

KRANUNION. WORLD MARKET LEADERS UNITED.

Kranunion is an association of three world market leaders who have specialised 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

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.

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ARDELT IS A MEMBER OF KRANUNION.

ADLER 1500

DOUBLE-JIB LEVEL LUFFING MOBILE
DOCKSIDE CRANE





↑
The Adler achieves all objectives

THE ADLER: THE INNOVATIVE MOBILE CRANE.

THE SYNTHESIS OF DOUBLE JIB AND
MOVING HIGH GANTRY.

In this age of globalised business, the ports of this world are the relay stations of the flow of goods. The focus there is on ever larger shipping units, ever shorter turnaround times and efficient movement of goods. A major challenge for everyone responsible for the loading and unloading of goods.

Dockside cranes, as high-performance instruments, play a decisive role in this process. They must always function precisely in all possible climatic zones and fulfil the widest range of demands with regard to handling capacity, geometry and ground pressure limits, etc.

- **INFO**
So what characterises the best mobile dockside cranes?
What are the key factors?
- Essentially:
 - low operating costs
 - high performance
 - excellent mobility
 - minimised outrigger base
- More precisely:
 - efficient and safe handling of bulk goods and general cargo
 - comfortable working conditions for the crane operator
 - maximisation of handling capacity and thus short turnaround times of the ships
 - economical unloading and loading
 - low maintenance costs
 - long service life
 - free passage below high gantry

The Adler combines all these features.



↑
Practical drive unit design

THE THEORY: MAXIMUM HANDLING CAPACITY AND MAXIMUM MOBILITY.

THE PRACTICE: THE ADLER. WITH THE DOUBLE JIB PRINCIPLE AND A MOVING HIGH GANTRY.

THE TECHNICAL CONCEPT.

Mobile dockside cranes traditionally have many advantages: they can be used flexibly in the entire port area, they do not need any external power supply, they can be used for all bulk goods and containers. But: trucks and wagons cannot be moved below them – so they impede a real fluid flow of goods in the ports. And: mobile dockside cranes are generally single jib systems characterised by long rope swinging lengths. Until now.

Because the Adler adds innovative benefits to the traditional advantages of mobile dockside cranes: greater efficiency thanks to the double jib principle; improved mobility on the quay thanks to the high gantry. Plus added flexibility thanks to a range of alternative versions.

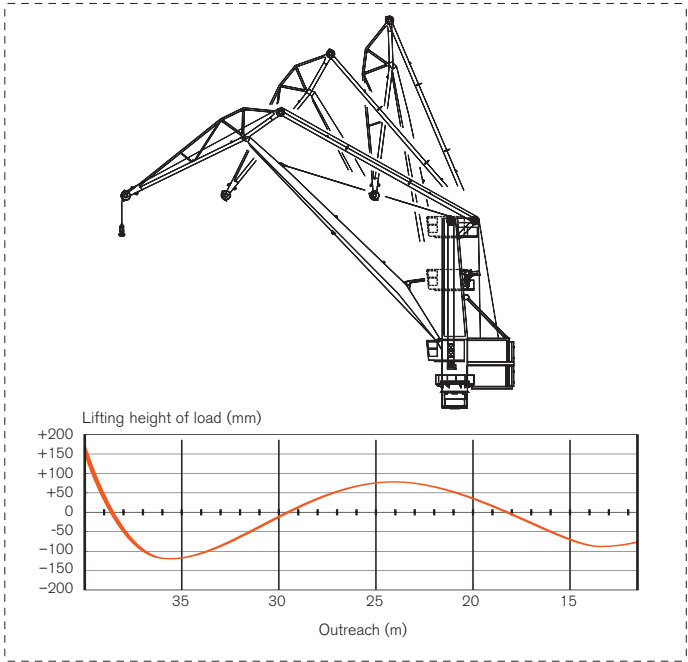
Greater efficiency

Ardelt invented the double jib level luffing principle back in 1932 – and has developed it further ever since. It consists

→ INFO

Typical Adler

- extremely productive: short load paths, short rope and swinging lengths thanks to the double-jib principle
- very mobile: moving high gantry allows all kinds of traffic to pass underneath
- highly versatile: thanks to a range of different versions and the possibility of working with different kinds of load handling equipment



Jib system – horizontal load path



Light and wide – the mobile high gantry



Ready for heavy tasks – the Adler as a general cargo crane

of four elements: A-frame, main jib, tie jib and cantilever jib. The main point of this special geometry is: it ensures that the desired horizontal load path is realised mechanically. Without having to use energy from the hoisting mechanism. In this context the downward pointing boom is characteristic: it decisively reduces the free swinging rope length.

