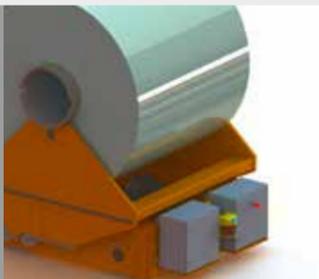




PERFECT FIT

The new high-bay warehouse for coils at Bridgnorth Aluminium Ltd. in England is a mere 11 m high but 120 m in length. Vollert provides intralogistics and the integration of the system in an existing building. **Page 2**

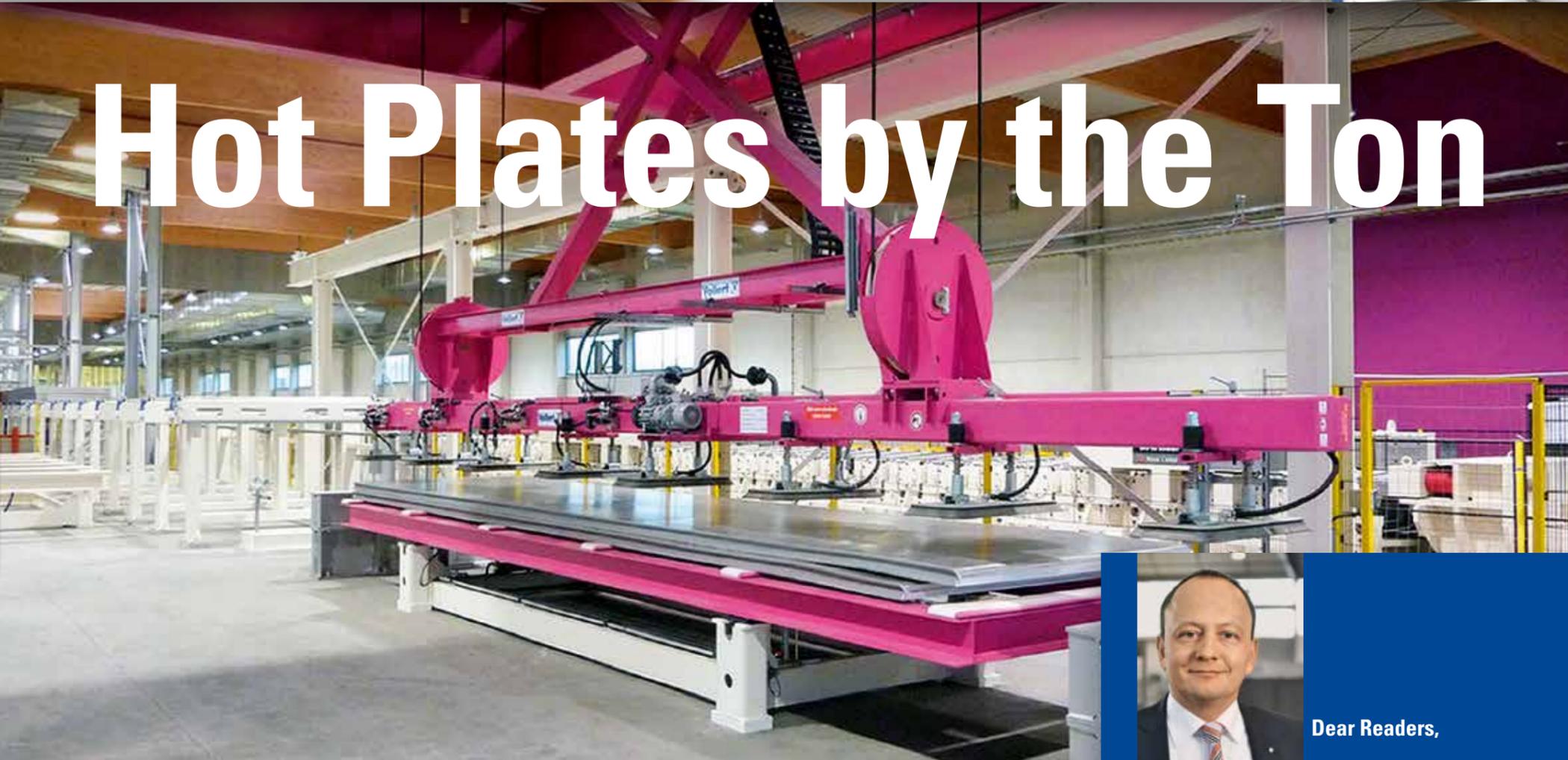


VERSATILE HOUSING

The SU-155 Group in Russia is implementing a wide variety of modernization measures not only to increase the quantity and quality of the precast concrete elements it offers, but also to provide customers with more design options. **Page 3**



