as the mast head via a gear rack.

Using a special grasping technology, the cardboard boxes in different sizes can be stored up to a fourfold depth. Several width classes of the load carriers permit a volume optimized assignment of the rack shelves.

At the goods receipt, the pallets and cardboard boxes are identified using barcode readers from the warehouse management system Hi LIS from Hörmann Logistik, the weight as well as contour are checked and the cardboard boxes are assigned into width classes. Via continuous handling equipment, the pallets reach the pre-zone of the pallet high bay warehouse. The racking storage and retrieval vehicles pick up the pallet and store them at the location

defined by the management software. Depending on the size of the cardboard boxes and the optimum rack shelf allocation, the software determines if the cardboard boxes should be rotated on the transport route to the automated small parts warehouse.

Hi LIS obtains the orders from the host computer for the retrieval. By passing on the retrieval orders at an early stage, the warehouse management system can couple orders of the same width class and thus, using the racking storage and retrieval vehicles, can collect up to four cardboard boxes in the automated small parts warehouse and make them at the retrieval table.

Moreover, it is possible to sort the cardboard boxes to the picking before supplying to the "Pick & Pack" places if sequence requirements are at hand for the respective order. Hi LIS also requests the pallets in the pallet high bay warehouse and are supplied to the "Pick & Pack" places using the conveyor technology.

The fact that the same warehouse management software can be used in different trades is shown in the example for corrugated board processing. Here the operator profits from, e.g. the real time visualization that the system offers.

Green Bay Packaging Inc. has specialized in the manufacturing of corrugated board packaging, folding cardboard boxes as well as self-adhesive labels. In the course of expanding the plant in Wisconsin, a new high-bay warehouse with material handling systems is being built that will be linked directly to the existing production area as well as to the coating and cutting units, which are also new. The packaging manufacturer has also commissioned Hörmann Logistik as prime contractor for the design of the high-bay warehouse, including the linking conveyor technology.

Paper rolls as well as different pallet types can be stored in the fully automated two aisle channel storage system. In doing so, two racking storage and retrieval vehicles are operating on one rail in one aisle of the high-bay warehouse and one storage and retrieval vehicle in the other aisle. The racking storage and retrieval vehicles are each equipped with two channel vehicles

that can be run separately (for smaller pallets) or together (with system pallets for rolls). In order to ensure the redundant supply with raw goods, the middle rack unit can be operated from both aisles.

In the goods receipt, the paper rolls are unloaded from the truck and placed on the system pallet using a line portal. According to a barcode and contour control, the raw goods are passed on to the storage tables of the high-bay warehouse.

If the production requires raw goods, the warehouse management software Hi LIS selects the respective roll that the racking storage and retrieval vehicles can retrieve the quickest. This prevents stock transfers.

The roll retrieved is forwarded to another portal using the conveyor technology and there, is taken direct to the production plant using an automated guided vehicle. Returning the finished coated rolls back to the warehousing is carried out in the reverse order using the same technique.

In order to optimize the material flow, Hi LIS instructs the material handling system to store the raw material in different areas of the high-bay warehouse according to the plant to be supplied. Using this strategy avoids having two racking storage and retrieval vehicles obstructing one-another in the same aisle when optimizing the route times in the process. Permanent transparency and quick error diagnostics are ensured in event of malfunction using the real time visualization of the warehouse management system.

Flexible storage of packaging made from corrugated board

At the company headquarters of the corrugated board manufacturer Soenen Golfkarton in Hoogdele, Belgium, a manual block warehouse was, until now, operated for storing the finished goods. The growth over the past years, however has resulted in the company needing a new reorientation of their storage strategy. Hörmann Logistik processed a detailed intralogistics concept with a fully automated high-bay warehouse as a primary component of their plan.

Corrugated board formats, finished corrugated board packagings and empty pallets are stored in the new high-bay warehouse. The dimensions of the pallets vary between 1,200 × 800 and 1,800 × 2,350 mm, with maximum heights of 2,200 mm.

Linking to the production is carried out using two conveyor routes on which the pallets are centered, checked for contours and read per RFID-Tag. Then the acceptable pallets run through a sorting area. Large format pallets are passed through this area, smaller formats that make up approx. 90 percent of the overall production are grouped into pairs.

