

PELIKAN

BALANCER HANDLING SYSTEM



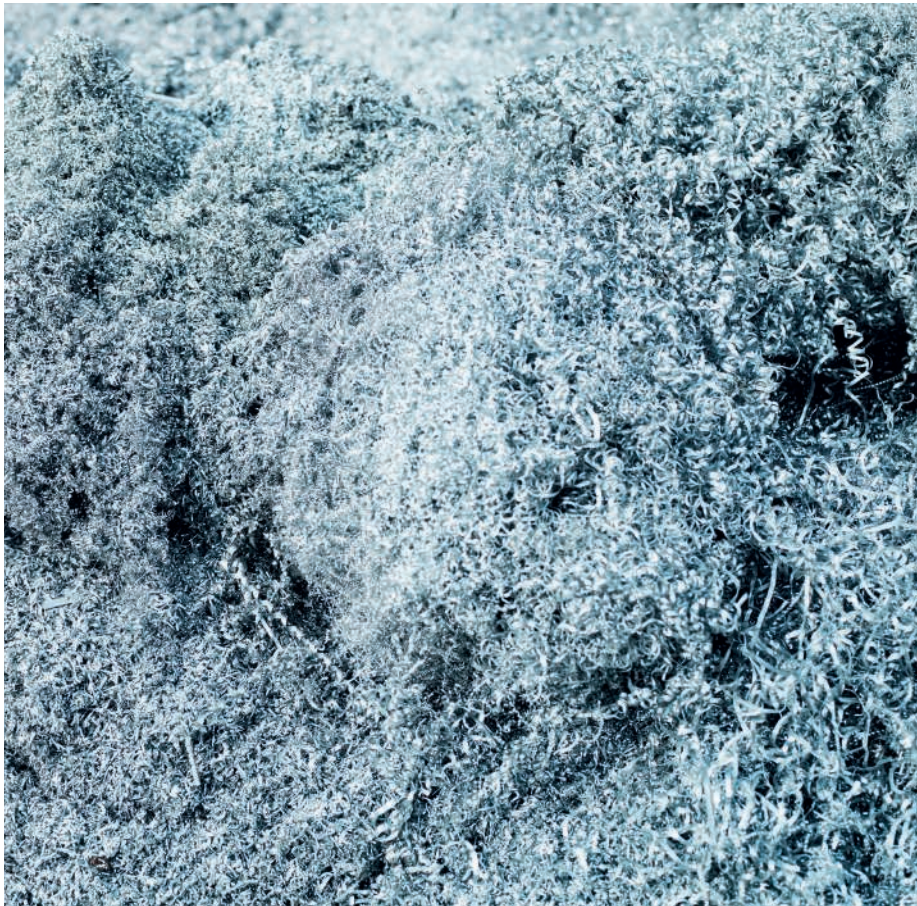


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The Pelikan with high portal on a rail undercarriage

THE PELIKAN.

THE LIFTING EQUIPMENT FOR SCRAP AND BULK MATERIAL.

A PERFECT SYSTEM
FOR HANDLING MATERIAL WITH
PINPOINT ACCURACY



→ INFO

What constitutes the best bulk material handling systems? What are the important factors?

→ In general:

- high handling rates and high productivity
- outstanding cost-effectiveness
- high reliability and availability

→ In particular:

- safe and efficient handling of bulk material
- precise and accurate handling of bulky items
- optimal adaptation to operation conditions and application
- low operating costs
- low life cycle costs due to ease of maintenance and long service life
- first class customer service and speedy spare part supply

This is all part of the Pelikan package – for XL efficiency and XL performance.

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Typical material handled by the Pelikan

Many sectors such as the energy generating industry and the steel manufacturing industry require raw materials as well as other additive materials in immense quantities. Enormous quantities of bulk material must be unloaded in transshipment terminals - usually under the pressure of very tight schedules.

In this context, the Pelikan is an extremely robust handling system, delivering outstanding efficiency and precision.

