Vollert NEWS

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SLEEPERS FOR THAILAND

The international construction company STRABAG trusts the leading technology from Vollert for the production of prestressed concrete sleepers. 1.73 million sleepers will be required within the next five years. **Page 2**

RETROFITTING AT MERCEDES-BENZ

Vollert will be exchanging twelve guided stacker cranes at a Mercedes-Benz high-bay warehouse. This will include the technology for conveyor equipment, safety and process controls. The timetable is precisely synced to work with running production. **Page 2**

The First Emission-Free Container Terminal in the World

Two new battery exchange stations form the key components for the world's first soot, CO_2 and nitric oxide free-container terminal being erected in Rotterdam. The terminal operators are completely switching to environmentally friendly battery-operated container transporters. To accommodate the 24-hour schedule, the 12-ton batteries are changed up to three times daily as operating conditions demand.

INTRALOGISTICS SYSTEMS

Transport between quayside and container depot in the new terminal of APM Terminals Maasvlakte II takes place without drivers, without noise and without emissions. This feat is accomplished using what are called battery lift automated guided vehicles (AGVs) from Terex Port Solutions. In the first stage, 62 of these will start up their fully automated wireless-controlled operation. The AGVs draw their energy from 12-ton exchangeable batteries that are exchanged fully automatically and recharged via two battery exchange stations.

High-bay Warehouse with Space for 114 Exchangeable Batteries

Together with Terex Port Solutions, Vollert developed a concept for the rapid exchange of batteries, a combination of high-bay warehouse and guided stacker crane with telescopic carriage. Despite the extremely low AGV height, the special construction enables the automated extraction of the empty battery and its storage in the high-bay warehouse. The stacker crane then inserts a fully recharged battery in the AGV. In just five minutes, the container transporter is fully operational again. Inside the battery exchange station, the batteries are automatically connected to contacts and charged. The APM Terminal Massvlakte II employs two battery exchange stations with storage capacities totaling 114 batteries. The high-bay warehouses contain up to six levels and are accessed by one stacker crane from one or both sides. Depending on the configuration, the stations can also be approached from the front with two vehicles simultaneously. Positioning is likewise achieved fully automatically.

Ready for the Series Production of Emissions-Free Container Handling

The system's outstanding availability and high-performance operation has been amply proven in summer as well as in winter. Since May 2011, the first prototype battery-powered AGVs from Terex Port Solutions have been operating in tandem with Vollert exchange stations at the HHLA Container Terminal Altenwerder (CTA) in Hamburg.

Now, global everyday use will follow at the APM Terminal on Rotterdam's Maasvlakte II. With a quay front spanning over 1 kilometer and a depth of 20 meters, this modern port, already in its initial expansion phase, offers slot capacity for over 18,000 standard containers (TEU), making it possible to efficiently load and unload the largest planned super container ships to date. The APM Terminals facility is planning an annual throughput capacity of 2.7 million TEU.

Dear Readers,

June saw the celebration of Vollert's 90th founding anniversary with numerous guests arriving from around the world. This was a true delight – does it not show how closely we are privileged to work with our customers and business partners. This collaborative work and mutual desire to master challenges to the best of our capabilities is what defines the thrill of working at Vollert. This anniversary gave us the opportunity to look back on hundreds of successful projects as well as open vistas onto exciting new assignments. These are situated around the globe as is reflected in the current projects in Brazil, Thailand, the Netherlands, and Germany detailed in this edition of Vollert News. With an eye on the future we are well poised with a committed team of employees and technical investments. That is why we look forward to facing all the new challenges you will pose us. We are grateful for your trust.

Yours sincerely,
Gerhard Geist

By the Dozen:

Vollert Exchanges Stacker Cranes During Ongoing Automobile Production

For the retrofitting of a twelve-aisle fully automated high-bay warehouse at Mercedes-Benz in Sindelfingen, Vollert has delivered twelve stacker cranes, aisle equipment, conveyor equipment, safety, process control technology as well as electronics and the steel construction for the pre-zone. The exchange is made during on-going production over four construction phases. The existing storage system as well as the building itself remains unchanged.