Hot Plates by the Ton



Dear Readers,

AMAG Austria Metall AG has invested in a new hot-rolling plant for manufacturing aluminum plates and coils at its headquarter location in Austria. This project is especially noteworthy because it represents one of the largest investments the aluminum industry in Europe has made in recent years. The company therefore commissioned Vollert as the main contractor to provide a turn-key, fully automated high-bay warehouse that can store up to 1,500 tons of hot plate product. An automatic restacking unit was also ordered to size up and handle plates of lengths ranging from 4 to 12.5 meters.

INTRALOGISTICS SYSTEMS



A mere two and a half years is all it took to erect the hot-rolling plant, which was completed on time. The new facility allows AMAG, Austria's leading manufacturer of aluminum products, to increase its production capacity by 50 percent, with total output now reaching approximately 225,000 tons annually. At the same time, the company has also broadened its portfolio to include larger sectional widths and thicknesses. In so doing, Austria's renowned manufacturer of high-quality cast and rolled aluminum products is now able to devote more of its attention to offering high-strength specialty products to key growth segments such as the aerospace, transport and mechanical engineering industries. As of November 2014, AMAG has offered a wide variety of rolled products with a maximum width of 2.3 meters and a measured thickness of up to 150 mm. This diverse offering, however, also poses a challenge when it comes to storing the product in fully automated fashion. Numerous plate sizes and variants can be manufactured and must be handled, stacked and unstacked accordingly.

Hot and Heavy Conditions

With a footprint that could swallow about four football fields, AMAG's new hot-rolling plant is one of the largest investments the aluminum industry in Europe has made in recent years. In specific terms, some 220 million euros have been set aside to pay for the plant, plate production facility, and foundry addition. Vollert was commissioned to design and build a turn-key, fully automated high-bay warehouse for the plates that connects directly with the hot-rolling mill. The aluminum plates, which can reach temperatures of 500 °C, are cooled by stacking them up to 700 mm high on pallets measuring 13 meters in length and approximately 2.5 meters in width and moved into a storage bay by a Vollert stacker crane, whereby each pallet can weigh as much as 25 tons. The single-aisle high-bay warehouse has a rated storage capacity of 1,500 tons and is 117 meters long. To meet the tight space requirements on site, the roof height of the warehouse could not exceed 7 meters. The length of the pallets posed a further challenge, but Vollert engineers found a

solution by designing the building with a cantilever rack layout. An upper cross member supports the high dynamic loads. With an operating length of 16 meters, the stacker crane is twice as long as it is high. The pallets and the aluminum plates stacked on them are dragged onto the side of the operator by four telescopic prongs (two on each side), while two industrial drive assemblies allow loads of up to 26 tons to be lifted. The warehouse offers 60 pallet bays spread out over 4 levels. Due to the high temperature of the sheet plates and the fact that the plates shrink as they cool down, the warehouse must also incorporate specially designed bearing blocks that are both heat resistant and slide so that the stored pallets can move around.

Wide Variety of Products with Lengths Ranging From 4 to 12.5 Meters

Following the cool-down phase, the pallets are removed from storage by the stacker crane and placed on a roller conveyor, which takes them to the Vollert-designed automatic restacking unit.

