KIROW CHRONICLE

KIROW / XL SAFETY – RAILWAY CRANES, TURNOUT RENEWAL EQUIPMENT – SLAG AND HOT METAL CARRIERS

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PREMIERE: NEW CRANE IMPROVES SWITCH RENEWALS IN FRANCE

Reliability along with improvements to the safety of the rail network take high priority in France. The French National Railway Company (SNCF) consequently tendered in several lots to replace and maintain its switches.

The rail company TSO won this tender and is now confronted with the challenge, amongst others, of raising the highly dense and very busy network in the Region Ile de France to the desired quality level.



↑ The Multi Tasker KRC 1200 manipulates a load while working under the catenary.

To overcome this demanding task, TSO purchased the Multi Tasker KRC 1200 railway crane.

The special feature here: The Kirow lifting equipment is the first in France to be solely suitable for this task. Its strength lies in the fact that the crane can travel along the track with a switch suspended on the hook and transport this switch to the installation site while bypassing the existing obstructions close to the track.

That makes this rail-based lifting equipment the only device that is needed for the replacement work. It can both remove the old switch and transport this close to the site for later disposal as well as handle the new switch so that it can be installed without having to interrupt the power supply in the overhead line. To make this possible, the crane is equipped with a beam specially developed by Kirow. Only in this way large switch sections can be lifted. At the same time, it has a system allowing it to level the load horizontally via radio remote control during lifting. This ensures that the process of connecting the straps doesn't have to be replaced in order to find the center of gravity.

But the special beam has yet another advantage: It can unload a switch directly from a switch car at ground level, without the workers having to climb onto the car to fasten the switch. This is a major advance for safety on the construction site. The combination "crane with switch car" not only saves a great deal of time when restricting the track, it also offers economic benefits. Because an assembly area for setting up the switch in the immediate vicinity of the construction points is now no longer necessary. At the same time, the quality and service life of the switch is increased. This can now be manufactured directly in the workshop. The stated objective of the French rail network to significantly boost the number of new points per year in comparison to conventional work methods can now be realised thanks to the Multi Tasker KRC 1200. With a maximum load capacity of 100 tonnes and a maximum range of 26 metres, it has all the credentials for this.



↑ The Multi Tasker KRC 1200 can work with its boom in horizontal position.



↑ The Multi Tasker KRC 1200 travels independently with the load attached to the hook.

QUALITY RESULTS IN ECONOMIC SUCCESS FOR THE CUSTOMER

Kirow has been building heavy-duty vehicles for industrial applications in steelworks throughout the world for over 20 years. A highly successful model in the portfolio is the slag transporter Slag Taurus, our company having built and supplied more than 200 of them.

Currently, all operators of slag transporters in Germany utilise our Slag Taurus exclusively. Our formula for success is based on maximum safety combined with the highest profitability for the operator.



↑ Slag pot carrier

Economic success for the customer: Does the customer save costs by choosing a high-quality product from Kirow?

Life cycle costs (LCC) are critical when it comes to the overall economic picture, as these are many times more than the procurement prices. The life cycle costs include costs for repairs, maintenance, tyres and fuel consumption. Set against this background, product quality is becoming increasingly important – as this is a crucial long-term factor for the economic success of the customer. An initial investment in quality is rapidly offset when life cycle costs are considered. As a high-quality German manufacturer, Kirow only uses hydraulic components from prominent German manufacturers, we also attach the highest value to quality, service and safety. The Slag Taurus is manufactured at our plant in Leipzig, allowing us to guarantee our assertion to produce quality right from the very start.

The LCC of the Slag Taurus are correspondingly low, as demonstrated by our market share in Germany.

How does the Slag Taurus differ technically from the competition?

The Slag Taurus has utilised a high degree of standardisation right from the first vehicle being produced. It is important to eliminate downtime for our customer whilst at the same time guaranteeing the highest safety standard. A durable and robust supporting structure design as well as maximum safety in daily operation are crucial. This package sets Kirow far apart from the competition.