Large-scale projects in the automotive industry demand a maximum of precision and meeting deadlines. Nowhere is the bar set this high. "We are practically working according to an hourly timetable. Because of the ongoing production, the installation times are extremely short and require coordination and preparation," explains Jochen Keinath, Vollert's project manager responsible for the installation. Partial commissioning at the plant shortens the installation period. The retrofit specialists at Vollert have many years' experience in the automotive industry, ensuring that retrofit projects of this type and magnitude can be implemented with high competency.

High-bay Warehouse with 48 Infeed and Outfeed Slots

The high-bay warehouse for sheet metal parts at Mercedes-Benz in Sindelfingen, to be newly equipped by Vollert, serves as interim storage for load carriers coming from the press plant. Load carriers weighing up to 2.5 tons are handled individually using the stacker cranes. Smaller load carriers are combined to form loads up to 3.5 tons and are stored together. The hourly turnover rate this fully automated system can cope with is immense. In addition to the process-control technology and the electronics, which alone amount to one-third of the entire order volume, Vollert delivers the conveyor equipment as well as the steel construction for the pre-zone. A total of 48 infeed and outfeed slots lead to the stacker cranes. The loading and unloading takes place on two levels. Fork lifts govern the ground level; whereas driverless transport systems (AGV) are loaded automatically on the below-ground level.

Conversion in Four Phases

A special feature of this retrofitting project can be found in the special stacker crane and their adaptation to the already existing high-bay warehouse. Standard solutions won't do here. Instead, ample know-how and flexibility are the order of the day. At the same time, the production of individual systems essentially amounts to a mini-series by virtue of their sheer numbers. Vollert guarantees minimum delivery times here as well. After only six months of planning and construction the first delivery was made in December 2014. Overall the installation is divided into four construction phases during which three aisles are always exchanged together. This includes opening the roof, disassembly of the old equipment and assembly of the new. The heavy-load experts also coordinate certification and approval. By the end of 2015, the conversion of the high-bay warehouse will be completed.

INTRALOGISTICS SYSTEMS

1.7 Million Reinforced Concrete Sleepers for Thailand

Multiple new rail construction mega projects are planned within the next five years to link Thailand's large cities with the surrounding countryside. The STRABAG group supplies a significant part of the equipment for the rail network.

For the upcoming infrastructure projects to expand the Thai traffic network, the globally operating construction company STRABAG will be manufacturing a total of 1.73 million prestressed concrete sleepers over the next five years."To be able to produce such large output quantity we decided to invest in an ultra-modern precast plant with intelligent plant circulation technology and innovative machine solutions," explains Torsten Spangenberg, Head of Business Unit Railway Infrastructure at STRABAG. The groundbreaking took place in mid-2014 fifty kilometers south-east of Bangkok. For the technology and the know-how, the international construction group relies on Vollert as the worldwide leading systems specialist in prestressed concrete sleeper production.

High-degree of Automation Paired with Intelligent Plant Structure

The modern automated circulation system is designed to handle a yearly capacity of over 600,000 B70 prestressed concrete sleepers. This is equivalent to a daily output of over 2,000 concrete sleepers. Up to 270 sleeper moulds are constantly in circulation. Compared to stationary manufacturing, this results in much more efficient processes and consequently in higher plant productivity. "Ranging from the dowel insertion through the tensioning and detensioning stations to the application of concrete, we rely on high automation in the new precast plant. It is important to coordinate all processes with each other in order to prevent idle times and ensure the machine technology functions flawlessly," explains Steffen Schmitt, Executive Sales Director Asia at Vollert. The quadruple sleeper moulds are first oiled and cleaned before the dowels are inserted for the later step of mounting them to the rails. A reinforcement manipulator then places the prepared tension wires into the concrete form. During the semi-automated prestressing, the Paul screw jacks permanently monitor the tightening torque on every prestressing wire. Lifting shuttles that are coupled together then lift the quadruple form onto a combined concreting and compacting station and electrically driven discharge screws fill the concrete into the mechanically fixated mould with high precision. The high-frequency vibration station enables an evenly distributed concrete compaction.