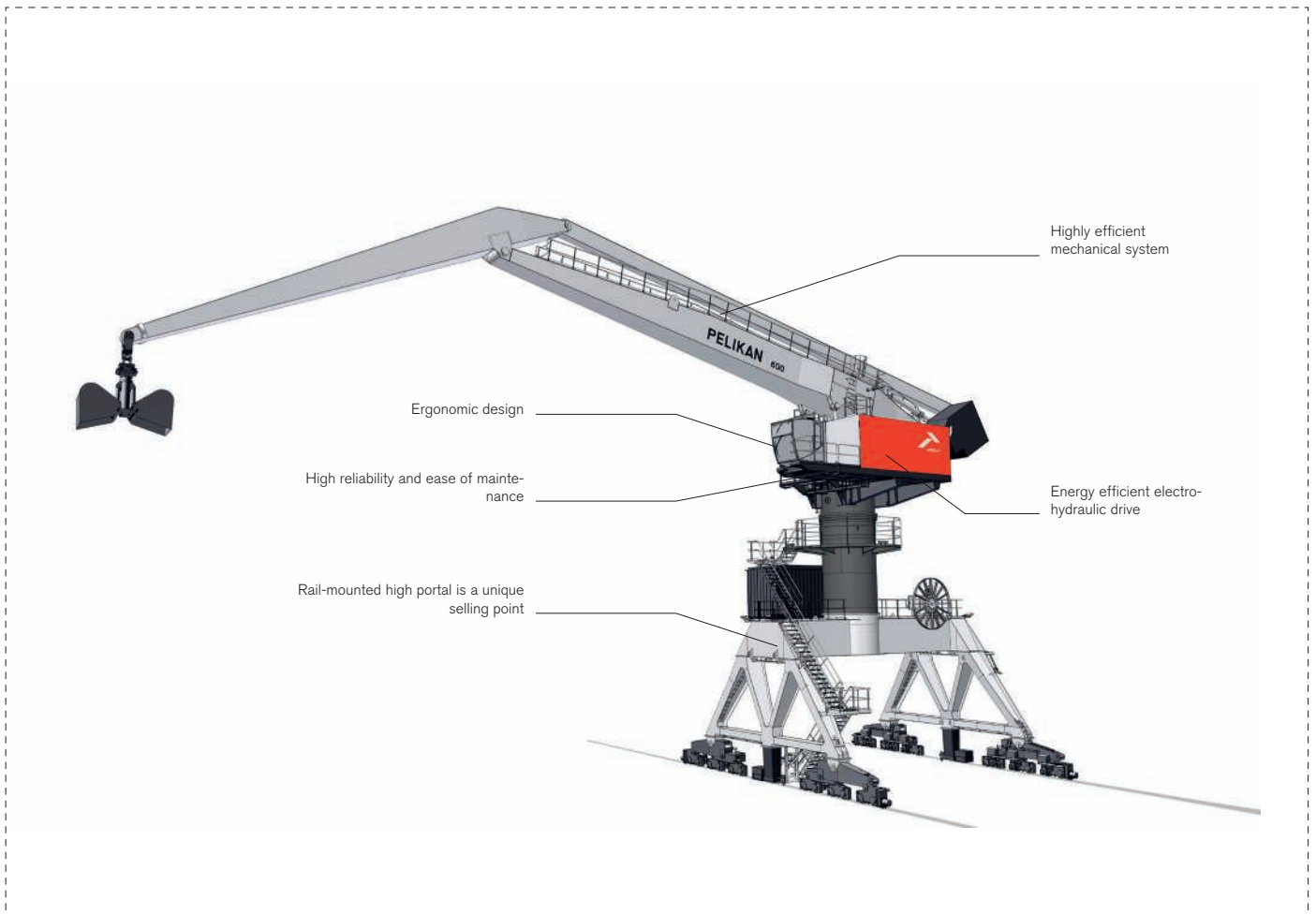
It is an exceptionally cost-effective machine for these special handling operations, because one Pelikan can often replace several smaller machines (thanks to its high lifting capacities at large outreaches)

and can achieve the highest handling rates. Due to its ability to compress the bulk material using 50% of its lifting capacity, the Pelikan is able to optimise grab filling during each and every lift – an invaluable advantage, for example, when unloading seagoing or inland vessels under the pressure of extremely tight schedules.

Other benefits include pinpoint positioning accuracy, of particular importance when handling special bulk material such as tree trunks.

Last but not least, the Pelikan can be adapted individually to any customer requirement – thanks to a comprehensive modular system.

THE FULLY HYDRAULIC HANDLING SYSTEM. THE ENVIRONMENTALLY-FRIENDLY PELIKAN.



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The Pelikan

The Pelikan is a highly robust, fully hydraulic handling machine. It is especially suitable for the fast handling of scrap and bulk material in ports, in steelworks and in the recycling industry.

Using our Pelikan handling system makes sense environmentally as well as financially.

The main drive system of the Pelikan is usually electro-hydraulic. This means a dramatic increase in energy efficiency and a reduction in service costs compared to excavators with diesel-hydraulic drives. Unlike diesel equipment, there is no need to change fuel filters, oil filters and oil. In

addition, with an electrically-driven hydraulic drive, the hydraulic components can work without pulsation. This helps to extend the service life of parts.

An electric drive has the added benefit of very quiet running, and noise emissions are much lower than a diesel drive. There are no exhaust gases, too.

COUNTERBALANCED.

WITH COUNTERWEIGHT SYSTEM – FOR LOW OPERATING COSTS AND A LONG SERVICE LIFE.

Ardelt has been building hydraulic handling equipment since 1992, combined with the principle of a counterbalanced jib system.