Continued on page 2

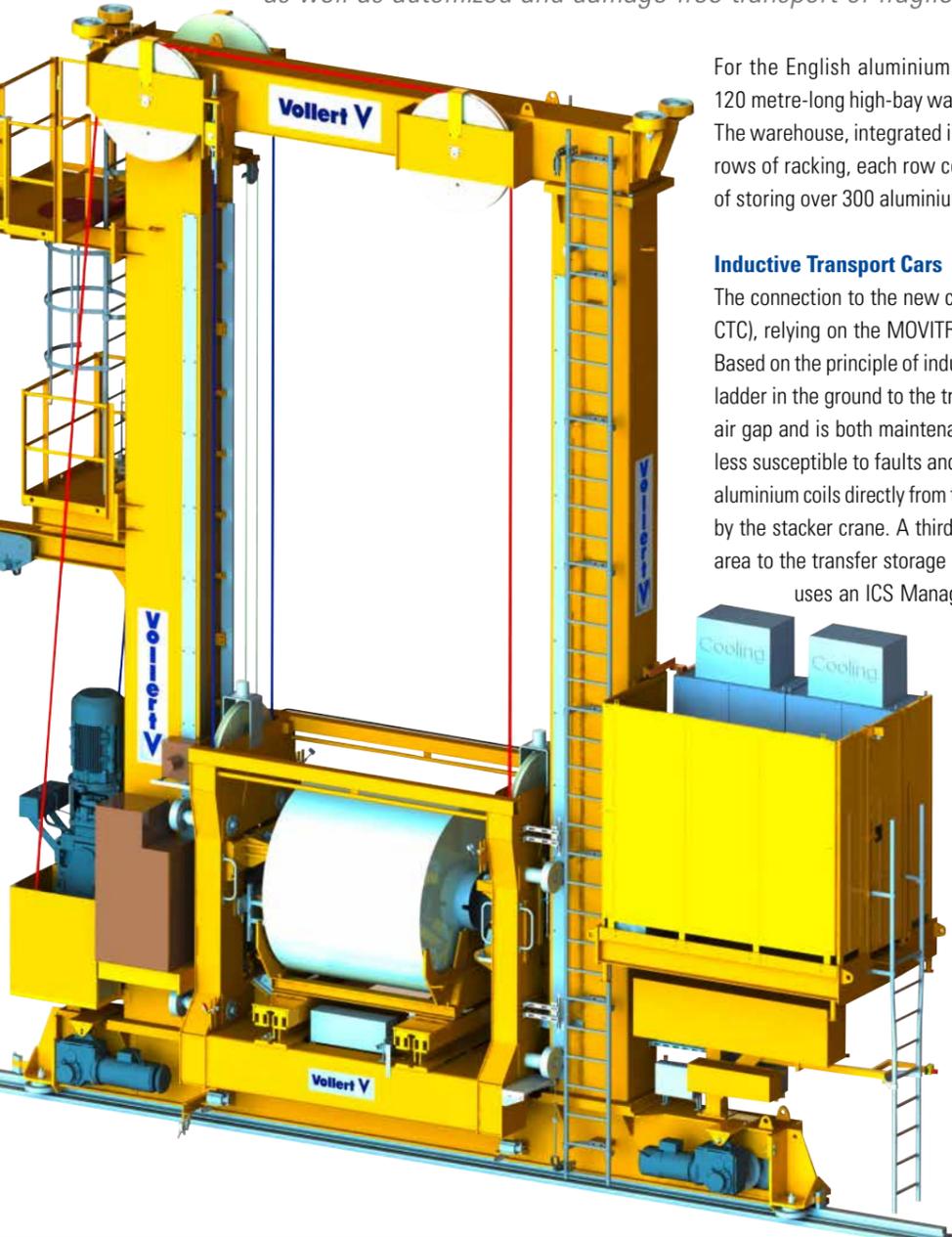
Ninety years of industrial history are a long time in which many changes and developments have taken place. As a family-owned enterprise spanning three generations, we are proud to have had the opportunity to serve numerous sectors as well as help shape them and improve the technologies they use by introducing new, innovative ideas. In working together with you, the customer, we have also managed to grow and develop ourselves – an objective we never stop pursuing by investing in the future and above all in our employees, the lifeblood of our company. It is in this spirit that we look forward to helping you with whatever new projects you have in mind!

We look forward to your continued loyalty and invite you to page through this issue of Vollert News and read about the milestone markers that have characterized our history. Don't forget to look at the challenges we are currently facing and the customized solutions we have developed to meet them.

Hans-Jörg Vollert

Perfect Warehousing for Fragile Aluminium Coils

The new high-bay warehouse at Bridgnorth Aluminium Ltd. in England is a mere 11 m high but 120 m in length. The specialists for aluminium of the highest lithographic quality rely on technology from Vollert in the warehousing as well as automatized and damage-free transport of fragile coils.



For the English aluminium manufacturer Bridgnorth Aluminium Ltd., Vollert builds a 120 metre-long high-bay warehouse for the storage of aluminium coils weighing 12 tonnes. The warehouse, integrated into an existing complex building 11 m in height, consists of two rows of racking, each row consisting of three racks high and 52 bays long with a capacity of storing over 300 aluminium coils.