Up to 1,200 Sleepers in the Curing Chamber

In the discharge area of the concreting line, a special lifting beam stacks up to eight concrete forms onto waiting cross-transfer cars. At predefined, intervals they are guided on rails on kiln lines arranged in parallel through the clad curing chamber. Up to 1,200 concrete sleepers are located at the same time in the approximately 13-hour curing process. A semi-automated detensioning station initiates the transfer process. „Certainly, one extremely efficient and economical solution is the bridge-guided turning cross beam, which runs around the detensioned concrete mould, rotates it 180 degrees and lowers it onto the roller conveyer before the switch-off process is initiated via an electric lifting device," describes Steffen Schmitt.

PRECAST CONCRETE PLANTS

M3SP Sets New Standards for Brazil

In the future, M3SP will produce up to 450,000 m² of solid concrete parts yearly for the Brazilian market. For this purpose, one of the most modern precast plants in South America was erected in Cotia near São Paulo.

M3SP is recognized as one of Brazil's technology leaders when it comes to innovative solutions for housing and industrial construction. Founded in 1999, this construction business specializes today in mega projects. This includes affordable housing as well as office buildings, shopping malls and hospitals. However, M3SP also produces prefabricated staircases as well as structural precast concrete parts like concrete beams for the Brazilian market.

In July 2015, M3SP opened the first highly automated precast concrete plant in Cotia – up to then, purely stationary manufacturing technology has been the norm. This new plant represents a real milestone for the Brazilian construction industry. "In order to be able to produce the large variety of parts at best quality and the desired output quantities, we opted for the most modern plant technology. Beginning with their first 3D-simulation models, Vollert convinced us one hundred percent of their technology and know-how," describes Marmo Pádua, General Director of M3SP. "In addition, Vollert has initiated the complete project financing by means of a Hermes cover of the Federal Republic of Germany."

German Engineering Made in Brazil

The plant concept was designed so flexibly that the production quantity could be adapted later. „In the future, we will even be able to produce sandwich and facade elements on the new plant structure. This had not been possible with the previous stationary manufacturing process alone," says Pádua. A highly automated circulation system enables efficient work processes. This way, prefabricated parts 13 meter long and up to 3.3 meter high can be formed. The formwork pallets are 100 percent manufactured in Brazil according to highest German technology standards. "For this to happen, Vollert contributed an all-encompassing knowledge transfer," says Wesley Gomes, CEO at Vollert do Brasil. Ultra-modern machine technology enables highly productive processes – ranging from the fully automated pallet and shutter cleaning stations, concrete distribution, a low-frequency and especially cement-saving compacting station to the automatic loading and unloading of precast concrete parts into the curing chamber via a storage and retrieval machine. A CAD/CAM-guided SMART SET shuttering robot enables precision positioning of shuttering profiles and contour plotting. The shuttering system especially developed by RATEC for M3SP guarantees frictionless shuttering formwork processes.

"With the new precast plant in Cotia, we fire the starting shot for further growth and Brazil will reach never-before-seen quality standards. With this new plant technology, we will be able to cater to small building projects but also to the largest construction companies in Brazil – and now even nationally," explains Marmo Pádua of M3SP.

PRECAST CONCRETE PLANTS

Photo: DeutscheBahn AG

Ice-free and Clean into Winter

For the DB Fernverkehr AG company, Vollert installs shunting systems into two train washing facilities in Munich and Berlin. In the cold season, these facilities are also used to de-ice the undercarriages.

Currently, two new train washing facilities are being built in Berlin and Munich – they will be finished by November in time for the start of the cold and ice season. The completely new systems in the existing washing halls are used to clean ICE trains at temperatures approaching 0 °C. In addition, they are equipped with de-icing technology, allowing the chassis to be freed of snow and ice, even when there is frost. Sometimes, as much as 20 to 40 cm of ice can collect on them. For this purpose, Vollert supplies the shunting system with wheel-acting pusher trucks. In the lanes between the platforms, the fully automated shunting systems driven by wire rope hoist lines offer a space-saving and cost-effective solution, by keeping the platform free for trains to drive through. The wheel-acting pusher trucks use telescopic pusher rollers to latch onto any random axle from below – that way the train wagons can be pulled through the washing halls individually or altogether.