The luffing system consists of four elements: main boom, front boom, tension rod and movable counterweight – all connected to each other mechanically. The special feature here is the mechanical coupling between the front arm and the movable counterweight via the tension rod. This ensures that the jib system is perfectly counterbalanced throughout its range.

Compared to equipment without a movable counterweight, the forces required for luffing and the load on the slewing ring are reduced to a minimum with the Pelikan.

The resulting reduction in energy costs and much lower wear translate into low operating costs.

→ INFO

Typical features of the Pelikan

- Very robust: for handling scrap and bulk material
- Extremely efficient: heavy loads moved with relatively little force
- Completely safe: with the mechanical link
- Extremely efficient: heavy loads in a large outreach range
- Remarkably economical: low operating costs through good energy efficiency
- Very economical: higher handling rates mean smaller/lighter equipment for the same task



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The counterbalanced four-part boom system of the Pelikan



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Scrap handling at port with the Pelikan

PRECISION. THE LIFTING EQUIPMENT THAT CAN COMPRESS WITH PINPOINT ACCURACY AND WORK WITHOUT SWAY.

The Pelikan has an important technical feature that sets it apart from rope cranes – its load-carrying device has a direct mechanical connection to the jib system. For material such as scrap, this is crucially important in terms of handling efficiency. The Pelikan compresses the material before lifting it, applying up to 50% of its hoisting load. This compaction results in far better filling of the grab and up to 25% more handling capacity.

The load-handling device is directly connected to the jib system. This also improves grab penetration and material separation when unloading compacted materials such as wood chips, metal shavings, waste, etc.

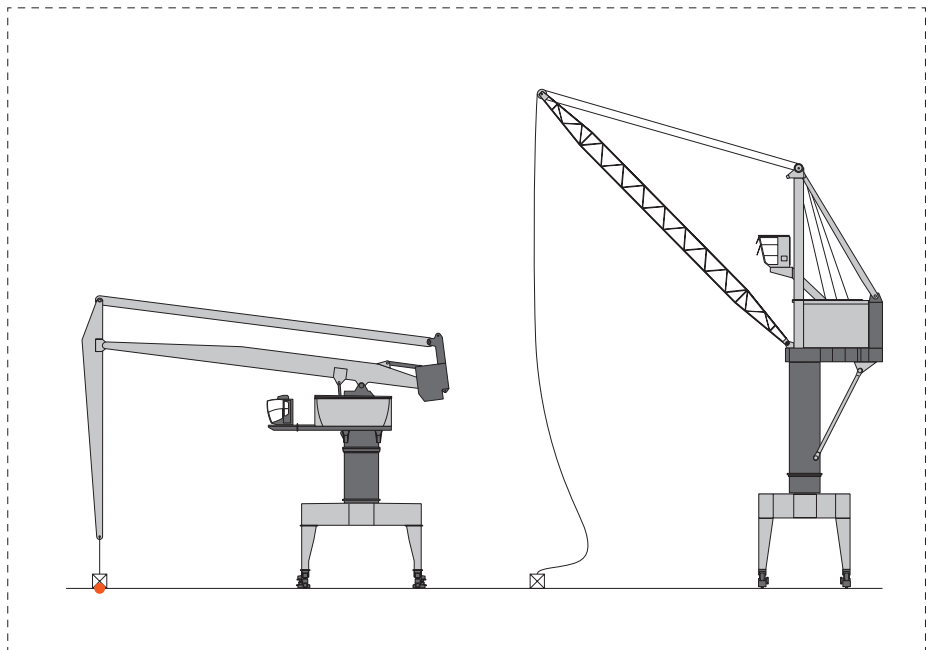
Apart from the ability to apply pressure, the absence of a rope between the jib and the load-handling device has another significant benefit: the load-handling device has virtually no sway. The Pelikan can accurately position bulky items, line up tree trunks, and work where space is tight.

Machine operators have everything they need in order to unload materials accurately, safely and quickly.