This means (above all in comparison to single-jib cranes): the horizontal load path and the proximity of the boom to the load allow outstanding performance of the crane. Thanks to the short rope swinging lengths, even in wind, loads can be positioned easily and precisely – a huge advantage in all operational situations. The Adler thus stands for high

handling capacity, a horizontal load path and short swinging lengths.

Another double-jib advantage also applies to the Adler: even in the unlikely event of the luffing gear failing the boom cannot come crashing down. It is held absolutely securely by the tie jib. And: the optimum rope guide minimises the bending load of the ropes, increases their service life – and thus reduces operating costs.

A further technically characteristic feature of the Adler is its mobile high gantry. It has no props and undercarriage, thus enabling all forms of land transport to drive through underneath it. As such, unrestricted handling is guaranteed for the first time ever even on narrow quays.



Distinctive shape

THERE ARE MANY REASONS FOR CHOOSING **THE ADLER**. HERE ARE THE MOST IMPRESSIVE:

01 THE LUFFING GEAR

The Adler's luffing gear consisting of a rack and pinion system is extremely safe and robust, easy to maintain and independent of climatic conditions. In comparison to hydraulic and spindle luffing gear it stands out with lower operating costs.



↑ Tried and tested – Ardelt luffing gear

02 THE HOISTING MECHANISM

We have optimised our lifting gear over decades so we can guarantee maximum performance and availability. As standard they are fitted with compact, powerful and modularly structured planetary gears. That means savings in weight and costs.



↑ Power pack

03 THE SLEWING GEAR

The slewing gear operates with compact, low-maintenance planetary gears. The large roller bearing slewing ring is fixed via the Superbolt® system consisting of special high tensioning bolts and nuts.

04 THE DRIVE UNIT

The drive unit elements – power pack, electric control container and the hoist mechanisms – are housed in modules, each of which can be transported in a high-cube container. The same applies to the gantry's cross-beams, upright units and running gear. A cost benefit for you. The modular nature of the system has a further advantage in that short assembly time equates to the fast set-up and dismantling of the equipment and, as such, potentially high resale values.



↑ Electric control container



↑ Hoist gear box

05 THE SUPPORT SYSTEM

The Adler is supported by means of hydraulically lowerable cantilevers located between the travel mechanisms. Supported by the load distribution pads, the crane is lifted, but not entirely, it also remains partly on the stabilising tyres for optimal load distribution. The decisive advantage of the cantilevers moving within the gantry is: there are no hindrances of any kind to port traffic. The arrangement of the cantilevers allows the erection of the Adler directly on the edge of the quay – and driving it away quickly if necessary.



↑ Modular design

THE TECHNICAL HIGHLIGHTS.

06 THE TRAVEL MECHANISM

With the Adler travel mechanism we profit from the experience of our Kranunion partner Kirow: it is designed on the basis of the proven Kirow running gear solutions for heavy load transporters. The running gear consists of four separate drives that are controlled synchronously. The manoeuvrability of the wheels allows turning of the crane by 360° on the spot.



↑ Mobile travel mechanism with integrated propping system



↑ The main jib – in new design

07 THE JIB SYSTEM

The Adler's jib system corresponds to the thousandfold proven double jib principle, with one innovative change: we have done away with the counterweight lever (for weight reasons) in favour of a hydraulic load compensation integrated in the column. One can say that the approx. 32 m long main jib is the element that gives the Adler its distinctive shape. It is designed as a faceted volume in a multiple canted solid structure – and thus has a high degree of rigidity taking into account the low weight.

08 THE COLUMN

The column, another module in the overall concept of the Adler, is designed as a compact construction. Inside the slewing gears and the patented hydraulic dead weight compensation are housed. The electrical connections between the column and the equally modularly designed machine house are provided by disconnect boxes, or plug connections. The slewing ring in turn is fixed at the gantry and the column – using Superbolt® tension nuts.

09 THE DRIVER'S CABIN

A premium feature of the Adler is the driver's cabin designed according to the latest ergonomic findings: it is placed on the mast frame and infinitely height-adjustable – from 12 to 26 m. It allows optimal visibility of the loading or unloading processes and as an additional function of being an elevator an ideal access to the drive and control components because the platforms can also be easily reached. The maintenance platforms at the back of the column are equally easily accessible.



↑ Vertically adjustable driver's cab in the column



↑ The Adler – with a modular-design drive unit and vertically adjustable driver’s cab

WHY ARDELT?

CRANE CONSTRUCTION SINCE 1902.

THE COMPANY ARDELT.

→ KNOW-HOW

With more than 2,300 double jib level luffing cranes delivered, Ardel is the world market leader. The technical basis on which our success is built derives from the “Double jib level luffing patent” of 1932, which we constantly develop further.

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

→ QUALITY

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

All that brings decisive benefits:

- high performance and reliability of the cranes
- low operating costs
- long working life (even under the severest operating conditions).

