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.

ARDELT
HEEGERMÜHLER STRASSE 64
16225 EBERSWALDE / GERMANY

PHONE +49 (0)33 34.62-0
FAX +49 (0)33 34.62 23 08
E-MAIL INFO@ARDELT.DE

WWW ARDELT.DE

ARDELT IS A MEMBER OF KRANUNION.

KONDOR 500 / 1000 / 3000

DOUBLE JIB LEVEL LUFFING CRANE

ARDELT

Grande Kondor in shipyard operation

THE KONDOR:
THE EXPERIENCED CRANE.

A PERFECT MULTIPURPOSE CRANE SYSTEM: FOR CARGO HANDLING AND SHIP ASSEMBLY WORK.

The seaports of this world are the relay stations for the flows of goods which, in the age of global business operations, are continuing to grow rapidly. Shipping units are becoming ever larger, turnaround times ever shorter and cargo handling operations ever greater. This is an enormous challenge for all those responsible for the loading of goods, and for those who build the ships.

Cranes, as high-performance instruments, play a decisive role in this process. Cranes in dockyards and harbours must always function correctly in all possible climatic zones and fulfil the most varied demands with regard to handling capacity, geometry and ground pressure limits, etc.

→ **INFO**
What constitutes the best harbour and dockyard cranes?
What does it depend on?

→ Essentially, on:

- low operating costs
- high productivity rates

→ More precisely, on:

- efficient and safe handling of bulk goods, general cargo and containers
- precise, careful handling of materials and efficient assembly of ship components in dockyards
- maximising the handling capacity and, consequently, short turnaround times for the ships
- economical unloading and loading
- low costs for maintenance and operating materials
- long working life

The Kondor is a crane that has proved itself a thousand times.
It has all these features.

Big grabs, big performances

THE TECHNICAL CONCEPT.

DOESN'T EVERY INVENTOR DREAM OF CREATING A NEW STANDARD? THE ARDELT **DOUBLE JIB LEVEL LUFFING PRINCIPLE**.

As early as 1932, Ardelt had invented the double jib level luffing principle – and since then has implemented further developments. The double jib system comprises four elements: A-frame, jib boom, tie-back and jib. The crucial point about this special geometry: it allows the desired horizontal load path to be realised by mechanical means without having to expend energy through the hoisting gear. Characteristic of this design is the downward-pointing jib: it decisively shortens the length of the free-swinging rope.

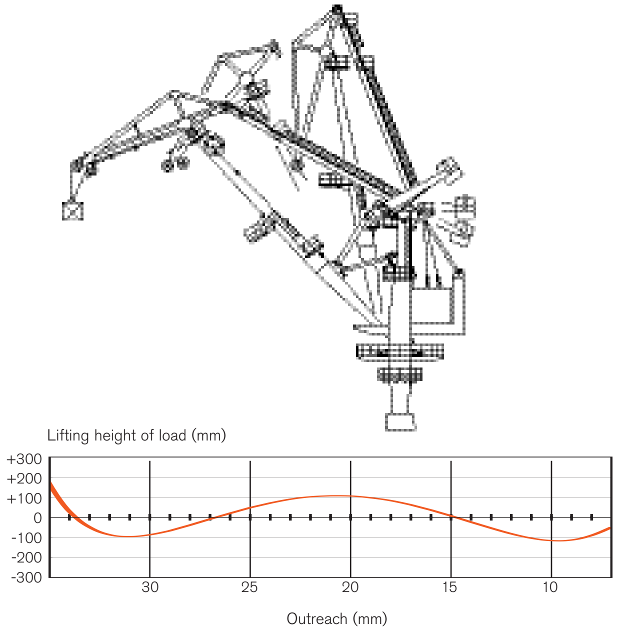
This means (above all, in comparison to single-jib cranes): the horizontal load path and the closeness of the jib to the load allow excellent productivity rates. Thanks to shorter free-swinging rope lengths, positioning becomes very simple and precise, even in wind and bad weather conditions – a great advantage for all types of operation.

In addition, the short free-swinging lengths make the articulated jib crane ideal for semi-automatic operation, especially in the integrated bunker version.