A roller conveyor brings the pallets to the transfer area of an electrified monorail

with which the load carriers are transported to one of the six storage spaces of the high-bay warehouse. In doing so, each hanger can pick up two pallets at the same time.

The handling of the load carriers in the high-bay warehouse is taken over by racking storage and retrieval vehicles equipped with telescopic forks. Each storage and retrieval vehicle can transport maximum two pairs (four pallets) at the same time. The Hi-LIS Power management system belongs to the equipment of the six racking storage and retrieval vehicles that allows them to save up to 25 percent energy.

For shipping, the goods requested by the tour order via Hi LIS are retrieved by the racking storage and retrieval vehicles, where possible also in pairs again and are taken to the truck loading zone via the conveying route as well as the electrified monorail. Each of the loading zones, eight in total, are equipped with four conveyor belts in order to allow the goods out to be completed quickly. In the production, the pallet and the corresponding production order are "married" with Hi LIS. The tracking of the pallets per RFID technology takes place consequently up until the pallets are loaded onto the truck. Each hall door in the loading area is equipped an RFID-Gate (**image**). This allows the loading of the pallets to be clearly documented and avoids incorrect loading.

Construction of the high-bay warehouse started in Fall 2012 and commissioning took place in February 2014.

Photos: Hörmann Logistik

www.hoermann-logistik.de



Each truck is equipped with an RFID-Gate in order to clearly document the loaded pallets

About Hörmann



Hörmann Logistik GmbH with its headquarters in Munich, Germany, is part of Hörmann Holding GmbH & Co. KG, which is split into two business branches – industry and communication. The company implements intralogistic systems for different sectors with the help of warehousing and conveyor technology concepts and logistic warehousing technology. The manufacturer assumes full responsibility for the implementation of complex new warehousing systems, as well as the modernization of existing systems during continuous operation. Hörmann Logistik operates internationally, is represented in thirteen countries, and currently employs around 4000 staff around the world.

JF Hillebrand and Trans Ocean – suppliers for special logistics solutions in Turkey

The JF Hillebrand Group, located in Mainz/Germany, operates a number of highly specialized companies. Besides offering first class logistics services the companies of the JF Hillebrand Group also lead the way in the development of leading edge products, services and IT tools for the industries in which they operate. The Group runs two key brands: JF Hillebrand specializing in beverage logistics, and Trans Ocean as a specialist in flexitank bulk logistics.



Both JF Hillebrand and Trans Ocean are represented in Turkey by their local agent, with offices in Izmir and Istanbul. Turkey is a developing market, with significant potential to grow in the forthcoming years both in terms of import and export. Turkey's geographical position in the Eastern Mediterranean, between Europe and the Middle East, makes it a strategic market.

When transporting precious wines and liquors, the global beverage industry is relying on the comprehensive logistics services of the JF Hillebrand Group. Since 1844, the company has been dedicated solely to the efficient and cost-effective logistics of beverages. Today, after 175 years of constant trading, JF Hillebrand works with some of the world's leading

retailers, beverage producers, wineries and breweries to manage the global support of beverages. Their solutions cover full service transport management (seafreight, overland transport, airfreight), as well as highly specialized solutions designed around the unique requirements of beverages – such as temperature control systems and container safety devices.

Trans Ocean is the largest flexitank operator in the world. Formed in 1984, the company has been providing unrivalled bulk logistics solutions and innovative flexitank products to clients across the chemical, oil, pharmaceutical and food industries. Combining very good expertise in the design and use of flexitanks with world-class systems and service standards, Trans Ocean delivers

tailored logistics solutions to meet the diverse and evolving requirements of their customers.

Trans Ocean's flexitank systems are suitable for foodstuffs and a wide range of non-hazardous industrial liquids. The flexitanks are halal and kosher certified, as well as complying with all necessary safety and environmental regulations. Trans Ocean provides worldwide technical support for their flexitank systems and offers full service from source to destination.