The high degree of standardisation has the reassuring advantage that you have received a tried and tested extremely reliable vehicle. Premature and often very cost-intensive repairs are avoided thanks to the vehicle's sturdy design, as attested by the low operating costs of the Slag Taurus. Spare parts are available at short notice owing to the extensive warehoused stock at our Kirow facility. That means downtimes or even vehicle stoppages with high follow-up costs for the operator are effectively prevented.

Compared with our European competitors, the special articulated steering of the Slag Taurus typically saves our customers around \in 100,000.00 after 6 years of service at an average mileage.

A further \in 100,000.00 can be saved via the energyefficient drive concept after only two years: The drive of the Slag Taurus uses up to ten litres less per operating hour than older drives from traditional manufacturers. Extrapolated to a usage of ten years, this results in a saving of \in 500,000.00 in the fuel costs alone.

A similar situation applies to the choice and design of tyres, another high cost factor within the operating

costs. Only high-quality and durable tyres are used for the Slag Taurus and they remain well within their operating range when fully loaded.

The extra costs of the optional automatic pre-separator for the air filter in the diesel engine are amortised after just one year: Avoiding the need to clean the manual pre-separator saves about 3 minutes labour time and the associated downtime each day. The labour time saved within twelve months alone covers the extra costs for 300 service days at an hourly rate of \in 50.

What is the concept behind the success of the Slag Taurus?

The basis behind the Kirow concept lies in: Customer benefits and customer orientation!

An understanding of our customers' requirements today and tomorrow is essential for the product. This understanding is underscored by long-standing expertise across product lines within the company, outstanding after-sales service and customer-oriented further development.

When considering the overall costs in operation over several years, the Slag Taurus from Kirow is unique in the cost benefits it offers – thereby ensuring the best price/performance ratio. This is confirmed by the fact that many of our customers such as TKMSS, LogServ, Friedrich and numerous others have remained loyal to us over multiple generations of vehicle spanning decades.

INNOTRANS 2018 – KIROW EXHIBITING EQUIPMENT FOR TRACK CONSTRUCTION

The international trade fair for rail and transport technology, Inno Trans, is set to open its doors in Berlin from 18 to 21 September. Kirow will be represented in Hall 26, Stand 207 and at the outside track and display area again this year.



↑ New Switch Tilter for Vossloh

Thanks to support from our customer Vossloh, the switch wagon Switch Tilter will be presented at outdoor stand 4/110 – this vehicle is distinguished by speed, precision and outstanding work safety in track construction. It is the first switch transport wagon with TSI approval in which the load securing and unblocking is carried out from the ground, thus reducing the risk of accidents considerably. The platform – which must not be accessed for loading procedures – is also distinguished by its low platform height, enabling fast and safe work in the rail network in conjunction with the Kirow railway crane. Shifting the platform in the horizontal direction allows it to keep the neighbouring platform free, thereby ensuring smooth construction site logistics.

In line with its commitment to sustainability, Kirow will be exhibiting this year with the same shiny silver stand as 2016. The Kirow railway crane Multi Tasker and its method of working in track and bridge construction or accident service will be presented on the large LED wall as will the switch wagon and Tracklayer. The Tracklayer is an all-terrain specialist machine, that is ideally used for track construction on single-track sections.

This program will be rounded off by the Kirow Trade Fair Café, the raised area of the exhibition stand, where we shall be pleased to welcome you. You can find us here offering no end of advice on the topics of track construction and rail accident service. Culinary snacks will be provided by chef Tibor Herzigkeit and his team, accompanied by drinks and coffee specialities, prepared by a professional barista.

Tibor Herzigkeit will run the café in the new SPHERE building at the Kirow production facility in Leipzig this coming year. The SPHERE is a realisation of one of the last designs of the Brazilian architect Oscar Niemeyer.

We are looking forward to a successful trade fair and interesting and diverse conversation with you.



↑ Site plan InnoTrans 2018



EXTENDED PRODUCT SPECTRUM – KIROW USES AVAILABLE WORK PERFORMANCE BY COOPERATING WITH PARTNERS

Production planning is a central tool in project management if costs and capacity bottlenecks are to be minimised during manufacturing. This involves recognising under-utilisation at an early stage and offering free capacities in the market.