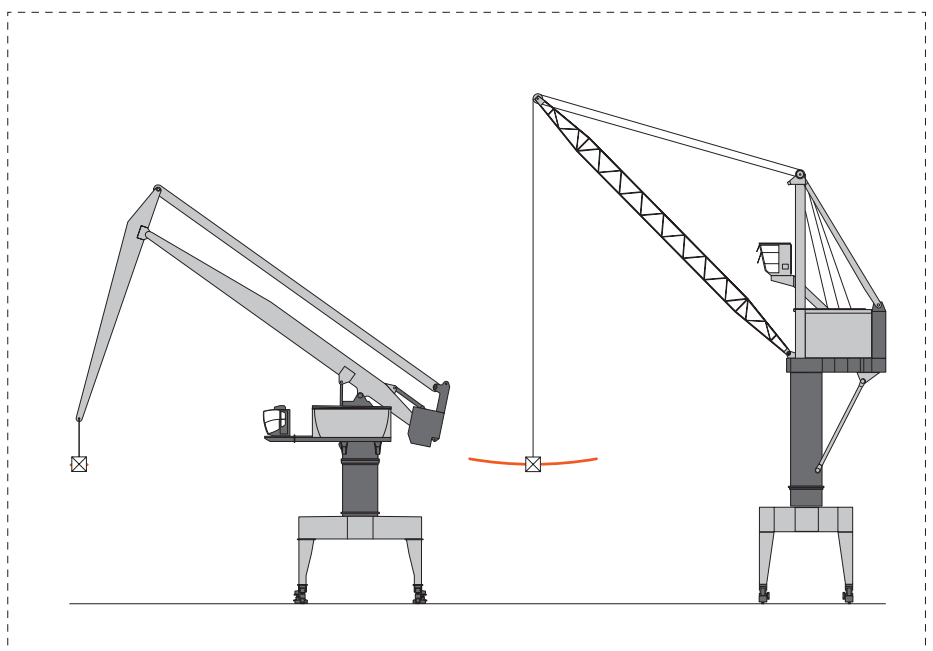
→ **INFO**

Typical features of the Pelikan

- **Extremely efficient:** up to 25% more handling capacity than comparable rope cranes
- **Extremely efficient:** minimal load sway
- **Perfect control:** direct link with the load-carrying device



↑ Pelikan v. rope crane: the Pelikan can apply pressure to its load



↑ Pelikan v. rope crane: the Pelikan virtually eliminates load sway

THE PERFECT EQUIPMENT FOR YOU. YOUR PATH TO EFFICIENCY AND PEAK PERFORMANCE.

No two workplaces are the same. That is why the Pelikan is marketed as a modular system – after all, optimised configuration of the equipment has a decisive influence on performance and is vital for efficient operation.

With its slewing ring, the Pelikan offers a clear concept with maximum flexibility: the slewing ring allows the upper structure to be installed on a wide range of undercarriages and portal types. This makes the Pelikan easy to adapt to local circumstances.

Many different undercarriages and load-handling devices are available for the Pelikan, including stationary high and low portals, with optional rail or crawler undercarriages.

The basic structure of Ardelt portals is modular, and each one is made to measure for the particular local circumstances. For example, the type of energy supply, the track width, the permissible rail and ground loads, and the clearances necessary for logistics operations can all be tailored.

A Pelikan portal is robust, with minimal oscillation and deformation, thanks to its boxed-type girder structure with gantry columns in open girder construction. This means fast and accurate handling.

Rail-based undercarriages are typical for the Pelikan and Ardelt cranes. They offer a number of benefits compared to undercarriages with rubber tyres. Machines on tyre undercarriages must have elaborate outriggers, involving a higher safety risk, whereas the Pelikan on a rail undercarriage can move safely even while carrying a load.

With extracted outriggers, tyre-based machines are an insurmountable obstacle for vehicles of any kind. Other issues include the heavy wear on the tyres and the much higher energy consumption. Steel wheels are more reliable and the track resistance is three times lower than for tyres. All these are arguments in favour of a rail based undercarriage on a high portal.