Flexitank solutions for importers and exporters

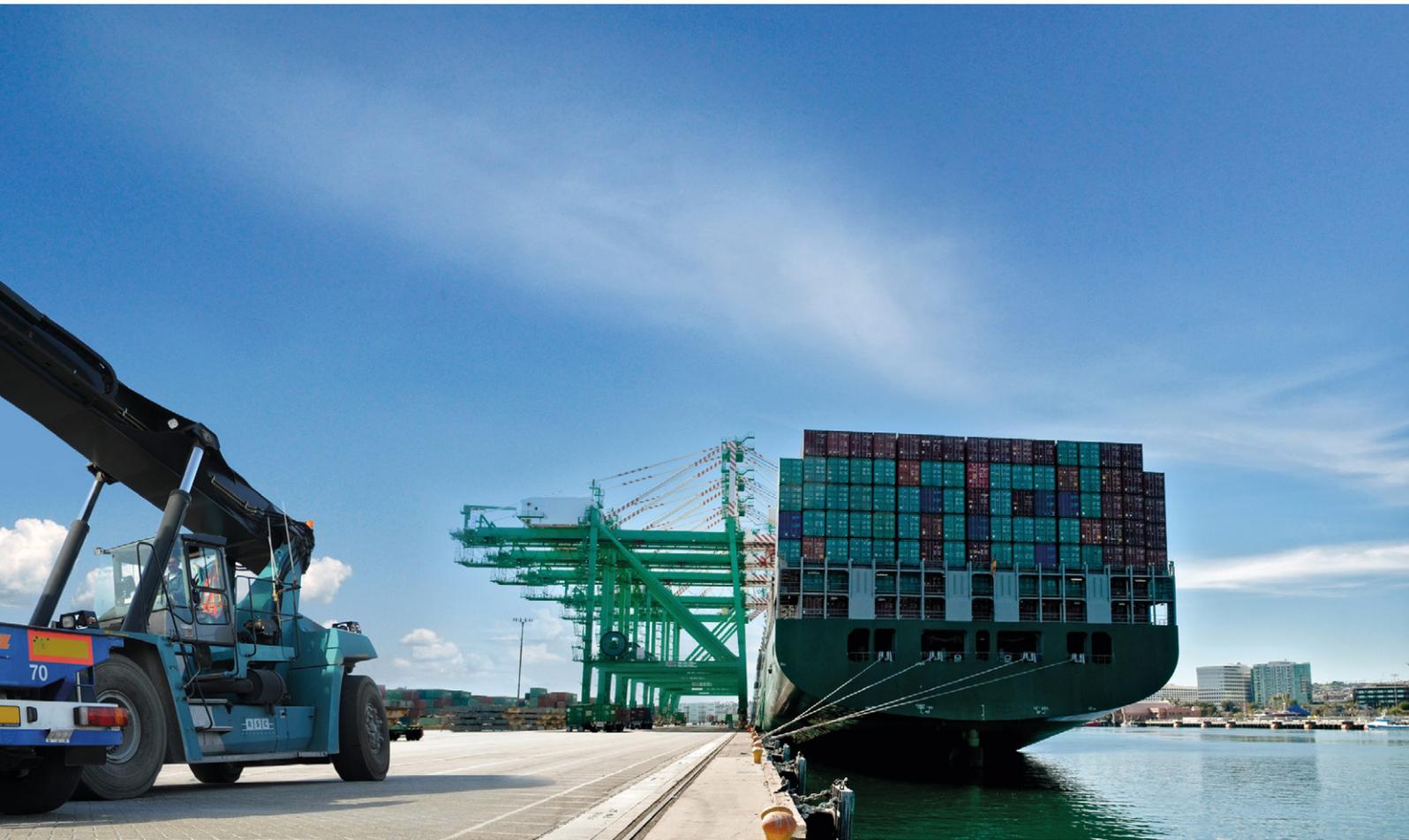
The company's flexitank solutions comprise technical as well as logistical aspects, and they frequently come up with innovative solutions that enhance clients supply chains. For example, a customer needed a constant supply of a heat-sensitive bio product with a melting point of about 50°C. The product supplier usually shipped in batches, but his customer didn't have enough storage capacity at his plant. Trans Ocean developed a heating system that allowed the product to be heated and stored off-site. Their IT system provides the supplier and the customer with full visibility of the supply chain and allows them to fully control their on-time delivery.

About JF Hillebrand Group

Founded in Mainz/Germany in 1844, the JF Hillebrand Group's companies have offices in 53 countries around the world. Their diverse group of employees represent over 50 nationalities speaking more than 60 languages. The annual turnover of the group exceeds \$ 1.2 billion. The group moves more than 550,000 TEU and processes over 640,000 orders per year.