In the past few years, Kirow has succeeded in finding a partner in the market, who is able to use our surplus capacities, thereby helping us to boost utilisation of our production facility in Leipzig. At the same time, our partners can rely on professional and punctual project management.

In 2016, we submitted a tender to Vossloh High Speed Grinding GmbH (VHSG) for the assembly of the lead and system vehicle for the new HPM-1 milling train – and consequently won the order. Since then, we have been able to actively accompany the development of this prototype, providing both our expertise and infrastructure. This cooperation resulted in us undertaking production of an HSG-2 grinding train. Our Steel Construction needed to undertake new challenges here. In comparison with our heavy-duty crane steel structures, the frame for the HSG-2 has a filigree design, the required superelevation having to be realised in the steel structure. We were able to overcome this challenge with the right technology. The wagon is currently being assembled, a task we are undertaking jointly with our colleagues from VHSG. Our flexibility when collaborating with our partners is also apparent here. By deploying employees from our partners on-site in our company, we are able to utilise





↑ Pick up of grinding units

the expertise beyond the drawing stage, thus enabling everyone to achieve their targets faster.

This is the same procedure we applied for the conversion of 9 switch wagons from Vossloh Logistics GmbH.

After having successfully converted and tested the first wagon on our premises, we will now repeat the wagon conversion in a two-weekly pattern. Such a collaboration not only entails production work, the information exchange also provides important impetus for both partners. We are able to showcase our strengths in steel construction as well as assembly, hydraulics and electrical systems.

The infrastructure within the company with multigauge track, rotating platform and two track scales is ideal for services in the rail vehicle sector.

What's more, our partners are impressed by the central location of our site in Leipzig and Germany.

COMMITTED PARTNERSHIP – COOPERATION BETWEEN VOSSLOH AND KIROW

Vossloh High Speed Grinding (VHSG) is developing the innovative railing milling train HPM-1 together with Maschinenfabrik Liezen (MFL). The joint venture of Vossloh MFL Rail Milling (VMRM) was founded especially for this purpose. While our Austrian joint venture partner contributes milling technology and vehicle construction, the development work carried out by Vossloh is focused on the energy system, traction chain and vehicle control. Vossloh is also responsible for the commissioning of the vehicle systems and approval in line with \$32 EBO (Railway Construction and Operations Act). MFL, on the other hand, is responsible for commissioning the milling systems and attaining user approval by Deutsche Bahn AG.

The project spanning a period of several years is highly complex and characterised by the challenges of prototype construction. With the aim of designing the most powerful and advanced milling machines available on the market, Vossloh and MFL jointly undertook to find a suitable assembly partner, who can help them to realise their ambitious goals. In 2016, the connection Vossloh already had with Heiterblick in turn enabled contact to be established with Kirow. After only a few meetings with those responsible at Kirow and Heiterblick, it was clear that Kirow could provide the best expertise for a committed partnership. Kirow then received a corresponding order for assembly in the autumn of 2016.

Project Management of the milling train along with the Management of MFL and Vossloh soon recognised that railway crane construction at Kirow - just like their own project - offers individual solutions for multiple customers. Series production is the exception, bespoke solutions are the rule. Above all, the way everyone worked at Kirow was very impressive. At Kirow nobody follows straitjacket procedures based on rigid drawing specifications. Rather each employee is asked and willing to incorporate their own know-how and technical skills into their work. For Vossloh, it was astonishing to see how intensively the experience of employees found its way into detailed solutions, thereby allowing unwieldy specifications to be avoided. Pipework and cable routing plans were seldom required. Their staff are able to work according to circuit, hydraulic or pneumatic diagrams. The project team regard this as a valuable and unique selling proposition by Kirow in the market.

Besides the high level of expertise in production and assembly, the collaborative approach between Kirow and Vossloh is clearly apparent. Vossloh and MFL were treated as honoured guests from the very first day. The contacts in the departments involved and especially Work Preparation tasked with project management helped us with all topics that often had to be dealt with at short notice.