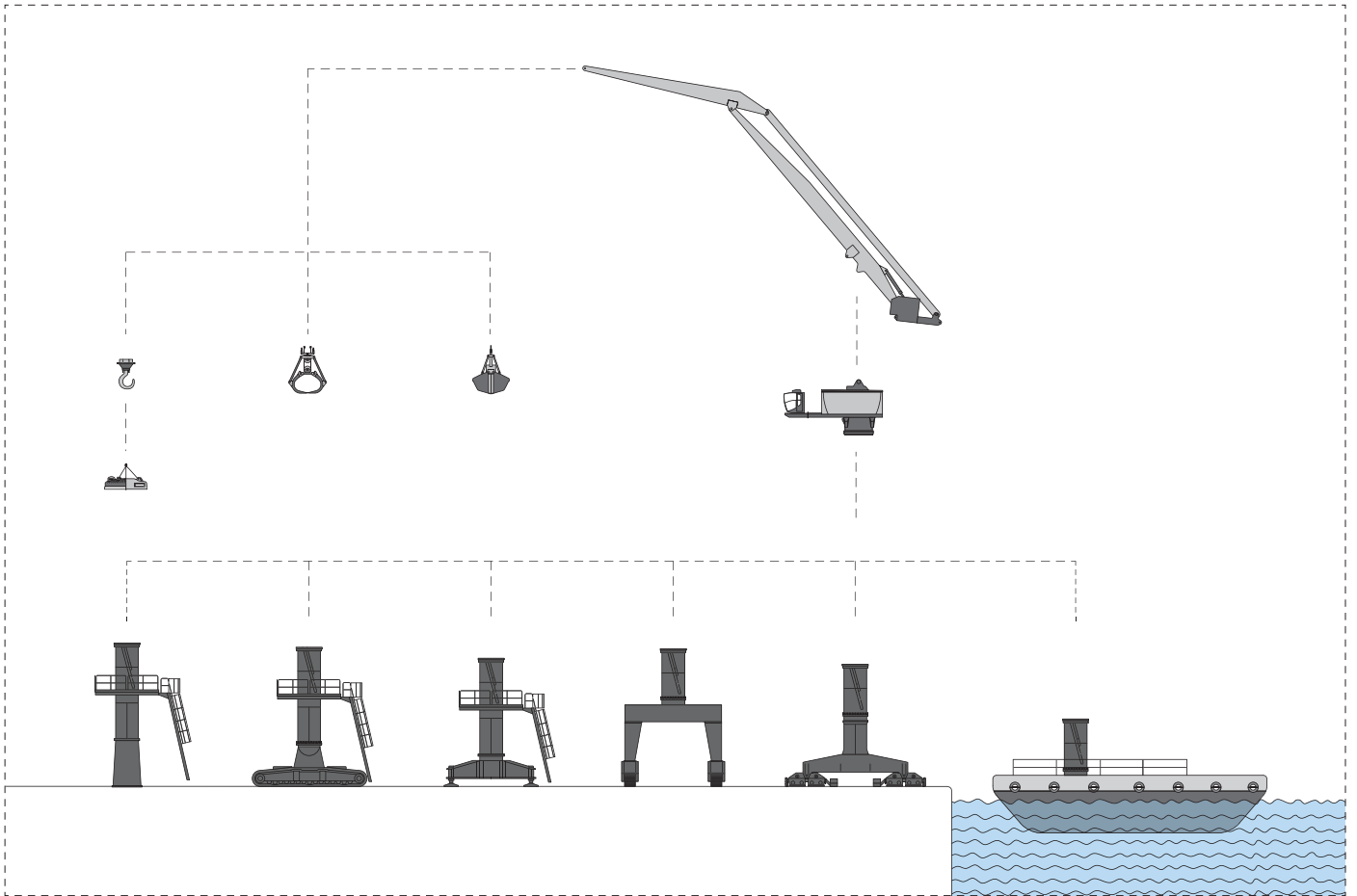
Optionally the Pelikan can also be equipped with crawler undercarriages, for example for use on rough but solid ground.

The Pelikan is astoundingly flexible. Without the need for extra equipment, it can use various load-handling devices to adapt quickly and safely to many different handling operations, for example using different hydraulic grabs, load hooks, magnet beams, etc.

→ INFO

Typical features of the Pelikan

- Extremely powerful: modular configuration of undercarriages for perfect integration with the local infrastructure
- Highly versatile: load-handling devices can be changed quickly
- Maximum flexibility: travelling possible under all circumstances, even while handling a load, no outriggers necessary



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Maximum flexibility and adaptability: the modular system of the Pelikan



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Two Pelikans in use in a scrap yard in Terni, Italy

MAXIMUM EASE OF OPERATION AND EASE OF MAINTENANCE. THE HANDLING SYSTEM FOR DRIVERS AND OPERATING COMPANIES.

The best handling performance is achieved when man and machine work in perfect harmony. Ardelt material handling systems are characterised by their ease of operation and ease of maintenance. They offer the ideal conditions for safe and stress-free working.

It all starts in the cabin. The operator has an excellent view of the site under all circumstances. All the controls in the cabin are designed and arranged for ergonomic operation – ease of use is further enhanced with the comprehensive information displayed on a touchscreen. The comfortable driver's seat is adjustable, helping to reduce fatigue. Air conditioning and heating guarantee pleasant working conditions in all climates.

The high positioning accuracy of the Pelikan is supported by the excellent view and the cabin layout. Material handling with the Pelikan is accurate, speedy and safe. The driver can work without fatigue and stress.

For operating companies, optimised maintenance and long-term availability of spare parts are essential. If it nevertheless becomes necessary to replace a component, the maintenance friendly accessibility in all areas in combination with the comfortable accesses and maintenance platforms guarantee a swift repair.

Maintenance personnel are supported by intelligent auxiliary systems.

Special features such as overtemperature/overload/overspeed and collision protection minimise wear and tear as well as the probability of failure.

The PowerPack contains the two hydraulic drive units. They are arranged with enough space for any maintenance work that may be necessary.

To keep noise emissions as low as possible, the hydraulic oil coolers are housed within the PowerPack in a separate compartment with sound insulation. The coolers can be serviced conveniently through the generous maintenance hatches.

The boom itself is designed to be walked on, to make essential maintenance as easy as possible. This means that all inspection, servicing and repairs can be carried out on the Pelikan material handling machine safely and quickly and at minimal expense.