The JF Hillebrand Group is present in Turkey, which is a growing market bridging Europe and the Middle East.





Turkey is an increasingly important market for JF Hillebrand and Trans Ocean. So both companies are expanding their service portfolio for importers and exporters. The country is also a major importer of vegetable oil, palm oil and sunflower oil, which can be easily transported in Trans Ocean's flexitank systems. Also bulk chemicals used in the chemical, pharmaceutical and home-care industry can be transported in Trans Ocean's RhinoBulk flexitank.

In terms of beverage logistics, Turkey also exports wines and beers. With 600 to 1,200

indigenous grape varieties winemakers here are spoiled for choice when it comes to blends and production. Around 60 varieties are currently produced, including semillon, riesling, muscat, cabernet sauvignon and merlot. In addition to the export of wines, Turkey also is an exporter of water, soft drinks, fruit juices and beer. The logistics services for this can also be provided by JF Hillebrand.

With a global office network in 87 countries worldwide, JF Hillebrand and Trans Ocean are present in each of the key desti-

nations for Turkish exporters. Both can help companies from across Turkey to get their products to new markets, be it by road, rail or sea.

"We are sure that our innovative products will convince our customers in Turkey", said Bernd Jordan, responsible Area Director for this region who is based in Mainz/Germany.

Photo: JF Hillebrand

www.jfhillebrand.com

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12 **China** **2015** The **China** **logistics** **industry** **moves** **to** **Shanghai**

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News about the following markets:

Demag cranes creates space for the manufacture of complex machines

The Swiss mechanical engineering company Soplar SA, Altstaetten, focused on maximum possible flexibility when it planned to extend its capacity for assembly and logistics. A strong solution was developed for a logistics concept that ensures maximum utilization of the available space. Thanks to the use of overhead and wall-mounted travelling cranes, no floor space is taken up, which is now fully available for the production of the complex Soplar machines.



They are commonplace in virtually all households: drinking water, hair shampoo, ketchup and much more. What these articles also have in common: they are filled and sold in plastic bottles.

“Any of the plastic bottles that you can buy in a supermarket may have been made by one of our machines”, states Roger Mahrle, CEO and Head of Technology at Soplar SA. The company is a technology leader in this mechanical engineering segment. For more than 30 years, Soplar SA has developed and manufactured complex machines for the production of plastic bottles.

In 30 years of continuous growth, the location in Altstaetten has changed in appearance. The biggest investment in the company’s history took off when work started on a new logistics and assembly bay as well as an office building in the summer of 2013.

Roger Mahrle explains: “We planned to construct this new complex on the space occupied by our oldest building in order to

accommodate our entire logistics operation, i.e. the goods-in and goods-out area and most of our assembly workplaces, in this new building. Our goal was to achieve the maximum storage space in a minimum area. Thanks to the installation of five lean lifts, we have created space for additional storage capacities as well as further assembly workplaces.”

The new building, which measures 30 × 100 m, was strictly designed with the aim of achieving maximum possible flexibility. While half of the building complex is planned to be used for logistics, various workplaces for assembly and pre-assembly operations were created in an area measuring some 1,500 m². Of this, some 50 percent of the building space is earmarked for assembly of the machines. The special machines, which weigh up to 30 t, are assembled by a team at a dedicated assembly station. The partly pre-assembled modules are brought from the individual pre-

assembly workplaces or direct from the order-picking zones by cranes.

Two Demag ZKKE double-girder overhead travelling cranes that have a span of 18.06 m operate on a crane runway which measures some 50 m in length. Whereas one crane is equipped a 16 t DR-Pro rope hoist, the other crane has two rope hoists of the same type that can also be used in synchronized operation. This tandem solution enables Soplar to carry out all steps that also go beyond simply supplying items for assembly. Besides the handling and transport of large-volume machine parts, the crane with the pair of hoists is also used to break the machines down into shipping units after they have been fully tested following completion. With the help of the cranes, these machine parts are packed into 2.5 meter-high shipping containers and then loaded onto trucks.

“The crane operator can simply switch the hoist units over from single operation to



**Short crane runway – great outreach.
Bracket cranes cover every single space
of the workplace**



to their optimized design, the cranes travel only a few centimeters beneath the wooden beams of the roof structure. This results in a further gain in lifting height thanks to the optimized C dimension.