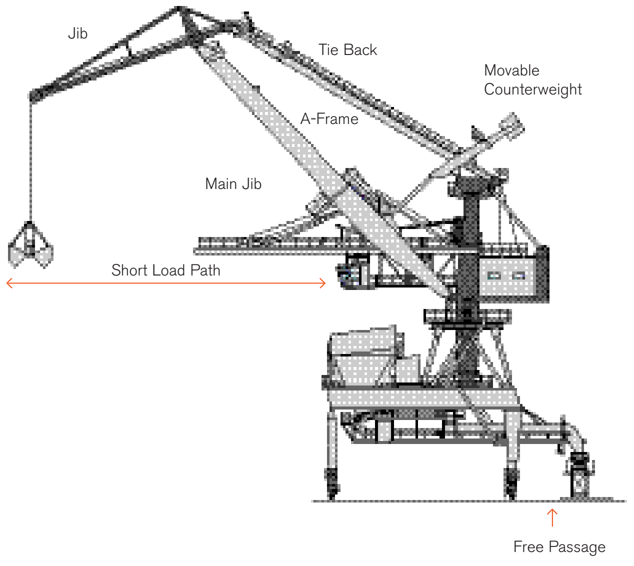
→ **INFO**

Typical features of the Kondor

- extremely productive: short load paths, short rope lengths and free-swinging lengths, improved centre of gravity position: the double jib level luffing principle
- classic construction: block column and base-point bearing
- extremely low-maintenance: no special tools required
- very economical: recovery of braking energy



↑ Jib System – Horizontal Load Path



↑ Kangaroo Operation

↑ A good perspective

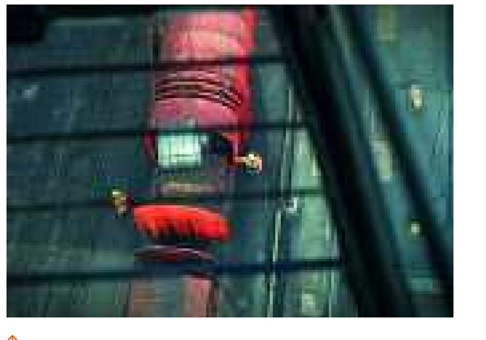
A further advantage of the Ardelt double jib level luffing system: the jib cannot crash to the ground, even in the event of failure of the luffing gear. It is held absolutely secure by the tie-back.

And: optimum guidance of the rope minimises the bending load on the ropes and increases the working life of the ropes – therefore reducing the operating costs.

The special double jib level luffing concept of the Kondor provides a counterweight balancing lever. The movable counterweight ensures that, in every position, the centre of gravity of the whole jib system remains close to the slewing axis. This minimises the moments of force acting on the slewing bearing and also reduces the luffing energy required. In both cases, this means reduced wear and therefore lower costs.

Further characteristic features of the Kondor are the block column and the base-point bearing. These ensure that the rotating part of the crane is supported in the fixed part – which makes the Kondor especially easy to transport. Also typical of the Kondor: maintenance and repair work can be undertaken without the use of special tools. (And: all steel structural parts and other components can be transported within the clearance gauge of the Russian railway network, since the Kondor was originally developed for the Russian market.)

Moreover, the Kondor is an extremely energy-efficient crane. Its primary energy consumption, already low, is further reduced by means of the latest converter technology. Through recovery of the braking energy fed back into the power supply system the Kondor exhibits a significantly better energy balance than a comparable mobile harbour crane.



↑ Precision work during general cargo handling

The Kondor is a classic in Ardelt's product range. From the very beginning, we have constantly refined and improved this crane: together with its sister crane, the smaller Sokol, since 1950 we have delivered it more than 1,600 times, to 4 continents – where it operates reliably under the most varied geographical and climatic conditions.

THERE ARE MANY REASONS FOR CHOOSING **THE KONDOR**. THE MOST COMPELLING ARE:

THE TECHNICAL HIGHLIGHTS.

01 THE JIB SYSTEM

Decades of experience pay off. Ardelt builds what is not only the most robust, but also the lightest double jib level luffing system in the world. The Kondor is manufactured in three size classes, each with specific characteristics related to the lifting capacity: Sokol 500, Kondor 1000, Grande Kondor 3000.

↑ Reliable and safe – Rack and pinion luffing gears

02 THE HOISTING GEAR

We have optimised our hoisting gear through decades of development, so that we are able to guarantee highest performance and best availability. Equipped as standard with compact, high-performance planetary gears of modular construction. In this way we achieve weight and cost savings.

↑ Proven hoisting gear block

03 THE MACHINERY HOUSE LAYOUT

The compact, modular and low-maintenance machinery house of the Kondor is designed on the principle of a rucksack. There is typically good access to all the components. For the rope entry point in the machinery house roof: this is provided with excellent protection against rain or spray water by means of floating guide rollers (with reliable sealing).