Robust Technology for Rough Environments

Trains weighing up to 850 tons with a length of up to 140 meters are cleaned in Munich and Berlin. The washing facility halls have a length of between 130 and 210 meters and can accommodate all ICE-series trains, including the new ICx. For this reason, the pusher trucks must be suited for varying wheel axels ranging from 900 to 1,300 mm in diameter. Double pusher rollers developed by Vollert as early as the 1960s and patented up to the 1980s prevent the wheel-acting pusher trucks from rolling over, even in cases of heavy loads, thereby ensuring safe operation for ICE trains with a pulling force up to 60 kN and a trailing load of 850 tons. The train wagons roll fully automatically and at a constant speed of 0.3 to 0.5 m/s through the washing facility. A special coating protects the shunting system from corrosion in the wet, alkaline and acidic environment. In Munich, the end of the wash process is followed by an axle inspection. To enable the measuring process during continuous motion, a seamless transition from cable pull to self-traction of the ICE trains takes place. Automatic detection and uncoupling of the wheel-acting pusher trucks makes this possible. Vollert previously equipped a whole series of washing facilities for Deutsche Bahn. In 2012, the specialists for shunting systems modernized a further washing facility in Berlin. Hamburg has a double towing unit by Vollert in operation, and in Munich-Steinhausen street cars are cleaned using Vollert technology.

SHUNTINGSYSTEMS

1,000 Guests Celebrate Vollert

We celebrated our 90th anniversary at the end of June. Our guest list of over 1,000 participants included customers, partners, co-workers, and their families. It was a grand event that will stand out in our minds for a long time to come.

We have documented 90 years of industrial history together with our customers. We were also able to celebrate the day with many of them in true style! Many thanks. We look forward to realizing the next exciting projects and our next meeting.

Yours truly,
Hans-Jörg Vollert

Important dates:

Among other places, Vollert will be exhibiting at the following trade fairs:

ConExpo Latin America 2015
Santiago de Chile, Chile, October 21 – 24, 2015

Concrete Show South East Asia 2015
Jakarta, Indonesia, October 28 – 30, 2015

BIC Exhibition/Concrete Days Asia 2015
Shanghai, China, November 4 – 6, 2015

ALUMINIUM USA 2015
Detroit, USA, November 11 – 12, 2015

MEC 2015
Dubai, VAE, November 23 – 26, 2015

EXCON 2015
Bangalore, India, November 23 – 26, 2015

EngineeringDays 2015
Vienna, Austria, December 1 – 2, 2015

ICCX Russia 2015
St. Petersburg, Russia, December 8 – 10, 2015

Dr. Markus Deimel New Managing Director

In July 2015, Markus Deimel, Doctor of Engineering, became new Managing Director at Vollert alongside Hans-Jörg Vollert and Gerhard Geist. The 40-year old will gradually assume Gerhard Geist's responsibilities, who will retire at the end of next year after over 35 years with Vollert. Over the last decades, as chief designer and managing director, Gerhard Geist played a crucial role in putting his mark on this deeply traditional company. To this day, he still appreciates the special culture of innovation the company embodies: "Our role here at Vollert is a little bit like with Jules Verne: always inventing, testing and designing new things." "With Markus Deimel we were able to bring to our team an extremely competent and technically experienced specialist" Hans-Jörg Vollert explains the hiring decision. Markus Deimel comes to Vollert from Grenzebach BSH, which designs and manufactures plants and components, where he was last working as Section Head of Engineering. His skills include comprehensive expertise in complex plant technology and he plans to expand Vollert's technology leadership further: "As primary contact in the heavy load-intralogistics sector and in the precast concrete industry we are getting ready to set important new impulses in the next few years changing the technology in these fields and bringing our clients to the forefront of their markets."

See More 90-Years Vollert
Use the QR Code to look at more pictures of the event, watch the anniversary film and view a video retrospective.

Imprint

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