Inductive Transport Cars

The connection to the new cold-rolling mill is enabled by Vollert's coil transfer cars (Vollert CTC), relying on the MOVITRANS contactless energy transfer system from SEW Eurodrive. Based on the principle of inductive energy transfer, the energy is transferred from a fixed laid ladder in the ground to the transfer cars. The electromagnetic coupling is transmitted via an air gap and is both maintenance and wear-free meaning that the transmission of energy is less susceptible to faults and decreases operating costs. The two transfer cars will take the aluminium coils directly from the transfer storage position in the high-bay warehouse, prepared by the stacker crane. A third transfer car will bring the aluminium coils from the annealing area to the transfer storage position for the stacker crane to collect and store them. Vollert uses an ICS Management Solution (Level 2) which will connect to the Bridgnorth Aluminium existing system (Level 3) for controlling the plant.

Expansion of Lithographic Production

Bridgnorth Aluminium is a specialist in the field of high-quality lithographic products for the offset printing industry and packaging in pharmaceuticals and the food industry. Last year, the company announced investments of over 50 million Euros for the expansion of production in the field of research and development. The installation of a new cold-rolling mill and machining line is to double the litho capacity of Bridgnorth to approx. 75,000 tons per year.

INTRALOGISTICS SYSTEMS



At Bridgnorth over 300 coils are housed on both sides of the stacker crane. It is important that all handling is undertaken carefully due to the sensitive nature and quality of the litho.

Continued from page 1

Hot Plates by the Ton

A tri-axis manipulator with bridge, hoisting and running gear then uses a vacuum-suction cross member to pick up three to four pallets of aluminum plates at two storage bays and stacks them on two heavy-duty pallets. Four cables lift the cross member and the pallets, which can weigh up to 8.5 tons, and secure the load prior to moving so that product can be transported quickly with high turnaround times. Restacking takes place fully automatically and includes a stacking height detection routine. "AMAG offers a vast range of products, which in turn leads to many different plate sizes and variants, all of which need to be handled accordingly", explains project manager Nils Berinskat at Vollert. "The aluminum plates can be anywhere from 4 to 12.5 meters long and measure 1 to 2.3 meters in width. Short panels no longer than 6 meters are therefore double stacked on the transport pallets to maximize storage capacity in the warehouse. Our control system detects these conditions automatically and activates the number of vacuum cups needed to lift the load." The command that initiates this process is sent by the Vollert master computer, which is connected to the AMAG warehouse management system. The control system, all conveyor equipment, and the steel construction are provided by Vollert.



3D Retrofit: Precision Assembly by the Book

At Audi in Neckarsulm, an exacting 3D simulation incorporating all process flows at the plant was conducted to ensure that a system comprising 5 stacker cranes moves product smoothly and efficiently without ever holding up production.

"Replacing equipment while production is underway has always been a time-sensitive matter and takes on an entirely new dimension in the automotive industry, in which operative demands and staying on schedule are of mission-critical priority", attests Vollert leading service person Frank Zurek, who specializes in the preventive inspection of special-purpose and customized systems. Zurek was also at Audi, when he was asked to maintain a five-aisle high-bay warehouse. The decision was made to replace the existing system in its entirety. To ensure that the transition would go as smoothly as possible, all components of the retrofit solution devised by Vollert were designed and constructed in a 3D environment during the planning phase as this made it possible for the engineers to simulate all movements for subsequent assembly. After all, another objective was to avoid opening a section of the roof,

which would make it necessary to reinstall the existing sprinkler, air conditioning, and photovoltaic systems.

Every Obstacle Overcome

The 5 stacker cranes in the high-bay warehouse, which measures 67 meters in length and 27 meters in height, were replaced as were the lifting cages, control system, switch cabinets, cabling and wiring. All work was carried out in a tight timeframe that included several long weekends, public holidays, and the summer holiday season. One of the jobs was to drill a core hole in the rear wall of the building so that the new 12 meter-long tracks could be installed. To transport the lifting cages, the experts at Vollert constructed a mounting carriage with a swivel assembly. This allowed the large parts to be moved through a wall opening, which were then rotated

around three axes and tilted as they entered the building. All obstacles were thereby overcome.

Higher Levels of Safety and Energy Efficiency

The retrofit solution also involved equipping the lift drives with new efficiency and safety technology. For example, an electronic controlled safety catch now prevents the lifting cage from descending or plummeting. Additional measures include offset drives that provide for level access, and enclosures on the lifting cage allow employees to safely climb 12 to 15 meters to areas requiring maintenance.