→ INFO

Typical features of the Pelikan

- Maximum ease of use: ergonomic driver's workplace with all-round visibility, touchscreen with comprehensive information, precise handling
- Easy to access: convenient access steps and maintenance platforms, spacious PowerPack housing
- Outstanding ease of maintenance: low-maintenance drives, durable components and parts, automatic central lubricating system, comprehensive protection and auxiliary systems, remote diagnostics
- Highly economical: low wear, low servicing and maintenance costs, long service life



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The Pelikan in the scrap yard



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The Pelikan handling coal in Murmansk, Russia

RELIABLE PEAK PERFORMANCE OVER THE LONG TERM. OUR MAIN SYSTEMS.

01 THE JIB SYSTEM

The hydraulic jib system is typical for the Pelikan.

All jib parts are designed as a torsionally resistant box construction. The associated bearings with low-maintenance bushings are very generously dimensioned. For optimum lubrication, the slewing ring and the bushings are greased by a central lubrication system as standard. This prevents wear and allows the Pelikan to keep working robustly and safely over the long term.

The basic model of the Pelikan's slewing part, consisting of superstructure, slewing ring and PowerPack, is available in a range of sizes. Each basic model can be adapted to meet the customer's particular needs, with one of the available standard jib systems plus elements from the modular system.



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The Pelikan as a modular system



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Hydraulic cylinder on the Pelikan

02 THE HYDRAULIC SYSTEM

Safety is the priority: enhanced operating safety is guaranteed with safety valves in all hydraulic circuits and brake valves in the jib system lifting cylinders. Additional protection is provided by two identical drive units. If one of them fails, the second unit is able to move the system to a safe position.

The main hydraulic pumps include load-sensing control in order to optimise energy efficiency.

The hydraulic system of the Pelikan is equipped for a long service life. Carefully selected high performance filters with long maintenance intervals remove contamination and condensate. The separate, thermostatically controlled bypass cooling system keeps the hydraulic fluid within the optimum temperature range at all times, thereby guaranteeing very long periods between changes.

To further improve operating safety, special couplings are used on all pipes above a certain diameter. These screw couplings

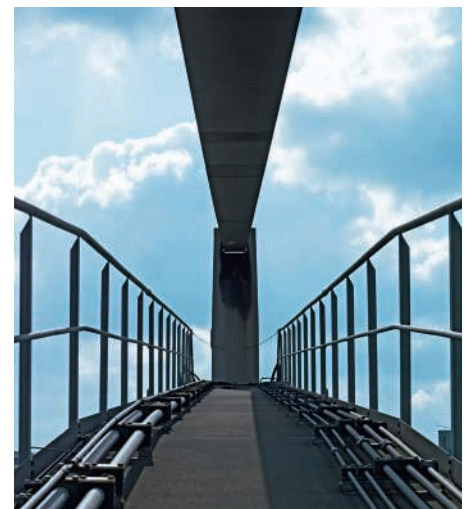
offer maximum safety under high loads, such as pressure surges, vibrations, alternating bending moments and temperature variations.

To protect the environment, the bottom of the PowerPack, under the hydraulic unit, is designed as a closed trough to collect hydraulic oil spillage. Optionally the use of bio-degradable oil is also possible.

03 THE CONTROL EQUIPMENT

What are the best conditions for a driver? Motion control allowing the equipment to be moved smoothly, quickly and precisely – something the Pelikan delivers. The precision comes from a control system based on electronic joystick signals and proportional valve technology.

To enable the functions to be controlled separately, the system is equipped with load pressure independent flow control.



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Excellent view from the driver's cabin

04 THE SLEWING GEAR

The slewing gear of the Pelikan is operated by two identical hydraulic drives which not only deliver fast acceleration and slewing movements but also guarantee improved safety and reliability. Here are

the technical details: the eccentric arrangement of the gear/output shafts means that the gear play can be perfectly aligned with the slewing ring, thereby guaranteeing impressive reliability.

To further improve the service life and reliability of the drives, the working pressure is reduced thanks to generously sized slewing gear pumps and motors in the Pelikan. The hydraulic circuit of the drives pushes efficiency to the next level.

To prevent unwanted movement of the slewing element, the slewing gearboxes are equipped with multi disk brakes which are operated with spring force and which act as locking/parking brakes.

05 THE OPERATOR'S CABIN

The Pelikan fulfils all preconditions for achieving high handling performance. This also includes an optimised working environment for the operator. An ergonomic, air-conditioned, spacious and elastically mounted cabin providing an excellent view of the working area is therefore a key feature of the Pelikan.



↑ Excellent view from the operator's cabin

06 THE MACHINERY ROOMS

As part of the PowerPack the Pelikan is fitted out with a separate hydraulic compartment. The hydraulic drives of the Pelikan are housed maintenance friendly in the fully-accessible and sound-insulated hydraulics compartment. There, they are fully protected from the elements whereas at the same time the sound insulation shields the surrounding area from noise.



↑ Sound-insulated machinery room with clear layout

This, combined with the fact that the main boom can be walked on, guarantees easy access to all parts of the hydraulic system.