“We also installed the cranes at the same height in the neighboring bay so that we can reach the assembly workplaces below them and the storage area on a gallery”, Roger Mahrle explains further. This area is used for the assembly of tube heads, which form the core element of all Soplar machines.

Four single-girder overhead travelling cranes that have load capacities of four and five tons operate on a crane runway at a height of nine meters. The EPKE type cranes assist the staff in supplying material as well as in the many steps throughout assembly. Roger Mahrle: “During the assembly operation, we use the cranes to lift components and modules which weigh up to several hundred kilograms. A finished tube head can ultimately measure up to 1.6 m in height. And our biggest models, which are later used to produce plastic bottles that have up to six layers, can weigh up to a total of five tons. For this work, too, there is no alternative to cranes.”

While two new cranes were supplied, two existing cranes were modified for the new tasks by means of refurbishment carried out by Demag Service. The crane girders were shortened to the required span dimension

tandem mode by pressing a button”, explains Demag sales engineer Heinz Schefer. “The required parameters are implemented by processor controls in our DR-Pro rope hoists. This solution is simply one of our standard features.”

Soplar only uses radio controls to operate the overhead travelling cranes. Roger Mahrle comments: “This wireless system is the easiest solution for us. On the one hand, we have no obstacles in the building in the form of suspended control cables and, on the other hand, our workers can operate the cranes from the optimum position.”

The building plan not only used the available ground space in the best possible and most versatile way, the entire building space was designed for a maximum utilization. To achieve this, the building structure was specified to enable both cranes to approach each other even under full load. A glance at the roof quickly reveals that the entire available space was utilized. Thanks

of 8.41 m and provided with new connecting plates to attach the existing end carriages. One of these cranes was also equipped with a new DR-Com rope hoist in order to achieve a lifting height of almost nine meters.

The intralogistics solution was also supplemented by two wall-mounted travelling cranes that were installed at the end of the bay, where modules are pre-assembled for the machines. The lifting motions in this area are provided by electric travelling DC-Pro chain hoists that have a load capacity of 1.6 t. In contrast to the very short crane runway, the cranes each have an outreach of nine meters. Cable-connected DSE control pendants are employed here due to the relatively short crane runway.

Roger Mahrle: “At these workplaces, we wanted to achieve a maximum coverage by the cranes so that they can serve any point in the pre-assembly area. At the same time, we managed to double the benefits, since the use of wall-mounted travelling cranes left us with the entire floor space available for assembly. And by dismantling and re-using existing crane runway rails, we were able to reduce the budget for this assembly area even further.”

This co-operation between Demag Sales and Service made it possible to compile a competitive offer for the logistics in the new building at Soplar SA. Ultimately, the maintenance work and – if necessary – fast response times provided by Demag Service in recent years had formed the basis for the decision in favor of the crane supplier.

After the logistics and assembly operations, administration and technical center moved into the new building in the summer of 2014, CEO Roger Mahrle looked back over the project: “We are highly satisfied, since everybody pulled together to ensure that our investment targets were attained in line with our schedule. The result meets our expectations in full: maximum utilization of the available space with the greatest possible flexibility for our assembly processes. The crane systems installed at our plant also played a decisive role in the achievement of our goals.”

Photos: Terex Material Handling

www.demagcranes.com

About Terex Material Handling

Terex MHPS is one of the world's leading suppliers of crane technology with Demag industrial cranes and crane components. The core competence of the Terex Material Handling business group lies in the development, design and production of technically sophisticated cranes, hoists and components and the provision of services for these products. The business group manufactures in 19 countries on five continents and is present in more than 60 countries, reaching customers in more than 100 countries.



German crane technology from Stahl CraneSystems is in demand in Turkey too

The Turkish company Parlak Sistem has been supplying crane systems to the Turkish industry as a partner of Stahl CraneSystems GmbH, Künzelsau/Germany, for ten years now. In recent years the company has been able to establish an efficient network of Turkish crane builders. Parlak Sistem advises crane builders on selecting and dimensioning hoists and organises ordering and delivery, in this way offering Turkish companies access to Stahl CraneSystems' universally acclaimed hoists and crane components.

Just recently Parlak Sistem supplied a crane system to a major Turkish paper manufacturer – built in Turkey, equipped with hoists and crane components from Stahl CraneSystems.