"The retrofit solution we devised ultimately led to costs being reduced by almost 40 percent in comparison to a new installation", explains Werner Wägele, project manager in charge at Vollert. "The real reason behind the success of the project, however, was our

proven know-how and manufacturing capabilities, which also enabled modifications to be made on short notice."

SERVICES





New Levels of Flexibility and Quality in the Residential Construction Industry in Russia

The SU-155 Group in Russia has increased its production capacity and the quality of the precast elements it offers thanks to a new, state-of-the-art circulation plant designed by Vollert for solid and sandwich walls. The high level of versatility built into the plant also allows the Group to provide customers with a greater variety of architectural design options.

Michail Balakin, Chairman of the SU-155 Group, summarized the main benefits of the plant when it officially opened its doors in November 2014 by stating that, "The new production line signifies a breakthrough in residential construction as it enables us to custom design and manufacture houses using prefabricated building techniques. Another benefit of the line is that we can now produce precast concrete elements at even higher levels of quality, which in turn makes it possible to construct premium residential buildings both quickly and inexpensively. Last but not least is the capacity of the new facility, which is eight times higher than before."

The new circulation plant, which is installed at the ZAO Strojindustrija site in Odincovo, is the first of many modernization measures targeted by the SU-155 Group. All projects are based on the standardized platform of technologies incorporated in the Vollert equipment, which is connected to a central control system designed by Unitechnik. SU-155 also plans to use CAD/BIM software from

Tekla to structurally model buildings. After the configuration data plotted in this simulation environment is finalized, it is sent directly to the control system. For the Russian construction company, this streamlined approach opens up a world of new opportunities for maximizing operative capacity, since the production data required can be conveniently transferred to different production sites. "The data compiled by the project department specifies not only the geometry of the products, but also all relevant details for the production equipment such as the precast elements to be manufactured, the materials to be used, how many units should be produced and in what sequence. This greatly simplifies the production cycle, from the concept outlined by the architect through to the production plant receiving the order, thereby allowing us to realize a more varied and diverse number of projects", explains Michail Kosolapov, Managing Director at ZAO Strojindustrija. The circulation plants designed by Vollert play an integral role in the process as they enable production to be quickly adapted to accommodate different products.

Versatile Production Environment Pays Off

The SMART SET shuttering robot from Vollert is another innovation that streamlines operations. Engineered with precision in mind, the robot positions the up to 250 kg shuttering profiles exactly where they are needed and plots the inserted parts accordingly so that precast elements can be manufactured with pinpoint accuracy down to a millimeter. Versatile shuttering systems also make it possible to form new concrete parts at any time without the need to retool. Adding to this is the fact that the circulation plant connects all work stations along the production line, including the concreting area, the compacting stations, the curing chamber with rack operator, and the machines for surface finishing. The attention to detail does not stop there, however, since the modernization plan factors in the possibility of expanding the production facilities still further at a later point. Vollert also coordinated efforts to build a total of 100 circulating pallets, which were made in SU-155's in-house fabrication shop.

"The unparalleled versatility of the plant has already paid off", emphasizes Sergey Lapyrev, Managing Director of OOO Vollert RU. "As planning got underway, we were working under the assumption that we would simply continue offering the standard housing options for the market. Things turned out differently, though, as ZAO Strojindustrija is now implementing plans to manufacture new types of housing designed and drafted by leading architects commissioned to work for SU-155 as part of a special collaborative program."

Another highlight of the program is that none of the housing models require the facility to be extensively retooled. The precast concrete elements will be used in the Flight City project spawned by Spanish architect Ricardo Bofill. Located near Moscow, the complex will comprise ten unique eight-story buildings that offer a total of 145,000 square meters of living space.