↑ Spaciousness of the machinery house grants good accessibility and easy maintenance

04 THE LUFFING GEAR

The Kondor luffing gear has proved itself a thousand times and is extremely safe, easy to maintain and independent of climatic conditions. Depending on size class, we install either single toothed rack luffing gear or double toothed rack luffing gear. This provides much lower operating costs in comparison to hydraulic or spindle drive luffing gear.

↑ Rope pressure device for safe hoisting rope winding

05 THE SLEWING GEAR

From its use in thousands of cranes, the slewing gear fitted to the Kondor has shown itself to be a compact and low-maintenance system. It consists of a drive unit with planetary gears. Special technical features are a) the supporting ring for the swivel roller rockers and b) the base-point bearing which supports the whole block column. Accessibility to all components of the slewing gear is guaranteed.

06 THE TRAVELLING GEAR

For the Kondor travelling gear we use only tried and tested components from well-known suppliers, because we believe that reliability is a cardinal virtue. Travelling gear from Ardelt characteristically has an extremely robust construction with one very special feature: the driving dogs between drive and drive shaft have involute toothing. This makes it possible to easily replace the drive units. Ardelt travelling gear units are modular in design and – as modules – can be combined on travelling gear rockers. In this way they can easily meet all the requirements that the infrastructure of the respective installation site demands. Moreover: in comparison to rubber-tyred travelling gear, rail mounted travelling gear is much cheaper to purchase and maintain, because the high cost of tyres is eliminated.

↑ Travelling gear from construction kit

07 THE CONTROL SYSTEM

Ardelt is the only manufacturer of double jib level luffing cranes able to refer to an established and integrated knowledge chain: right from the electrical design stage through to programming and as far as manufacture and testing. Something which – apart from agreeable operation of the crane – also gives the customer the satisfaction of always having state-of-the-art equipment. Whether this concerns the components or forward-looking functions such as remote maintenance.

↑ Clear and ergonomically comfortable arrangement of operational elements in the driver's cabin

08 THE ELECTROCONTAINER

We only install first-class components in the modular-designed Kondor electrocontainer. We manufacture the control cabinets, for example, in Eberswalde, install them completely, test them meticulously and then deliver them as a compact unit together with the operator cab.

The benefits:

- well-arranged structure thanks to the modular design
- high-quality components and functional testing
- low freight costs thanks to reduced dimensions
- less installation work during assembly.

09 THE OPERATOR CABIN

Ardelt operator cabins are individually manufactured to specially developed, standardised designs. We design and build the cabs to order, or to suit the relevant on-site operating conditions.

↑ Open racks for electrical equipment are common

↑ Visualisation of crane data via Crane Management System

10 THE PORTALS

The block column cranes stand on made-to-measure star or crown portals, which – depending on customer requirements – are available in all sizes of gantry gauge. We have already produced cranes with special hook heights of up to 60m with corresponding portal heights of up to 50m.

↑ Portals from Ardelt are perfectly designed for unique requirements

THEORY: HIGHEST HANDLING CAPACITY WITH SPOT-ON OPERATING PRECISION. SOLUTION: THE KONDOR.

THE KONDOR IN OPERATION.

Great engineering performances: "Queen Mary II" and Ardelt Cranes

The Kondor is at home in any location where there are loads to be moved.

This is a very economical machine for handling operations in ports and, among other things, ideal for bulk cargo handling. In the so-called "kangaroo operation" it achieves peak handling capacities. With this method, besides the short load paths and swing lengths arising from the double jib level luffing design principle, there is a second decisive benefit: the handling operation is carried out essentially by the luffing movement. The slewing movement therefore becomes secondary and the effects of braking and acceleration processes which normally occur during the trolley travel movements of ship unloaders are eliminated. One of the reasons crane drivers simply love the Kondor.

It is highly regarded in the dockyards for the assembly of ship components. This is due to the short rope lengths, the short load swings and the ability to make very fine and precisely-controlled movements.

→ **INFO**

For general cargo, heavy loads and container handling too, the Kondor is able to make full use of its inherent advantages:

- highly accurate positioning
- horizontal load path (mechanical principle)
- high working speed

WHY ARDELT? CRANE CONSTRUCTION SINCE 1902.

THE COMPANY ARDELT.