→ SERVICE

By excellent service, we understand this to mean, among other things: to be present and available. After all, it’s always possible for something unpredictable to happen. For this reason, our customers can contact us around the

clock via a Hotline. In order to ensure your safety and satisfaction we employ only highly qualified engineers and technicians in Customer Service. And not least, we place great value on comprehensive and technically sound training and support for your employees.

→ PARTNER APPROACH

The Adler is a product with an extremely long working life. A decision to choose the Adler is synonymous with the start of an extensive customer/supplier relationship – which is evident from the many repeat and 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 starts long before the signing of a contract. We will be pleased to advise you, simply give us a call.)



↑ Ardel’s company premises in Eberswalde



↑ The electric control production facility

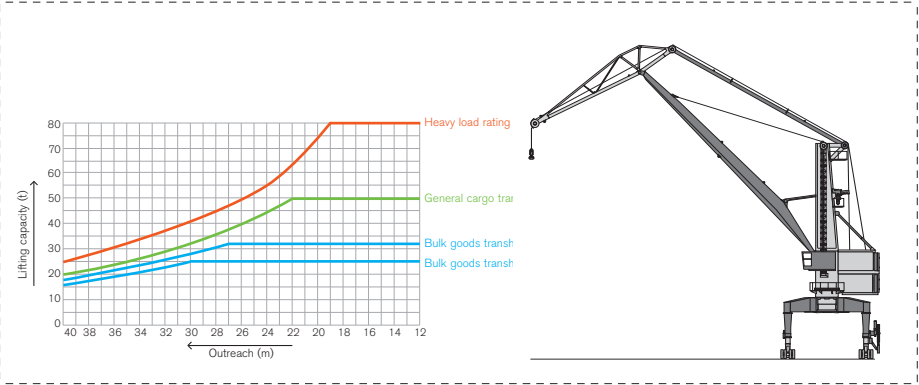
THE ADLER – THE ESSENTIAL TECHNICAL DATA.

THE ADLER AT A GLANCE.

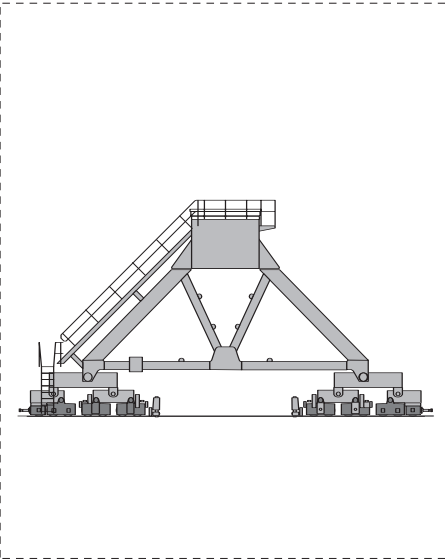
ADLER 1500



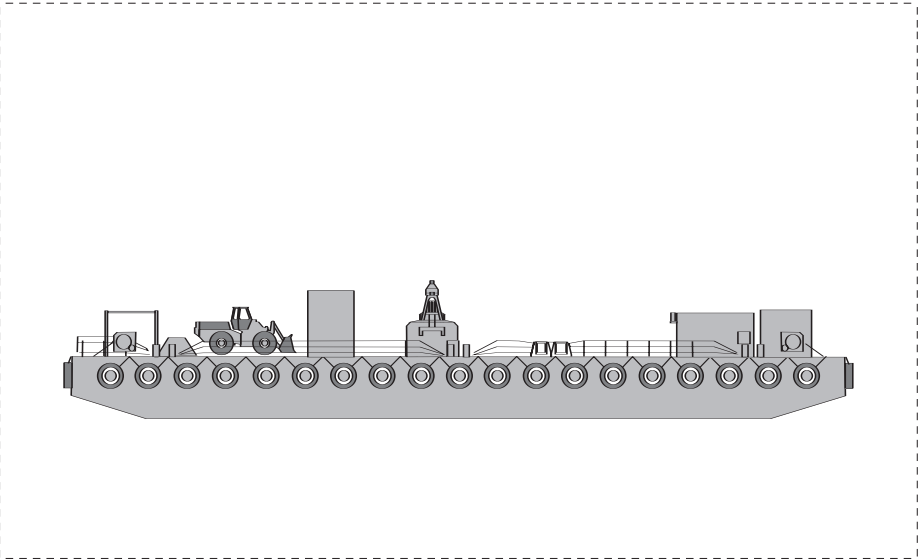
- Working speeds ($\pm 5\%$):
- Lifting 16 m/min – 75 m/min
 - Slewing 0.75 rpm – 1.5 rpm
 - Luffing 20 m/min – 55 m/min
 - Crane travel 65.0 m/min



