

SLAG TAURUS P 40 – 140 U 40 – 160

SLAG POT CARRIER





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The Slag Taurus: safety and efficiency for the slag industry

THE SLAG TAURUS: THE SAFE TRANSPORTER.

THE PERFECT SYSTEM
FOR THE SLAG INDUSTRY.

The slag industry plays a considerable role in the system of steel production. In global steel work operations, millions of tonnes of slag are created by converters, electric furnaces and different types of residual slag. The great challenge is to transport this slag safely, quickly and efficiently. This slag must be transported to the slag processing area without affecting operations in the steel works.

The different operating conditions around the world – such as limitations in height and width, space-restricted pick-up situations, slag pots not standardised, etc. – require individual, economic product solutions in the project phase already.

Transporters are needed that can be adapted perfectly to the conditions prevailing in the area of slag transportation, which are tough on men and machines, such as temperatures up to 1,600° C, high payloads, three-shift operation and restrictions on the routes to be travelled.

→ INFO

What constitutes the best slag pot carrier?

What does it depend on in particular?

→ In essence on:

- safe working procedures
- high working productivity

→ In detail on:

- exact knowledge of the conditions on site
- flexible concepts for realisation of the customer's requirements
- robust and conservative design of the whole vehicle
- a maximum of operational reliability and user friendliness
- maximum availability, low repair and maintenance costs
- first-class after-sales service and fast supply of spare parts

We developed the Slag Taurus exactly for these requirements.



Typical dumping situation at the slag yard

MODERN GERMAN ENGINEERING ART: OUR ENGINEERS BUILD YOUR **SLAG TAURUS**.

PREMIUM CONSULTING

Our experience results from hundreds of slag pot carrier projects we have worked on over the past decade. Therefore we know: In order to assure competent first-class project handling, the specific requirements of the customer and the details of the infrastructure on site must be checked in advance.

Based on this information, our experienced sales experts and design engineers can advise you in all details – and then develop your specific Slag Taurus system. A system which on the one hand meets the highest requirements of reliability and operational safety, due to standardised components designed for use in steel works; and, on the other hand, taking your special operational requirements exactly into account.

We are familiar with requirements regarding extreme flexibility of application, multitasking, faster cycle times and faster or special additional equipment. As a result, operating simulations and cycle time calculations are also part of our premium consultation concept, as well as proposals for slag dumping stations.

Your optimal system solution – your specific Slag Taurus – results from our extensive product and operating knowledge in close cooperation with you.



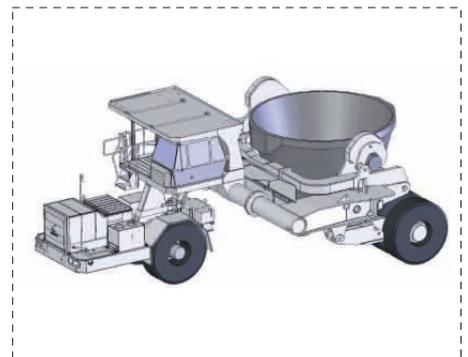
↑ Slag Taurus platform design

SLAG TAURUS P OR U?

The Slag Taurus is always a tailor-made system for your special job site applications. The decision whether P for platform or U for U-frame depends on the infrastructure of the respective job site. Road layouts, cycle time requirements, height restrictions under the furnace, the design of the dumping station or the slag pot – all this influences the decision whether the P version or the U version is the optimal design for you. We have developed a modular system for both types of carriers and have already realised innovative ideas for the customisation of the Slag Taurus worldwide for many customers.

THE SLAG TAURUS P

The Slag Taurus platform type is at home where roads are narrow. The low



↑ Slag Taurus U-frame design

overall width enables the Slag Taurus P to replace existing railway transportation and to be adapted to existing transfer cars and other pick-up situations. If it is provided with an additional dumping device, its dumping angle increases to up to 180 degrees, thus ensuring in general the complete emptying of the slag pot without problems.

THE SLAG TAURUS U

The Slag Taurus U-frame type is at home where roads are wide and pick-up heights are restricted or low. The characteristic U-frame form offers optimal visibility and assures fast cycle times due to short hydraulic lifts. The dumping angle of the Slag Taurus is up to 130 degrees. The complete emptying is ensured by means of a hydraulic knocking device.