PRECAST CONCRETE PLANTS



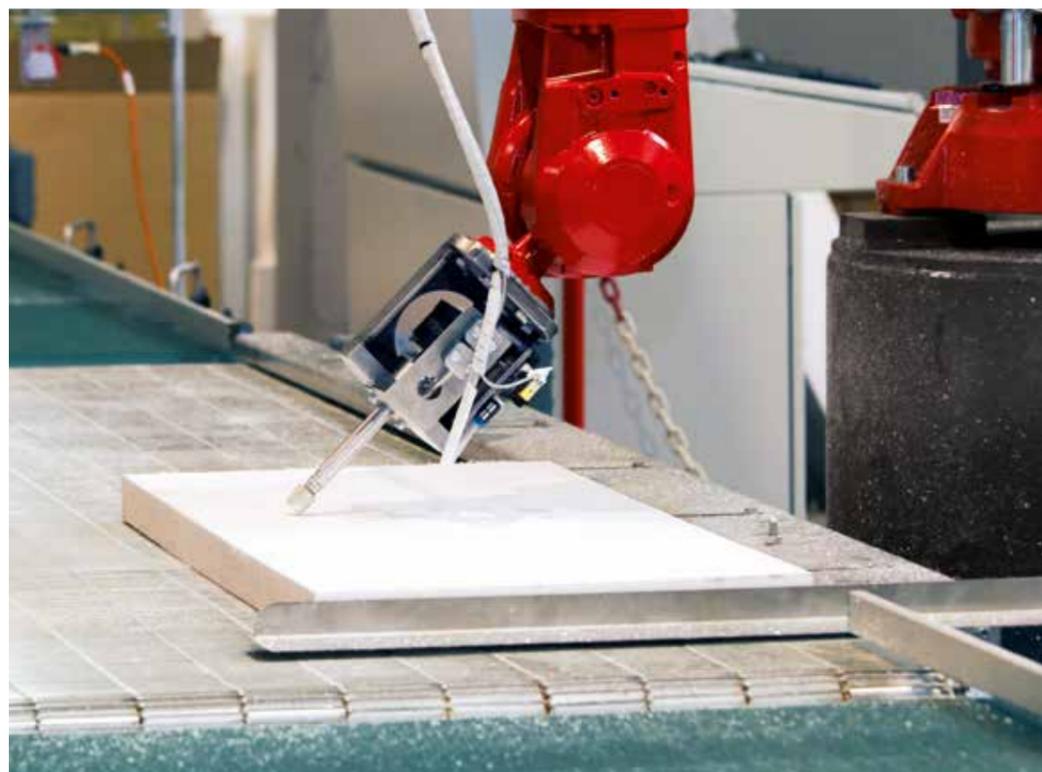
Cutting Insulation Material Fully Automatically Using 4,000 Bar of Pressure

The ISO-MATIC 2.0 work station produces core-insulated precast concrete elements at low cost.

Manufacturing precast concrete elements that are also energy efficient requires a host of new technologies to ensure that the precast parts are produced in high quantity and in high quality, even when streamlined processes and short timeframes are involved. Enter the ISO-MATIC 2.0, which prepares insulation material exactly as required and fully automatically for the production of sandwich walls and concrete parts with core insulation. The first-generation ISO-MATIC, which in 2012 received the INTERMAT Innovation Award in the category of construction machines and equipment, was revisited and improved to offer even more impressive performance.

A precision waterjet cutting head rated to 4,000 bar of pressure cuts the material in 2D or 3D form after reading out the cutting dimensions plotted in the CAD data supplied for the project. The cutting robot, which traverses up to 6 axes at speeds ranging from 175 to 360 degrees per second and has a positional repeatability of 0.05 to 0.06 mm, can cut a wide variety of insulating materials such as EPS, XPS, and mineral wool into chainering, oblique, and corrugated patterns or any other conceivable geometric shape. Additional drilling and milling tools are therefore no longer needed. "Pre-mapping the insulation panel thickness, various configuration programs, cutting patterns designed to minimize trim waste, and other basic parameters specified by the customer onto the insulating material also allows the machine to make the best, most efficient possible use of resources", explains Philippe Marrié, Senior Sales Manager at Vollert. What's more is the fact that the ISO-MATIC 2.0 can be easily integrated into existing circulation plants or stationary production lines.

PRECAST CONCRETE PLANTS





100-Ton Bridge Girders for Australia

Outfitted with a new bridge girder mould supplied by Nuspl, one of the biggest Australian construction group can now manufacture prestressed bridge girders weighing over 100 tons and measuring up to 48 meters in length and 2.25 meters in height. Twenty hydraulic cylinders move the laterally traversable lifting platforms to facilitate variable land widths of 1 to 1.5 meters. A flexible moulding system was also developed for the customer so that the predefined clamping axis could be used for different cross-sections and heights as well. To ensure that the bridge girder mould takes on the exact shape intended, an "on top" magnetic formwork system is employed. The reinforcing wire mesh is pretensioned fully automatically, while jogging motors compact the concrete. Following a battery of functional tests, the mould was safely stowed in 9 standard containers and shipped on a freighter from Europe to Australia. The Australian construction group is one of the leading manufacturers of precast concrete elements used in infrastructure projects throughout Australia, which include bridge and tunnel constructions, rail line installations, and solutions for the energy sector.