The company needed a reliable crane for demanding day-to-day use in production,

transporting heavy paper reels. The existing crane was no longer state of the art and needed to be replaced by a more efficient crane system. The crane system designed by Parlak Sistem comprises a double girder overhead travelling crane with two wire rope hoists on double rail crabs and a total safe working load of 25 t. It makes use of the existing 188 m long crane runway, and is equipped with open conductor lines as power supply. Synchronised hoists and reliable collision protection ensure the safety of the system. The crane is operated by radio.

Heavy duty conditions

Humidity of up to 90 percent and ambient temperatures up to +50°C meant that building the system with standard crane technology was not an option. Stahl CraneSystems thus designed the crane system as a customised solution with climatized control cabinets. High operating time requirements added to the difficulty: the production cranes are in use 16 hours a day, 7 days a week, a problem solved by the use of two high-classification SH wire rope hoists of 20 t safe working load each.

Short installation time

The contact to the paper manufacturer, who operates 6 plants in Turkey and

employs over 1,200 staff, came about at the WIN-Materials Handling Trade Fair in Istanbul, where Parlak Sistem had its own stand. Parlak was able to win the contract against two German and three Turkish competitors thanks to its technically sophisticated crane solution and excellent on-the-spot service. Parlak was able to meet the customer's exacting requirements during installation too: the old crane was dismantled and the new one erected over the course of a single weekend, thanks to efficient work by two independent erection teams from Parlak Sistem. The outcome of the customer's positive experience is that the company has already received follow-up orders.

Germany is Turkey's largest trade partner and German products are much in demand in Turkey. The positive relationship between the two countries is reinforced by personal connections: many Turks who have grown up in Germany return to Turkey and set up their own companies there. Stahl CraneSystems profits from the good contacts to Turkey, as Turkish companies frequently do not just supply products to Turkey, but also have a good relationship with neighbouring countries.

Photo: Stahl CraneSystems

www.stahlcranes.com



About Stahl CraneSystems

Stahl CraneSystems GmbH, with head office in Künzelsau/Germany, has more than 120 years experience in crane construction. The manufacturer offers a full range of crane technology and crane components, including chain and rope hoists, winches, and light and small crane systems, as well as drive and control solutions. It is a world leader in explosion protected crane technology. Indeed, Stahl CraneSystems developed the first components for such applications as far back as 1926, thus contributing to today's industrial standards. The company manufactures its products at the Künzelsau plant, but has 9 foreign subsidiaries. It has 700 employees worldwide.



Product News

A-Safe has developed “intelligent” collision protection



A-Safe, the manufacturer of plastic barriers, has developed the material Memaplex – a robust and flexible polymer compound. Pallet racks with collision protection systems made of this material thus have an “integrated memory”, which means any forces that are applied are optimally absorbed and carefully dispersed. The collision protection systems return to their original shape and remain intact following a collision. In contrast to metal barriers, where practically 100% of the collision energy is transferred in to the floor and the barrier can no longer be used, the manufacturer’s plastic barriers only transfer 20% of the collision energy in to the floor. This consequently reduces the amount of damage, and repair and replacement costs are reduced. A-Safe has numerous international branches and with a company history that dates back 30 years, it is one of the leading suppliers of collision protection systems made of polymers. The products are tested in the company’s own TÜV certified test centers.

www.asafe.com

Measurement system from Ametras provides precise volume data throughout the process

To date, laser systems with complex technology for which a lot of mirrors and other auxiliary equipment would have been installed, were used, for example, if a logistics service provider wanted to determine the volume of the pallets being dispatched. However, with the newly developed APF volume+ volume system from Ametras, the measurement process can be executed using conventional high-resolution cameras. During this process, a pattern is projected on to the batch using an infrared beam and the height profile is determined based on an algorithm. In conjunction with all types of weighing systems, the volume and weight data can be integrated harmoniously into the work process. If the cameras are installed directly on the doors of the warehouse, the volume and weight can quickly be determined during the unloading/loading process and complete relations can be measured. The users thus have the option to optimize the warehouse on the one hand and on the other, can take the weight and volume of bulk materials into consideration when calculating the price. APF volume+ is available as a standalone solution and as a module for the APF video+ video system. If APF video+ is already being used, the package data is also displayed here and can be processed directly.

A standardized interface to most shipping systems or the booking systems of the shipping companies ensures that fully automated discrepancy lists can be created.