The Leipzig site with its central location is ideally suitable for rapidly bringing external project partners onboard, as and when needed. The infrastructure available on the actual premises is optimal for our needs.

Vossloh has already responded to its positive experience in the "Milling Train HPM-1" project by placing further orders at Kirow. Besides the new construction and conversion of turnout transporters, extensive parts of the high-speed grinding train HSG are now being manufactured and assembled at Kirow too.

We would like to thank everyone for their support and collaboration so far and are looking forward to a long-term professional and friendly partnership with Kirow.



EXTRAORDINARY CHALLENGES SURROUNDING FOUR CRANES ON BANGLADESH RAILWAYS

Different track gauges, low clearance profiles and minimum permissible axle loads accompanied by maximum possible load capacities – these are some of the requirements for the broad gauge and two-metre gauge cranes that the KIROW engineers are currently working on for Bangladesh Railways. KIROW is the sole provider in the market with the skills needed to realise these requirements. Receiving the order is a clear landmark within the continued partnership forged with Bangladesh Railways in 2010.

A brief look back: In 2010 Bangladesh Railways had begun renewing its fleet of cranes from the sixties, having opted for quality German workmanship paired with innovative KIROW technology. The new technology is designed to hugely boost the efficiency of Bangladesh Railways and is expected to operate reliably over a time period of 30 years. When choosing the products in 2010, the focus was therefore on modern technology and experience. The international references from numerous railway companies ultimately tipped the balance in favour of KIROW.

After receiving the first KIROW cranes, Bangladesh Railways itself was able to gain important experience with the new technology. The cranes with telescopic boom, superelevation compensation, flexible support and further advantages enable rescue actions that were totally impossible or only possible with great difficulty before - and needed much more time than now. As part of this learning process, the Indian service team from KIROW provided help and support for all problems, arriving on-site at short notice and communicating in the national Bengali language.



↑ Railway cranes for Bangladesh with two different track gauges

KIROW sole bidder in 2017 tender

The two cranes acquired in 2010 have surpassed all operational and reliability expectations and were crucial to Bangladesh Railways when considering the new tender in 2017. To our astonishment, there were no other bidders! There then entailed a precise and lengthy order award by the Asian Development Bank (ADB), which is financing the project with strict criteria for a fair tender. Renewed examination revealed that KIROW is the only provider in the market that has the expertise to fulfil the special requirements.

Challenge: High load capacities with low axle loads

As Bangladesh Railways operates two different track gauges, 1000 mm in the east and 1676 mm in the west, two cranes each were ordered for the narrow gauge and wide gauge tracks. The unique challenge now involves the low clearance profiles and low permissible axle loads with as high a load capacity as possible. The axle loads are limited to 11.5 tonnes on the narrow gauge, while the maximum overall height is extremely low at 3.76 metres. Nevertheless, a load torque of 800 m/t is achieved here - the maximum load capacity being 80 tonnes. On the broad gauge the maximum axle load is 18 tonnes and the overall height is 4.12 metres. A load torgue of 1500 m/t and 120 tonnes load capacity is attained.

For comparison: In other railways, axle loads of 20 tonnes and more are permitted and the permissible overall height is up to 5 metres. 14



↑ Multi Tasker KRC 910 MGW on the way to the test field

The unique challenge associated with this project involves working with special materials and components, the long-standing experience and ability of the Kirow engineers enables Kirow to fulfil the required maximum values or achieve values below these limits.

The cranes will be accepted by the customer and readied for shipping after testing in the autumn of 2018. The commissioning and handover on-site are then set for the first half of 2019.

REINFORCING TRUST: MGW ORDERS ANOTHER MULTI TASKER

Two Multi Tasker 810 made by Kirow have been in service at MGW for many years. The track construction company uses the two cranes to carry out both switch renewals as well as infrastructure work – such as erecting noise barriers and rail platforms. Again, MGW has signalled its trust in the crane experts at Kirow by placing a new order for a Multi Tasker 910. This will allow MGW to extend its capacities in track construction.