If a Pelikan is equipped with a diesel generator, for example for mobile applications with crawler undercarriages, it, too, is housed in a separate compartment with sound insulation.

07 THE ELECTRICAL SYSTEM

The standard PowerPack includes a separate electrical compartment. This is an air-conditioned space containing all the switch panels in a clearly laid-out group structure, where they are easily accessible and protected from soiling. They are assembled using high-quality Ardelt components, painstakingly tested, fully installed and supplied as a single unit along with the associated driver's cabin and the hydraulics compartment.

Benefits

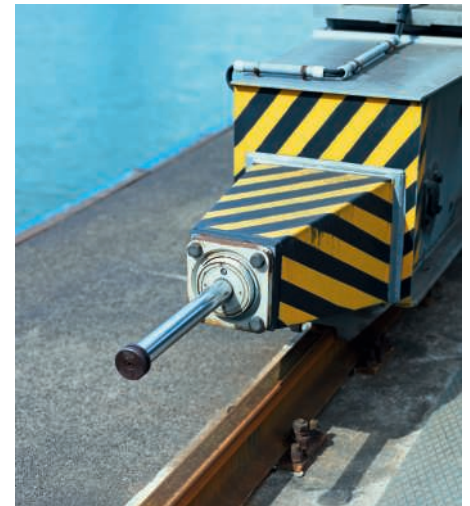
- Excellent overview of the electrical installation and the functional interconnections within the machine
- Service-friendly access to all components
- Perfect operating conditions, electrical components protected from soiling

08 THE UNDERCARRIAGES

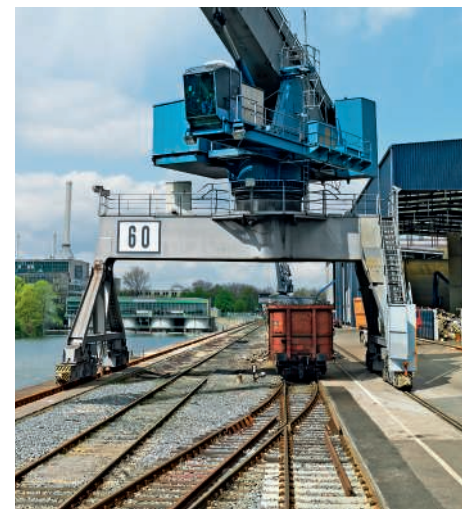
Pelikan portals are precision work, precisely tailored to the local circumstances. Ardelt has supplied thousands of custom-built portals. Options include high or low portals, either on rail undercarriages or as mobile variants, e.g. on crawler undercarriages.

We also make stationary variants with outriggers to provide bracing support or with permanent anchoring to the ground.

The optimum connection of the box-type girder with the tower segment is also typical of the Pelikan. The result is a portal structure with a long service life, able to meet all load requirements.



↑ Hydraulic buffer



↑ Pelikan high portal

THE PELIKAN.

THE SERIES WITH ITS IMPORTANT TECHNICAL DATA.

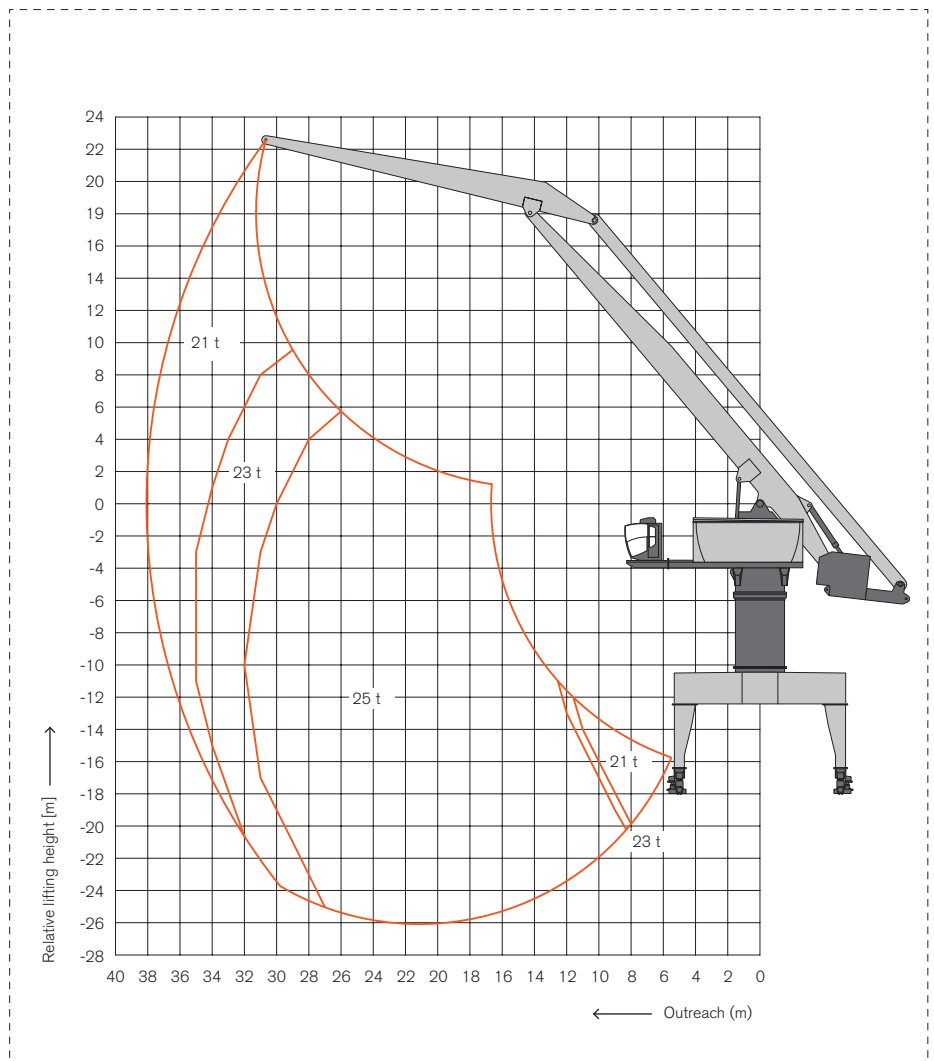
To enable a perfectly adapted Pelikan to the local conditions it is available in three sizes that can be equipped with different jib system sizes.