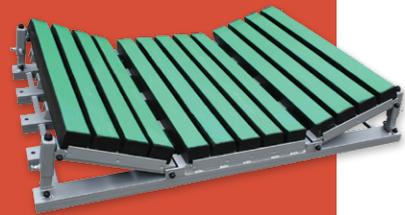
www.ametras.com

Absorbers from Ambelt improve cost effectiveness of conveying systems

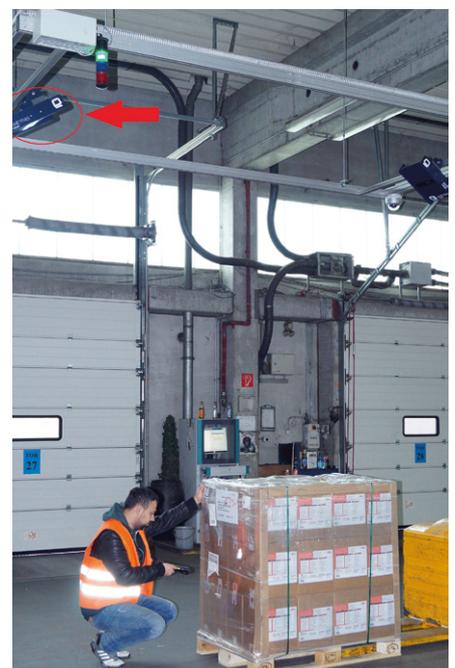
Dust, sharp objects or heavy bagged materials: conveyor belts are constantly “under attack”. This can result in the need for repairs and subsequently has a negative impact on productivity. This can be avoided with absorbers from Ambelt which can thus, amongst other things, increase the service life of the conveyor belt.

The absorbers are made of a highly elastic, shock-absorbing rubber core and a polyethylene sliding layer that guarantees minimal friction. The absorbers also include vulcanized aluminum profiles that enable the fast assembly of elements using T-bolts. These absorbers are available in dimensions of 100 × 100 × 1,240, 75 × 100 × 1,240 and 50 × 100 × 1,240 mm (H × W × L).

The absorbers are used for each adapter in the existing support roller stations or are installed on a plant-specific substructure made of steel which is subsequently assembled in the feed area. The latter option particularly applies to heavy material with a high impact energy that is being conveyed.



www.ambelt.com



Product News

Barcode positioning system refined further for connectivity

The BPS 300i barcode positioning system from Leuze Electronic has included an integrated Profinet interface since its first release. It now also includes Profibus and SSI interfaces. RS232 and RS485 interfaces are expected to be released shortly. The integrated bus interfaces enable the device to be parameterized directly via the control system. This saves money on the connector units that would otherwise be required. In industry, Profibus-DP and Profinet are used for the fast communication between control

systems and sensors/actuators. The synchronous serial interface (SSI) is an interface, for example, for position measuring systems that provide absolute information about the position by means of serial data transmission. The modularity of the barcode positioning systems enables them to be fitted with various connection techniques, integrated LED display and integrated heating for applications at up to -35°C.



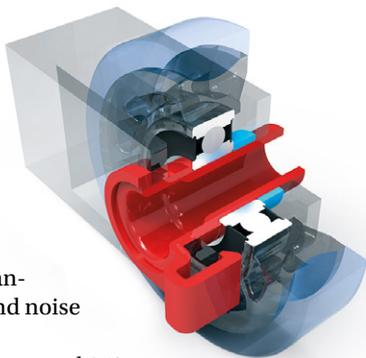
www.leuze.de

Roller axles from Faigle increase quiet running and energy efficiency

The company, Faigle, is bringing new roller axles for conveying systems to the market. The new roller axle enables the steel bolts to be replaced with plastic ones. This reduces the acoustic load as the axles acoustically insulate the sorting cart from the rollers. This guarantees excellent vibrations and noise damping.

While the steel axle weighs around 150 g, the plastic roller axle only weighs 18.1 g. These new roller axles enable operators to use harder rollers. This reduces the amount of friction and thus the energy consumption.