ALTERNATIVE SUB-STRUCTURES



↑ Rail-bound portal

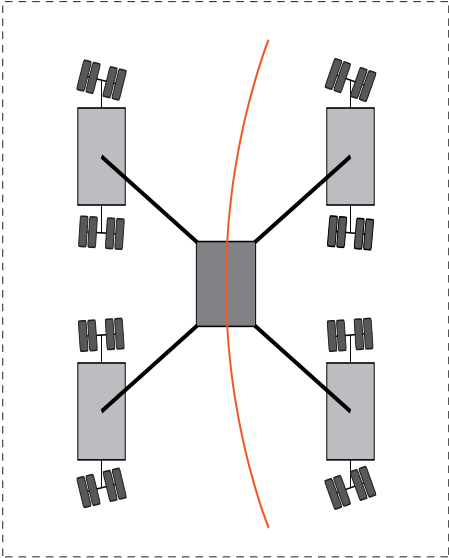


↑ Ponton

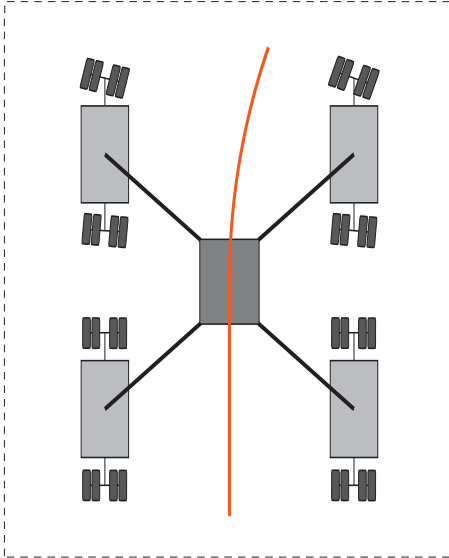
THE ADLER AT A GLANCE.

STEERING PROGRAMMES

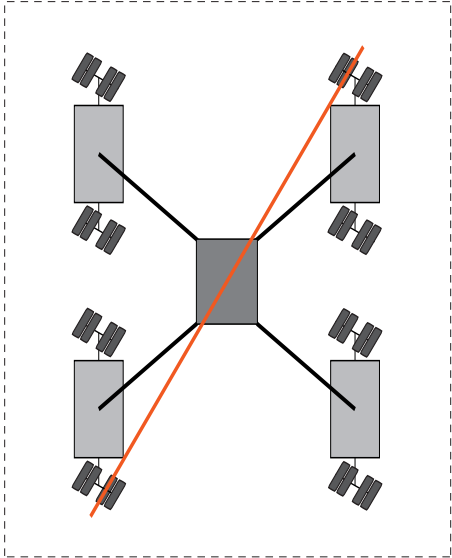
Multi-directional steering with the following steering programmes



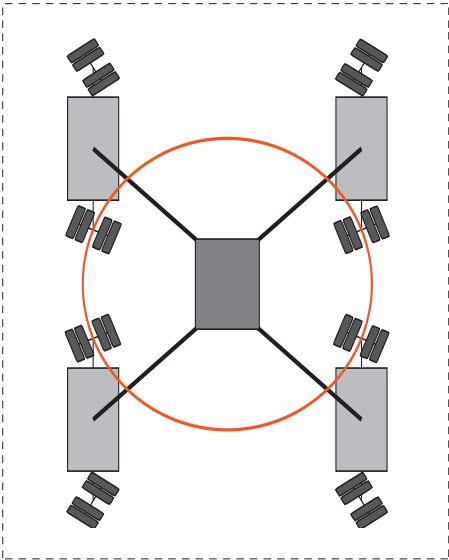
↑ Longitudinal travel with all-wheel steering



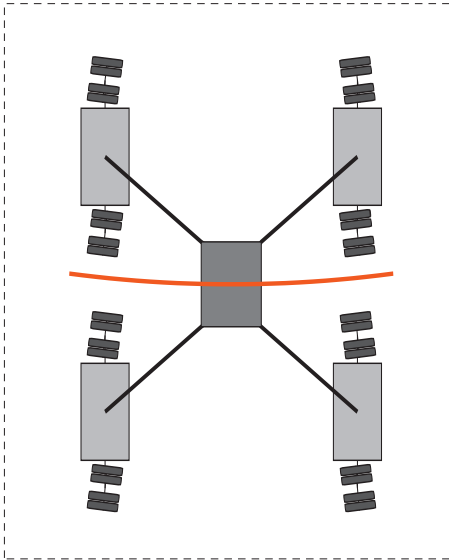
↑ Longitudinal travel with rear or front axle fixed



↑ Diagonal travel



↑ Circular travel



↑ Transverse travel with all-wheel steering