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Slag Taurus P with conventional tipping system

THE TIPPING SYSTEM: AN EXAMPLE OF INDIVIDUAL SOLUTIONS

Only Kirow offers you the possibility to choose from the complete range between full flexibility of various pick-up and dumping positions and fast cycle times. Thanks to our tailor-made dumping systems:

CONVENTIONAL DUMPING SYSTEM: FOR OPTIMAL FLEXIBILITY

The conventional dumping system consists of the main dumping arms and an additional dumping system actuated by means of hydraulic cylinders. The operation of main and additional dumping device can always be adapted through re-positioning of sensors and re-programming of the system. Later

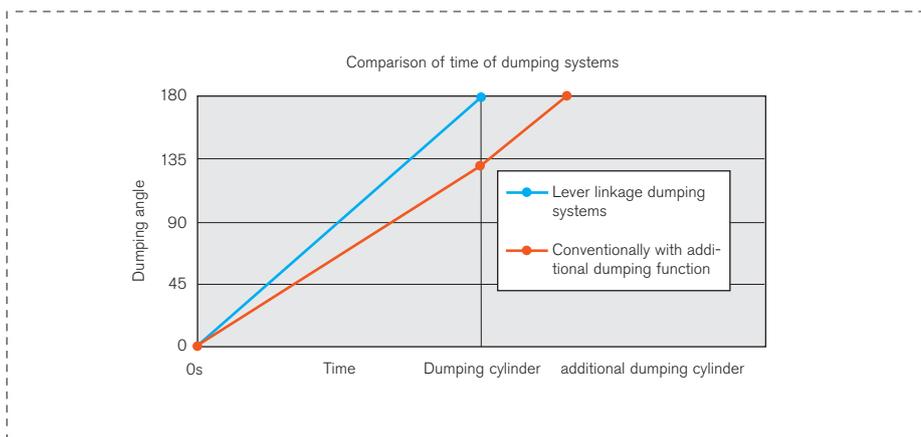
modifications due to changes in infrastructure are possible with very little or zero modification expenses. No matter whether a new transfer car is to be used, additional pick-up positions are to be approached or whether the dumping operation is to be modified – this dumping system offers optimal flexibility on the site.

LEVER LINKAGE DUMPING SYSTEM FOR SHORTER CYCLE TIMES

The lever linkage dumping system offers easiest and fastest operation: the additional dumping angle of up to 180 degrees is achieved by a mechanical connection of the main dumping arm and the additional dumping system. Thanks to an advantageous lever

system the diameter of the main dumping cylinders can be kept low, thus offering additional speed advantages. Due to the mechanical linkage the dumping of a slag pot is a much simpler operation.

In regards to dumping systems, standard solutions or pure cost orientation are not always the decisive factor. Special conditions on site should always be taken into consideration. The Slag Taurus offers the optimal solution for every special dumping requirement – whether maximum flexibility for different pick-up and dump positions is required, or slag pots with a low centre of gravity are used, or whether fast cycle times or simple operation are especially called for.



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Time comparison of both dumping systems (for a dumping angle of 180 degrees)



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Slag Taurus P with lever linkage dumping system



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The safe Slag Taurus: on the way to the slag yard

THERE ARE MANY REASONS IN FAVOUR OF **SLAG TAURUS**: ABSOLUTE SAFETY.

THE TECHNICAL HIGHLIGHTS.

KISS – KIROW INTEGRATED SAFETY SYSTEM

An integral part of each Slag Taurus is the patented KISS – Kirow Integrated Safety System. KISS means: all carrier functions are monitored by a highly reliable industrial PLC system, thus increasing operational safety and preventing possible malfunctions and damages effectively.

For example, KISS prevents the locking device being actuated in areas where it is not permitted or that pots which are too heavy are picked up. This is very important, because such operating errors can cause severe accidents.

Our customers use the active load indicator in the cabin for their analyses. The driver is informed about the real load transported when picking up the pot or gets a warning signal or locking is effected as soon as the critical weight is reached.

It goes without saying that we will specify the control concept together with you, exactly in accordance with your requirements. Because it is modular, the software can be adapted to any specific operation. Later modifications are also easily possible with little expense.



↑ KISS display with information for the operator

THE PATENTED SUPPORT SYSTEM

The Slag Taurus P's patented support system is a major factor contributing to its operational safety. In all situations – in particular at the dumping station – the internal hydraulic support cylinder is fully protected against heat and slag splashes. This effectively prevents damage and failures.



↑ Integrated support with protected support cylinder

As integral parts of the frame, the telescopic supports are extremely robustly built. The bearing load is transmitted from the extended support leg into the vehicle frame via large-sized sliding plates.

At all times the driver receives information in the cabin regarding the status of the support, whether extended or retracted. Moreover, the Slag Taurus is equipped with an active escape function, assuring the possibility to drive in cases of emergency. This means that the first gear of the drive train is always active, thus allowing the driver to get out of harm's way, even with outriggers extended.