Areas of application for the roller axles made of plastic include, amongst other things, baggage sorting systems in airports and distribution systems in distribution centers. In this regard, the cost savings and long service are decisive factors for the operator.



www.faigle.com

The Centrick turn/tilt manipulator facilitates ergonomic assembly work

With the Centrick turn/tilt manipulator from Schreiber Metalltechnik und Maschinenbau GmbH, users can continuously tilt an object of almost any shape from 0 to 90° and turn it by 360°. Two laterally reversed hinged brackets realize the kinematic principle and tilt the workpiece around a virtual axis without the center of gravity of the layout changing significantly. This ensures that the assembly space of the manipulator is kept to a minimum and that the workpiece can be positioned ergonomically so that it can be processed effortlessly from all sides by the worker. The clever utilization of the load ratios ensures that Centrick operates cost effectively and energy efficiently.

The manipulator is stable even when a full load is applied and does not need to be secured to the warehouse floor. The design with rollers ensures that the handling device can simply be moved to the site of application.

The manipulator is available in two designs, the A500 (**Image**) with a workpiece weight of up to 500 kg and the A2000 with a workpiece weight of up to 2,000 kg. Schreiber also manufactures application-specific designs in which the construction height and configuration of the installation can be adjusted. The manipulator is either controlled via a pendant control panel connected via a cable or, in version "P", the manufacturer provides a programmable control unit with input via a touch panel and storage options for comprehensive position sequences.



www.schreiber-filderstadt.de



Unicarriers presents Tergo UFW multidirectional forklift



Type Tergo UFW multidirectional forklifts manufactured by Unicarriers have been designed to meet requirements when transporting and stacking long items and pallets. The vehicle generates the same output as a heavy duty forklift reach truck.

The distance between the forks can be increased hydraulically as standard, so that lifting and transporting different loads is not a problem. A good view through the mast and driver's overhead guard ensure that the driver of the industrial truck has excellent visibility on all sides. With the help of an additional rear view camera, the ends of the load are fully visible thus ensuring precise handling of the load.

The forklift combines the characteristics of a multidirectional forklift and heavy-duty forklift reach truck in one model. The width of the forks can be adjusted hydraulically from 560 to 1,550 or, optionally, up to 2,220 mm as standard. With a maximum load capacity of 2,500 kg, a lifting height of up to 9,700 mm (both UFW 250 models) and a max. speed of 13 km/h, the Tergo UFW guarantees a high level of working efficiency even when handling pallets. The steering wheels can, if necessary, be controlled individually to ensure maneuverability in tight

storage aisles. Thanks to the ergonomic design of the hydraulic control lever, the direction of travel can be switched from transverse to longitudinal drive within a second. This ensures that long goods can be handled quickly while saving space in cramped warehouses.

www.unicarriereurope.com

Symphony EYC launches app for voice-controlled warehousing

The company Symphony EYC, a supplier of software and IT service solutions, has released a new version of its "G.O.L.D

Warehouse Voice Operations". This has been developed for Android mobile devices and works without

auxiliary equipment for voice-controlled picking. The mobile end device is carried in a pocket of the "Vocal Vest". The vest also includes all of the auxiliary equipment required for voice-controlled picking. External devices, such as headsets, are not required. Eliminating the standard hardware used for warehouse communication reduces the fixed costs and time spent training employees. Comfort at the workplace is increased for warehouse staff.

The current version of the app is the third generation of the warehouse communication technology provided by Symphony EYC.

www.eyc.de



Sinochron motors from ABM Greiffenberger ensure greater efficiency in the area of intralogistics

The Sinochron motors from ABM Greiffenberger are meeting the increased demands for effective intralogistic solutions. The highly dynamic motors save energy, and boast excellent control characteristics.

The intralogistics solution will involve more than two thirds of the drives operated under partial load. This means that the torque supplied by the motor will be only briefly utilized in full for starting the load. The drives will then generally run with just 20 to 30 % of the nominal load. And this is exactly what makes the Sinochron drive so impressive. A permanently energized synchronous motor is crucial here, with next to no rotor losses.

Its impressive efficiency, above all in the partial-load range, has been achieved with the use of high-quality neodymium-iron-boron magnets which prevent the rotor losses. The ABM development also features high power density, and a smaller construction volume compared to the asynchronous motor.

The constructionally simple and thus sturdy design, as well as the omission of the mechanical speed sensor and cabling, guarantee the reliability of the Sinochron motor even under the harshest of environmental conditions, for example in deep freeze storage.



www.abm-drives.com



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