The material handling system series shown in the table on the right presents an overview of the important key data. For example, the column with a grey background contains the key data of the Pelikan 800. The corresponding lifting capacity chart with associated image is also shown on the right as an example.

We would be pleased to provide data and information about other models and versions in the series on request.

	→ PELIKAN SERIES		
	500	600	800
→ ELECTRIC MOTOR [kW]	2x 160	2x 200	2x 315
→ OIL FLOW MAIN HOIST [l/min]	2x 380	2x 525	2x 770
→ OIL FLOW SLEWING GEAR [l/min]	2x 246	2x 246	2x 365
→ SLEWING GEAR [U/min]	0 – 2.5	0 – 2.2	0 – 2.2
→ OUTREACH (m)	32 – 41	32 – 41	38 – 41

↑ Important key data of the Pelikan series



↑ The Pelikan 800 with 38 m outreach

WHY ARDELT?

BUILDING CRANES SINCE 1902.

→ KNOW-HOW

With more than 2,700 double jib level luffing cranes delivered, Ardel is the world market leader. We are constantly developing the technical basis (the double jib level luffing patent dating from 1932) so we continue to set the standard for outstanding crane performance.

During the constant further development and design work, our engineers consistently apply the proven methods and rules of the German engineering industry. The layout and classification of the cranes for continuous operation is carried out in an especially rigorous manner. The goal is always the same: to enhance ease the efficiency, safety and environmental aspects of the cranes.

→ QUALITY

For us, quality means a sophisticated product concept, thorough knowledge in the fields of design and control as well as high precision in fabrication and production. It goes without saying that our engineers meticulously inspect and test all mechanical and electrical subassemblies.

The decisive benefits:

- high performance and reliability of the cranes
- low operating costs
- long service life (even under the harshest of operating conditions)

→ SERVICE

Perfect maintenance and service are part of a good product to us. Therefore, we provide intensive training in crane theory and practice to our customers' personnel. We do this because we want to guarantee continuous availability of the cranes. In the unlikely event of a failure, we help quickly, flexibly and without red tape, 24 hours a day. You can depend on our excellent service. And with our intelligent

revitalisation services, your used crane is given a new lease of life regardless of the manufacturer.

→ PARTNER APPROACH

The Pelikan is a product with an extremely long service life. The decision to choose the Pelikan is synonymous with the start of an extensive customer/supplier relationship confirmed repeatedly by follow-up orders.

We therefore place great value on developing this relationship to provide fair and long-term benefits to both parties. For us, this begins long before the contract is signed. We will be pleased to advise you, simply give us a call.



The Ardel company building in Eberswalde

KRANUNION. WORLD MARKET LEADERS UNITED.

Kranunion is an association of three crane manufacturers who specialise in lifting and transporting heavy loads:

KIROW is the world market leader for railway cranes and slag pot carriers

ARDELT is the world market leader for double jib level luffing cranes

KOCKS is the world market leader for Goliath cranes and a pioneer in the development of container cranes

Central to all Kranunion products are the technical design concepts created by our experts. Of course, we continue to optimise those fundamental concepts even further in the interests of our customers. Kranunion products are therefore based on practical requirements and are a symbiosis of tradition and innovation combining the tried and tested with the new.

Customers who choose Kranunion choose great German engineering skill: for environmentally-friendly and safe, modern technology, for low operating costs, for high performance and reliability.