THE FULLY HYDRAULIC BRAKES

The Slag Taurus is equipped with an unrivalled safe brake. It is superior to all conventional compressed air brake systems in every regard.

Three separate and completely hydraulically operated brake circuits assure minimal risks of failure and highest safety in operation.

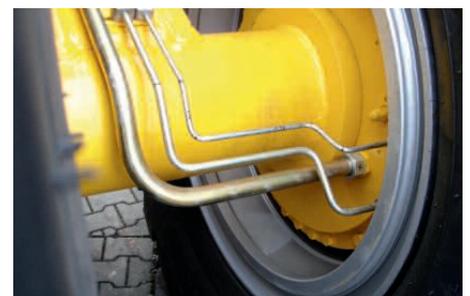
Front and rear axle(s) are split in two separate brake circuits. The third brake circuit is provided for the spring actuated parking brake. Hydro-pneumatic accumulators supply sufficient brake pressure.

The cooling of the brake is also effected hydraulically via an external oil cooling circuit. The brake discs are in a fully enclosed housing in oil and can therefore withstand even extreme contamination.

Due to this almost wear-free brake technology, the maintenance and repair costs are considerably reduced compared with drum or disc brakes.



↑ Hydro-pneumatic accumulator for brake system

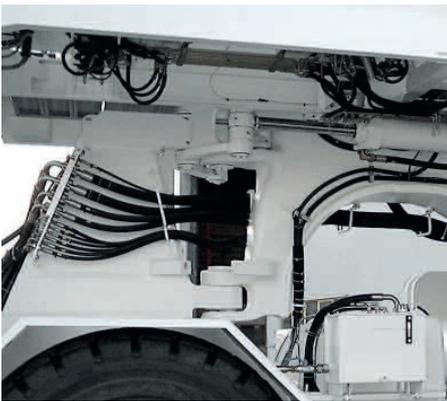


↑ Wet multi-disc brake in enclosed design

THERE ARE MANY REASONS IN FAVOUR OF **SLAG TAURUS**: MAXIMUM RELIABILITY.

THE SLAG TAURUS ARTICULATED STEERING

The articulated steering is one of the most important components of a slag pot carrier. In case of the Slag Taurus, it is a perfect piece of High Tech.



↑ The Articulated Hitch Connection

Steering angles up to +/- 90 degrees assure excellent maneuverability. The oscillation angle of +/- 10 degrees assures the optimal ground contact of the front axle and prevents overloading, even in uneven terrain.

All bearings are in failproof pin and bushing design. Wear on the bearing elements cannot cause a standstill of the vehicle as can occur with spherical bearings or slewing rings. Repair work can be effected on schedule and, above all, quickly.

The extremely robust design of the steel structure and the use of original CAT components means: unique reliability and worldwide availability of spare parts.

Another important aspect for the reliability of the Slag Taurus: the optimised and

permanent installation of the hoses. This reduces downtimes, maintenance and repair costs to a minimum.

THE PRIME MOVERS – PROVEN AND TESTED FOR MANY YEARS

The drive system of the Slag Taurus is designed especially for the hard three-shift operation in steel mills. Components perfectly tuned to one another assure a high degree of efficiency and low operating costs. In the design and layout utmost attention has been paid to easy repair and access of all components.

The prime mover is the power centre of the Slag Taurus. The hydromechanical drive of the Slag Taurus contains only high-quality components from well-known manufacturers, such as Caterpillar, Cummins, Dana, Kessler and many more, which ensure excellent availability of spare parts.

The extremely durable frame is the perfect base for all attachments, such as movable counterweights, the rubber-cushioned high-quality steel hydraulic tank and the hydraulically locking engine hood. With this drive system, the Slag Taurus sets technical engineering standards.

THE FIRST CLASS COMPONENTS

Because the material of the Slag Taurus is subjected daily to maximum demands, we exclusively install premium components from well-known manufacturers. Consequent standardisation assures consistently high quality and the stocking of components. This specifically means for you as an operator: an excellent price-performance ratio, worldwide availability of spare parts, the reliability of a total system proven by many applications, i.e.: high availability and low operational costs of the Slag Taurus.



↑ The power centre of the Slag Taurus: the prime mover



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The reliable Slag Taurus: start of the dumping procedure

THERE ARE MANY REASONS IN FAVOUR OF **SLAG TAURUS**: EXCELLENT ERGONOMICS.