PRECAST CONCRETE PLANTS



Freight Wagons With a Sweet Tooth

The AGRANA Group of Austria relies on a diesel-electric DER 50 shunting robot from Vollert to efficiently load sugar beets. Designed to be extremely reliable, the robot ensures that all production processes flow smoothly, without interruption, during the harvesting season.

Leading up to the annual "sugar beet campaign" in the fall, sugar beets are trucked and railed by the ton to the production plants of AGRANA Zuckerrüben GmbH in Leopoldsdorf near Vienna every day. With a payroll of 8,800 employees and plants in 55 countries, the AGRANA Group is one of Europe's largest sugar producers and is the world's leading supplier of fruit preparations and fruit juice concentrates. To this end, the organization not only manufactures products for further industrial processing, but also markets its own line of goods for end consumers under the "Wiener Zucker" label.

Production Chain That Runs Like Clockwork

At harvest time, everything must go quickly, which is why sugar beets are unloaded, washed, and processed non-stop, 24 hours a day, when the season arrives. To ensure that the production chain keeps going irrespec-

tive of the product delivered by truck, a safety buffer has been built in whereby freight carriages also bring the sweet fruit to the facilities. Another benefit of the rail delivery schedule is that product can arrive in the night, when trucks are not allowed to be on the road due to noise control laws. Two tracks lead up to the drop-off point, where a water jet is then used to wash the beets out of the carriages – a challenge for the shunting system. Before the Vollert system was put into action, freight wagons were handled by a rope conveyor. Years of stress induced by the water, however, combined with the ever increasing number of carriages and payloads, eventually took their toll on the stationary system, which could no longer cope effectively.

Fully Automatic Shunting

The answer came in the form of a Vollert-designed shunting robot, which has been unloading sugar

beets since September 2014. The DER 50, as it is known, is the venerable classic among the many models available and has a rated tractive force of 50 kN and an operating weight of 35 tons. Equipped with an automatic shunting coupling, workers no longer have to be bothered with manually coupling and uncoupling the carriages in the drenched unloading area. The operator simply lets the robot perform all activities fully automatically or can assume manual operation via the remote control facility in the control cabin at the unloading station, where the water jet is also guided. Robust mechanicals allow the DER 50 to be operated in almost any weather imaginable, including high temperatures, low temperatures down to minus 60 °C, as well as snowy and icy conditions. The shunting robot is also used by the agricultural industry to load corn and bioethanol.

SHUNTINGSYSTEMS



Important dates:

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

BetonTage 2015

Neu-Ulm, Germany, February 24 – 26, 2015

UzBuild 2015

Taschkent, Uzbekistan, February 24 – 27, 2015

TMS 2015

Orlando, USA, March 15 – 19, 2015

INTERMAT 2015

Paris, France, April 20 – 25, 2015

Concrete Show 2015

Mexico City, Mexico, May 20 – 22, 2015

CTT 2015

Moscow, Russia, June 2 – 6, 2015

ALUMINIUM China 2015

Shanghai, China, July 8 – 10, 2015

KazBuild 2015

Almaty, Kazakhstan, October 2 – 5, 2015

Visit us on YouTube!



SMART SET² in Action

At the 2013 bauma trade show, Vollert presented its SMART SET² shuttering and demolding robot with an improved gripping system for the seamless placement of modern shuttering profiles, which are positioned directly and with pinpoint accuracy along a diagonal travel path in record time while maintaining the narrowest of tolerances. The Lindermayr Group wasted no time in securing the exhibition model for its precast plant in Derching. Since 1991, Lindermayr has been using a shuttering robot to manufacture floor slabs and double walls. This robot has since been replaced by the new SMART SET² unit, which both shutters and demolds product. Vollert also supplied a shuttering magazine with a shuttering cleaner and oiler as well as a new pallet cleaner. The majority of the circulating pallets already in use were carried over and now travel through the circulation plant together with five new shuttering pallets from Nuspl.

As a result of the high demand for its products, Lindermayr runs the production facility around the clock in three shifts, five days a week. Thanks to the new, upgraded configuration, the company has increased output by 10 percent.

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