Above all, the transport position of the new crane is a major advantage. Thanks to the crane support on the boom and counter-load telescope, its dead weight is distributed onto the adjoining barrier wagons. This means the crane can attain significantly lower axle loads, allowing it to travel freely both in Germany and neighbouring countries by fulfilling the requirements for track class CE. Another unique feature: The Multi Tasker 910 has higher load capacities than its counterpart the Multi Tasker 810, even though it has a longer outreach.

The crane is currently in production. It is set to be delivered in October 2018 and will initially enter service in Germany based on EBA certification. Applications in neighbouring countries are also envisaged in the future.

NEW RAILWAY CRANE FOR SWISS FEDERAL RAILWAYS

The Swiss Federal Railways (SBB) has been using Kirow railway cranes for maintenance and conversion work on the switches in its rail network for over 20 years. To replace its long-serving cranes, the SBB decided to procure new equipment in December 2017.

The choice went to the Multi Tasker 1100, a railway crane that has already seen multiple service in Switzerland in this design.

The high load capacities of maximum 125 tonnes with excellent manoeuvrability at the same time were the deciding factors. Thanks to its special, angled counterweight form, the crane can rotate up to 16°, while allowing train traffic to pass on the neighbouring track at the same time. These features make the Multi Tasker 1100 ideal for use when installing temporary bridges.

By depositing its counterweight on an adjoining barrier wagon in the transport position, the crane can attain the required axle loads to be able to travel freely on the entire normal gauge network of the SBB.

The crane is currently in production at Kirow and is expected to be in service on the SBB network from April 2019 onwards.

TURKISH RAIL COMPANY TCDD BUYS TWO MORE MULTI TASKERS

Two plus two plus two – After 2008 and 2015, the Turkish rail company has again signed a contract with Kirow in 2018 to supply two railway cranes, underscoring continued trust in Kirow. The fleet in the state railway company of Turkey "Türkiye Cumhuriyeti Devlet Demiryolları" (TCDD) is thus set to grow to six Kirow cranes from the second quarter of 2019.

In choosing the Multi Tasker KRC 1000, the customer reiterated the suitability of such a flexible yet strong crane. With a maximum load capacity of 150 tonnes at eight meters radius, it belongs among the big players. For deployment to accidents, the high load capacity and rapid operational readiness are crucial criteria for the KRC 1000. That means the KRC 1000 does not separate its counterweight even in the train unit and is therefore ready for service at the accident site within



↑ Multi Tasker KRC 1000 for Turkey with test load

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the shortest time. The conical form of the ballast weight also enables it to limit the lateral outreach to two metres from the track centre even at angles of rotation up to 30°. The rear infrastructure and/or travel on the neighbouring track is therefore not affected.

TRACKLAYER AND TROLLEYS FOR SWITCH CONSTRUCTION IN BELGIUM

A new era is dawning in Belgium! Since 2017, only switches with concrete sleepers have been installed on the track network of Infrabel. To be able to handle these considerably heavier switches, track construction company Coghe Werbrouck – which had predominantly worked with twoway excavators in the past – decided to invest in a new machine for switch installation. The decision went in favour of the Kirow Tracklayer.

Besides the Tracklayer's load capacity of 36 tonnes for switch parts of up to 36 metres in length, a crucial deciding factor for Coghe was that the machine could be primarily transported by road.

The Tracklayer with its telescoping supporting and caterpillar legs operated via radio remote control is the perfect candidate for this. By telescoping its supporting legs out vertically and horizontally, it provides enough free space so that a lowloader can drive under the machine. The supporting legs are then telescoped inwards again. This allows the Tracklayer to be loaded and unloaded independently on the lowloader.

As the installation site is often several kilometres from where the switches are picked up in Belgium, KIROW also designed two self-driven trolleys with 50 tonnes load capacity each. With the help of the trolleys, both the Tracklayer as well as the switch parts can also be transported over longer sections on the track without any problem. Likewise, obstacles in the infrastructure no longer pose any challenge.