→ KNOW HOW

With more than 2,300 double jib level luffing cranes delivered, Ardelt 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 that 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 Kondor is a product with an extremely long working life. A decision to choose the Kondor 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.)

Home of Ardelt in Eberswalde

The Offices

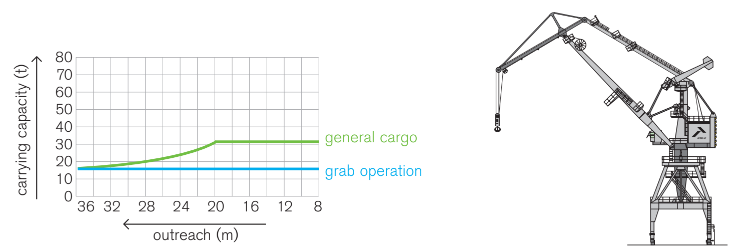
THE KONDOR – THE ESSENTIAL TECHNICAL DATA.

KONDOR 500 (SOKOL)

Working speeds (± 5 %):

- Hoisting/lowering from 0 m/min up to 90 m/min*
- Slewing from 0 rpm up to 1.6 rpm*
- Luffing from 0 m/min up to 64 m/min*
- Travelling 20.0 m/min

*DEPENDING ON LOAD

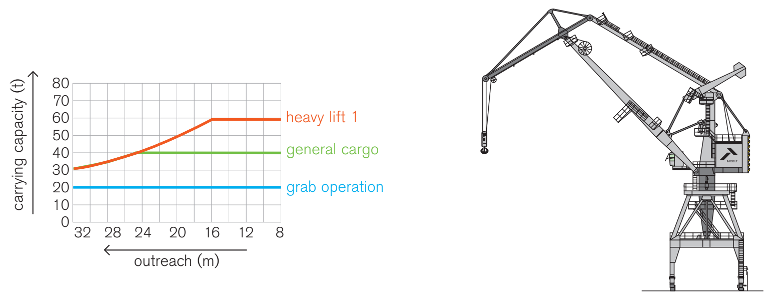


KONDOR 1000

Working speeds (± 5 %):

- Hoisting/lowering from 0 m/min up to 80 m/min*
- Slewing from 0 rpm up to 1.5 rpm*
- Luffing from 0 m/min up to 60 m/min*
- Travelling 20.0 m/min

*DEPENDING ON LOAD

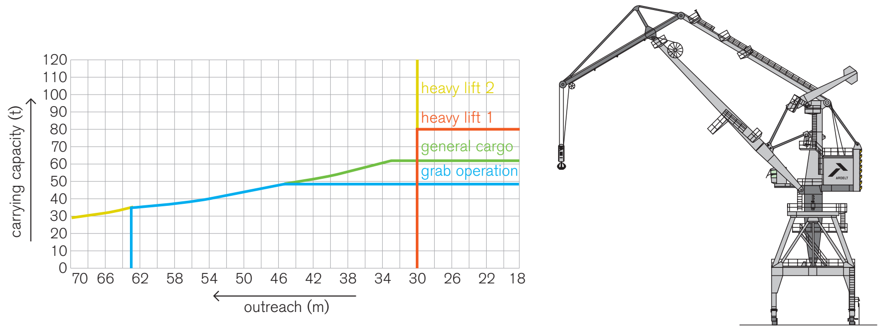


GRANDE KONDOR 3000

Working speeds (± 5 %):

- Hoisting/lowering from 0 m/min up to 110 m/min*
- Slewing from 0 rpm up to 1.2 rpm*
- Luffing from 0 m/min up to 60 m/min*
- Travelling 32.0 m/min

*DEPENDING ON LOAD



OVERVIEW

	→ INLAND PORTS	→ LARGE INLAND AND SEAPORTS	→ SEAPORTS
Size classes	Kondor 500	Kondor 1000	Grande Kondor 3000
Outreach	32 / 36 m	32 m	40 m – 70 m
Capacities Heavy-duty operation (A2)	32 t x 20 m 36 t x 20 m	60 t x 16 m*	80 t x 25 m* 120 t x 30 m*
Capacities General cargo handling (A5/A6)	20 t x 25 / 28 m	40 t x 25 m	40 t x 40 – 55 m
Capacities Bulk goods handling (A8)	16 t x 32 / 36 m	20 t x 32 m**	30 – 40 t x 50 – 55 m

*OPTIONAL **PREFERRED DESIGNS: 30 T X 30 M AND 25 T X 37 M