↑ Optimal arrangement of driver's cabin: independent of steering movements

THE ARRANGEMENT OF THE CABIN

The driver's cabin is located high and safely below the protective roof in a fixed position on the trailing unit. For the driver this means he always has an optimal overview of his working area, as he is always sitting in the same fixed position regardless of the steering angle of the tractor unit. This is a considerable advantage, in particular when reversing and picking up the slag pot. When driving forwards, drivers find this arrangement very comfortable because lateral accelerations caused by steering movements hardly occur and are barely noticeable.



↑ Ergonomic cockpit

THE DRIVER'S CABIN

The dashboards and operating elements are arranged strictly in accordance with ergonomic principles. The driver's cabin of the SLAG Taurus is equipped with one

control stand in the front and one in the rear. The most important components, such as steering wheel and brake, are available in duplicate for driving forwards and backwards, which ensures optimal operation of the carrier. In addition, an effective soundproofing, the air-suspended driver's seat, the diesel fresh-air heating system and the (optional) air conditioning system assure optimal comfort. The KISS clear text display constantly keeps the driver informed of the current vehicle status and possible faults. A troubleshooting menu is always available for quick and simple detection of faults.

SAFE & COMFORTABLE MOUNTING LADDERS

Ergonomic, safe and comfortable mounting ladders to the cab and the cabin platform are self evident on the SLAG Taurus. High railings, footrests, handholds, guardrails as well as optimal illumination of the work area protect drivers and always permit comfortable, safe access to the working area.



↑ Ergonomic ascents

In cases of emergency, fire extinguishers are available at the top of the cabin and below (reachable from ground). Optionally, fire extinguishing systems can be integrated.

THE CABIN'S PROTECTIVE ROOF

An essential component of the Slag Taurus is a stable protection canopy arranged over a large area above the cabin and the cabin platform. Characteristic features are the large-sized observation windows – offering optimal rear view and optimal protection at the same time. Optionally the movable slats can be adjusted electrically and closed completely.



↑ Large-sized observation window at cab protection canopy

THE PROTECTIVE COVERS

On both the Slag Taurus P and the Slag Taurus U the entire trailing unit is fitted with extensive protective covers. This ensures the components are effectively protected against slag splashes and heat radiation. Further optional equipment is available, such as chain guards for the rear axle.



↑ Extensive protective covers on Slag Taurus U



↑ Large-sized engine hood: optimal access for maintenance

THE HYDRAULIC ENGINE HOOD

Open access to the drive components is important in order to be able to carry out maintenance and repair work on the cooling unit, diesel engine, gearbox and hydraulic pumps without problems. To facilitate this, the hydraulically operated engine hood of the Slag Taurus can be quickly and effortlessly opened up to 80 degrees. Incidentally, the engine hood is fitted with soundproofing material on the inside, thus considerably reducing noise already.

THE OPTIONAL EQUIPMENT

We have a years of experience with customer-specific requirements of the Slag Taurus – and with different circumstances under which it works. Based on this experience, we can offer a variety of reasonable and proven equipment options. For example: chain guards, preparation for refractory material, vertical exhaust pipes.



↑ Option: preparation for refractory material. In order to increase the safety in case of slag splashes, the platform of the trailing unit can be prepared for lining with fireproof concrete.



↑ Extensive protective covers on Slag Taurus P



↑ Option vertical exhaust pipe: for indoor operation



↑ Option: chain guards for rear axle as protection against slag splashes and heat radiation



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Technical Development Center

WHY KIROW?

WORLD MARKET LEADER FOR SLAG POT CARRIERS.

→ KNOW-HOW

Kirow is the world market leader for railway cranes, having supplied more than 5,000 units. Since the mid Nineties we have also been building industrial transporters for shipyards and steel works. Consequently we have meanwhile established ourselves as a specialist for heavy-duty transporters and as the market leader for slag pot carriers. Our products are based on great experience and a high degree of innovation. Nearly 130 years of engineering design history, but also the awarding of the Innovation Prize of the State of Saxony are testament to this. Our engineers uncompromisingly apply the proven rules of German engineering to the ongoing further development and design of all products. The goal is always the same: to increase the efficiency, safety and environmental friendliness of the equipment. The different Slag Taurus models are perfectly coordinated to each other. They have been developed in close cooperation with our customers and are based on our well-proven modular kit of components and groups of components. It goes without saying that we adapt our equipment to special requirements: whether to optimally integrate them into the infrastructure on location or to realise individual requests for optional equipment.

→ QUALITY

To us quality means: a sophisticated product concept, substantiated know-how in the fields of design engineering and control as well as the highest

degree of precision with regard to fabrication and execution. It is understood that our engineers test and check all mechanical, hydraulic and electrical groups of components meticulously on the company-owned test field.

All this provides decisive advantages:

- maximum capability and reliability of the vehicles
- low cost of operation
- long service life (even under the toughest operating conditions).