The Tracklayer was supplied together with the trolleys at the end of 2017 and has installed more than 30 switches successfully since then.





↑ Slag Taurus P 90 for Algeria

FRENCH RAIL OPERATOR INVESTS IN MULTI TASKER 100

A narrow window of time for a complex rail network: For repair and maintenance of the approximately 2000 rail switches around Paris Saint-Lazare rail station, the French National Railway Company (SNCF) utilises the Kirow railway crane Multi Tasker KRC 100.

The reason for this decision is logical as only very short restricted periods are allowed for track construction and switch conversion, in which the overhead lines and neighbouring tracks are ideally be kept in operation. It is necessary to replace switch parts almost every night.

The Multi Tasker KRC 100 railway crane allows this to be done, while speeding up the previous threestage workflow significantly.

Although trolleys and excavators were once used to unload, replace and transport away the switches, the Kirow crane now handles all of these steps during ongoing rail operation and saves valuable time in the repair and maintenance of this important infrastructure. The crane also provides increased personal protection surpassing that of conventional methods.

KIROW SUPPLIES FOUR SLAG TRANSPORTERS FOR NEW STEELWORKS IN ALGERIA

A new steelworks will commence operations in the Algerian town of El Milia at the end of 2018. After discussions with the operator Kirow is supplying four Slag Taurus P 90 as these were considered the best choice for their slag transportation. The new steelworks are located in the "Bellara Steel Complex" in El Milia, about 400 kilometres east of the capital Algiers, and is being built by SPA Algerian Qatari Steel, a privately run company with participation by the countries of Algeria and Qatar. SPA Algerian Qatari Steel had invested a great deal of time into finding the best solution, ultimately opting for the Slag Taurus made by Kirow. Crucial factors in the decision process were high productivity and safety, better overall concept and an existing good working relationship at Qatar Steel, allowing Kirow to win out against the competition.

The Kirow Slag Taurus P 90 is ideally suitable for the demanding tasks on site. The slag transporters are equipped with powerful industrial engines with an output of 261 KW (350 HP). The payload of up to 100 tonnes yields a total pull weight of over 185 tonnes together with the dead weight. The four Kirow vehicles are currently on their way to Algeria, so the steelworks can commence operation at the end of 2018.



↑ Slag Taurus P 90 for Bulgaria

LEADING STEEL PRODUCER OPTS FOR KIROW IN FULL

One of the leading steel producers in Europe, voestalpine GmbH in Linz, is changing over its operations root and branch to Kirow slag transporters. The company already had three Kirow Slag Taurus P 60 slag transporters in use within its fleet for the past few years and is now extending the fleet from three vehicles to five.

The inventory of other vehicle makes will now be phased out, with operations now realised only using Kirow slag transporters. The very good experience and excellent performance of the Kirow vehicle impressed voestalpine GmbH along with the high safety standards and very low operating costs.

Kirow has also been listed as an Asupplier to the company for several years. The SLAG TAURUS P 60 vehicles are used with a dead weight and payload of approx. 60 tonnes each. The motorisation comprises of a sturdy industrial engine with an output of 224 KW (300 HP). The diesel engine fulfils level 4 emissions requirements and is correspondingly certified. The integrated diesel particle filter reduces soot particles. The thermal and chemical exhaust aftertreatment is realised by injecting urea.

TAILORED SLAG TRANSPORTERS FOR MORE EFFICIENT COPPER PRODUCTION AT AURUBIS

Kirow has developed the slag transporter Slag Taurus P 90 in a very flexible version specially for Aurubis Bulgaria, a subsidiary of Aurubis Hamburg. It is used in the copper smelter of Aurubis Bulgaria, which has been producing copper cathodes from copper concentrate and recycling materials since 1958. The method of crystallising the resultant copper slag during the production of copper is closely related to the recycling concept. In contrast to previous slag handling with liquid overturning, the slag in the slag pots cools down over a longer period during crystallisation. As a consequence, a greater proportion of crude copper can be recovered from the resultant converter and furnace slag, thus amortising the investments made in a relatively short time. AURUBIS Bulgaria requires a larger number of slag pots and ordered two slag transporters P 90 from Kirow for slag handling.

The challenge in this project was to devise a tailored overall solution for the customer, which we succeeded in doing by working very closely with the various pot and transfer carriage manufacturers. This was necessary because - besides the permanent slag pot handling in the cooling zone and in the associated depot - the slag pots also have to be handled by the transfer carriages at the rail connection. Thanks to the powerful industrial engine with an output of 261 KW (350 HP), the slag transporters can attain a payload of around 90 tonnes. Together with the dead weight, this yields a total pull weight of approximately 172 tonnes. The vehicles are currently in production and will be supplied in the autumn of 2018.

THYSSENKRUPP OPTS FOR LONG-TERM COOPERATION WITH KIROW

ThyssenKrupp orders third delivery in 15 years and confirms: Longstanding business relationships are the rule at Kirow. That applies to customers and suppliers alike. In this way, mutually acquired knowledge is applied with the aim of benefiting everyone involved while optimising products and processes. The concept has proven so effective that Kirow has been chosen to supply slag transporters for a third time. The latest order comprises a slag transporter Slag Taurus P 80 for our customer Thyssenkrupp MillServices & Systems GmbH (TKMSS). The vehicle will be transported to Hüttenwerke Krupp Mannesmann (HKM) in Duisburg during the second half of 2018, where five Kirow slag transporters are already in use.

The Slag Taurus P 80 works with a total pull weight of 150 tonnes and a dead weight of about 75 tonnes, its high working speed an impressive feature. The engineers at Kirow came up with a special design of tilting device, which enables the operator to make rapid and efficient work cycles. As a result, the new vehicles are normally used directly for regular operation. The old vehicles with many operating hours of service behind them will serve as standby or substitute vehicles. In the event of bottlenecks - typically due to maintenance or repair work on application vehicles - the standby vehicles will then be utilised. This ensures continuous operations in the steelworks, while minimising expensive interruptions and avoiding additional costs.



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SHIPBUILDING AT THE HIGHEST LEVEL WITH KIROW TRANSPORTERS

For the demanding job of transporting shipbuilding modules, the MV-Werft in Stralsund has opted for another Kirow Multi Mover S 380 H. To enable 184-metre-long luxury cruise ships to be built, it is necessary to extend and expand transport logistics. The Endeavour class ships being built in Stralsund are designed to be able to break ice up to one metre thick, making them the perfect choice for polar expeditions in luxury and style, amongst other cruises.

The Kirow Multi Mover S 380 H is ideally suitable for work on the yard grounds. Despite its comparatively compact dimensions, it provides maximum performance and manoeuvrability in the tightest space. The electronic steering and coupling options for multiple vehicles make the Kirow Multi Mover S the ideal solution for transporting and accurately positioning very large sections. Complicated manoeuvres can be performed easily thanks to user-friendly operation via radio remote control.

With dimensions of approx. 18 x 6 metres, the transporter has a dead weight of around 74 tonnes and a maximum payload of 380 tonnes. The machine is powered by a Deutz 6-cylinder diesel engine with an output of 370 HP. Equipped with the latest exhaust aftertreatment of level 4, it fulfils all emissions requirements.

The Kirow Multi Mover S is used in the former Volkswerft in Stralsund. After a lively past, this traditional shipyard now belongs to the MV-Werften Group together with further sites in Wismar and Rostock. It has been owned by the Malaysian-Chinese shipping company Genting based in Hong Kong since March 2016.



SHELL CONSTRUCTION COMPLETED – FUTURISTIC NIEMEYER STRUCTURE IN LEIPZIG SHAPING UP UNIQUELY

We follow Harald Kern as he once again effortlessly and freely, climbs the ladder rungs up to the construction site, avoiding cables and building equipment in his path. Having reached the plateau on which up to 60 people will enjoy a unique dining experience overlooking the rooftops of Leipzig, the 48-year old architect's eyes begin to sparkle. "I've never worked on a building of this kind before", he muses. "The project is incomparable and a tremendous honour for me. I've always been a huge fan of Niemeyer, and it's a real of stroke of luck that I'm now part of such an architectural gem."