→ SERVICE

Excellent service means for us, among other things: to be present and available. For example you can reach us via hotline around the clock. We know: the availability of spare parts ex stock is eminently important for your smooth operating processes. For your safety and satisfaction, we only employ highly qualified engineers and technical service personnel in our after-sales service.

→ PARTNER APPROACH

The Slag Taurus is an extremely long-lasting product. Choosing it is simultaneously the beginning of a comprehensive customer/supplier relationship, which frequently leads to repeat and follow-up orders. We therefore place great emphasis on making this relationship fair and of long-term value to both parties. By the way, for us this starts long before the signing of the contract. We are glad to advise you, please do not hesitate to contact us.



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The Kirow building in Leipzig



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Slag Taurus on the test field

THE SLAG TAURUS – THE ESSENTIAL TECHNICAL DATA.

THE SLAG TAURUS AT A GLANCE.

SLAG TAURUS P 40 – P 70 (PLATFORM DESIGN)

The Slag Taurus P 40 to P 70 is the ideal equipment for payloads up to 70 tonnes. It provides optimal traction force and efficiency by the prime mover. With the Kirow KT 40 as prime mover, it provides optimal tractive power and efficiency for this performance category.

- Payload range from 40 to 70 tonnes
- Standardised, proven prime mover Kirow KT 40
- Two axle lines with steering angle up to plus/minus 90 degrees
- Also optionally available with 3 axle lines possible
- Superelastic or industrial tyres for the rear axle

	Payload	Slag Pot Volume	Prime Mover
P 40	40,000 kg	6–10 m ³	KIROW KT 40
P 50	50,000 kg	10–12 m ³	224 KW–300 HP
P 60	60,000 kg	12–16 m ³	
P 70	70,000 kg	14–17 m ³	



SLAG TAURUS P 80 – P 140 (PLATFORM DESIGN)

The Slag Taurus P 80 to P 140 is the ideal equipment for payloads up to 140 tonnes. It provides optimal traction force and efficiency. With the larger Kirow KT 50/KT 55/KT 65 as prime mover, it provides optimal tractive power and efficiency for this performance category.

- Payload range from 80 to 140 tonnes
- Standardised, proven prime mover Kirow KT 50/KT 55/KT 65
- Three axle lines with steering angle up to plus/minus 60 degrees
- Superelastic or industrial tyres for the rear axle

	Payload	Slag Pot Volume	Prime Mover
P 80	80,000 kg	16–18 m ³	KIROW KT 50/KT 55
P 90	90,000 kg	18–20 m ³	269 KW–360 HP
P 100	100,000 kg	20–25 m ³	
P 120	120,000 kg	25–30 m ³	
P 140	140,000 kg	30–35 m ³	KIROW KT 65 354 KW–475 HP



SLAG TAURUS U 40 – U 70 (U-FRAME DESIGN)

The Slag Taurus U 40 to U 70 is the ideal equipment for payloads up to 70 tonnes. With the Kirow KT 40 as prime mover, it also provides optimal tractive power and efficiency for this design.

- Payload range from 40 to 70 tonnes
- Standardised, proven prime mover Kirow KT 40
- Two axle lines with steering angle up to plus/minus 90 degrees
- EM tyres in industrial design for the rear axle
- Knocking function and reach-back function available

	Payload	Slag Pot Volume	Prime Mover
U 40	40,000 kg	6–10 m ³	KIROW KT 40
U 50	50,000 kg	10–14 m ³	224 KW–300 HP
U 60	60,000 kg	14–16 m ³	
U 70	70,000 kg	16–18 m ³	



SLAG TAURUS U 80 – U 160 (U-FRAME DESIGN)

The Slag Taurus U 80 to U 160 is the ideal equipment for payloads up to 160 tonnes. With the Kirow KT 50/KT 55/KT 65 as prime mover, it also provides optimal tractive power and efficiency for this design.

- Payload range from 80 to 160 tonnes
- Standardised, proven prime mover Kirow KT 50/KT 55/KT 65
- Two axle lines with steering angle up to plus/minus 90 degrees
- EM tyres in industrial design for the rear axle
- Knocking function and reach-back function available

	Payload	Slag Pot Volume	Prime Mover
U 80	80,000 kg	16–18 m ³	KIROW KT 50/KT 55
U 90	90,000 kg	18–20 m ³	269 KW–360 HP
U 100	100,000 kg	20–25 m ³	
U 120	120,000 kg	25–30 m ³	
U 160	160,000 kg	30–35 m ³	KIROW KT 65 354 KW–475 HP



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