↑ The asymmetric tower building in shell construction. Waiting for the facade...

A similar appraisal comes from the entire architectural community for the bold construction project, which has been brought to life in the Plagwitz area of Leipzig since April 2017:

Following a design by the Brazilian star architect Oscar Niemeyer, a futuristic reinforced concrete sphere with a diameter of twelve metres is to rise above the grounds of the Leipzig KIROW factory after a twoyear construction period. In the middle of 2019, the publicly accessible architectural gem going by the name of SPHERE will house a restaurant and bar on two floors – thereby bringing a hint of Brazilian modernity to the creative quarter in the west of Leipzig.

Harald Kern himself, as architect in charge, is responsible for the construction of this stunning architectural landmark. At his side, is the man who knew the visionary Niemeyer (who sadly passed away in 2012) like hardly anyone else: Jair Rojas Valera, the architect's closest confidant during his lifetime and his assistant for decade. "He's the only person who can really grasp and convey the lines and shapes, the room proportions, the materials", is how Kern describes the cooperation with his Brazilian colleague. "I'm very happy about the collaboration, which has also become a friendship and partnership. We'd never have been able to realise this without him. We'd have needed to interpret to a massive extent, but I don't think we'd have done full justice to Niemeyer's vision", declares the Allgäu native, who has been living in Leipzig for over 20 years.

One year after the cornerstone was laid, the sphere has already taken shape – major concreting work as well as construction of the upper and lower hemispheres and the "equator" are completed. "Two thirds of the effort is already done", states Kern. "The building shell is more or less ready. We've overcome all the hurdles associated with a structure of this quality and nature superbly."

This will be followed by retouching work on the white concrete and later the interior design of the two floors. "A sphere would normally be relatively easy to realise, but this sphere lives and breathes through its large window sections. You also have to bear in mind that we've built the sphere in two concreting sections", is how Kern describes the unique challenges. "We had no other choice technically. The sphere itself only assumes its supporting function once the shells are combined and the upper shell has gained its full load bearing capacity."

The glazing represents another unique attribute of the futuresque architectural showcase. This will comprise switchable liquid crystal window modules that can put a stop to the glaring sun in one simple click. A technology that more than justifies Niemeyer's poetic imagination – kind of like a traversable eye. "The next step is to close the sphere with a steel-glass dome. The system will be self-shading", declares Kern. "That means there's no need for sunglasses, even in the most glaring sunlight. The glazing will be very special."

It is thanks to the boss of the Kirow plants, Ludwig Koehne, that probably one of the last designs by Niemeyer has become reality in Leipzig. The owner of the plant for railway cranes and slag transporters wrote a letter to the architect in 2011, asking him to design a restaurant that is to be built on the grounds of his company. Niemeyer invited Koehne to Brazil, where he drew designs from various perspectives with a felt pen. "The finished building will not only be a landmark for Kirow but also for the city of Leipzig", believes Kern, who studied architecture in Augsburg, Sydney and Leipzig.

He himself went to Brazil on two separate occasions to assist in preparation of this prestige project, this giving him the perfect opportunity to see many of the famous Niemeyer structures all over the country while working with Jair Valera in Rio de Janeiro. This was followed by return visits, with Niemeyer's righthand man travelling to the trade fair city three times to supervise the work, "including when the concreting work on the sphere was half finished", states Kern, who has also received numerous interested enquiries from the construction sector during the course of this project. Kern admits that he is excited at the prospect of being able to make use of the finished masterpiece in the years ahead. "I'm really going to enjoy my first red wine looking out at the view from this unique room." His words are accompanied by a smile whilst he reflects, a contented sparkle returning to his eyes. Almost as radiant as the future glass facade of the SPHERE, once the structure is completed in 2019.



↑ The curved stairs from the bar to the restaurant level





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