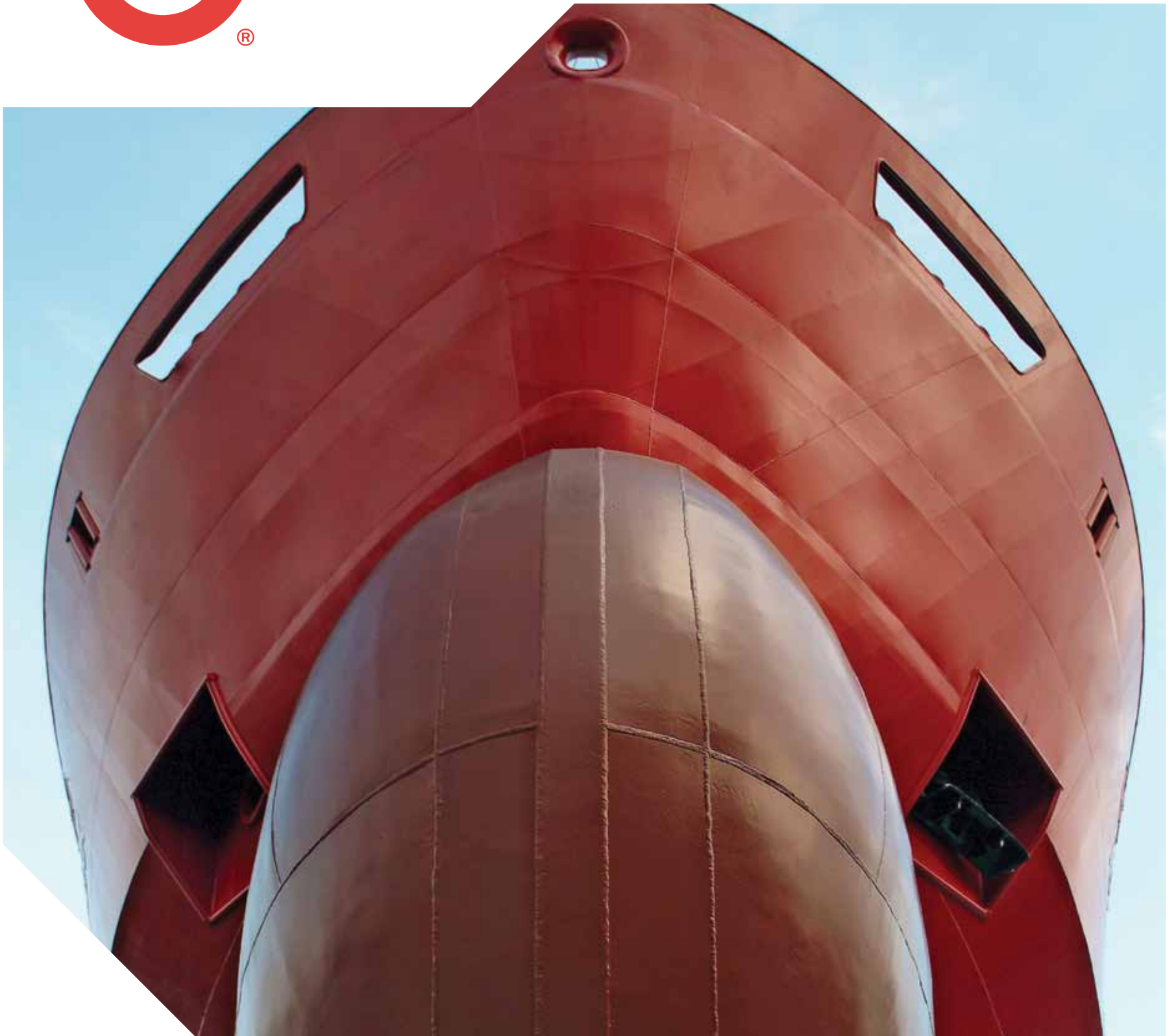


INDUSTRIAL CRANES  
NUCLEAR CRANES  
**PORT CRANES**  
HEAVY-DUTY LIFT TRUCKS  
SERVICE  
MACHINE TOOL SERVICE

SHIPYARD CRANES

**KONECRANES**<sup>®</sup>  
Lifting Businesses™

## LIFTING THE SHIP-BUILDING PROCESS FOR OVER 50 YEARS



## **WE UNDERSTAND THE SHIP-BUILDING PROCESS**

Konecranes has been meeting the lifting needs of ship-builders for over 50 years through all kinds of business weather. The world's leading shipyards are Konecranes customers. Many of them have been our customers for a long time: they keep turning to us because they know we supply excellent lifting equipment and support services for ship-building. When a Konecranes serviceman arrives onsite he represents Konecranes as a whole, not an isolated service function.

Be your shipyard large, small or in-between, your lifting needs indoors or outdoors, Konecranes has the experience to understand your business priorities and your ship-building process. We offer lifting technology that will make your production process safer and more efficient, from beginning to end. We offer the world's most complete range of lifting equipment for ship-building, from the Goliath Gantry Crane to workshop chain hoists.

Are you planning the construction of a new shipyard, or planning to modernize an existing one? In the pages that follow, you will find an excellent solution for every shipyard lifting need.

Or do you just need the most suitable lifting equipment for a specific set of functions in your ship-building process? You will find it in the pages that follow.

# **A VAST BODY OF LIFTING KNOWLEDGE GAINED FROM THE WORLD'S LEADING SHIPYARDS...**

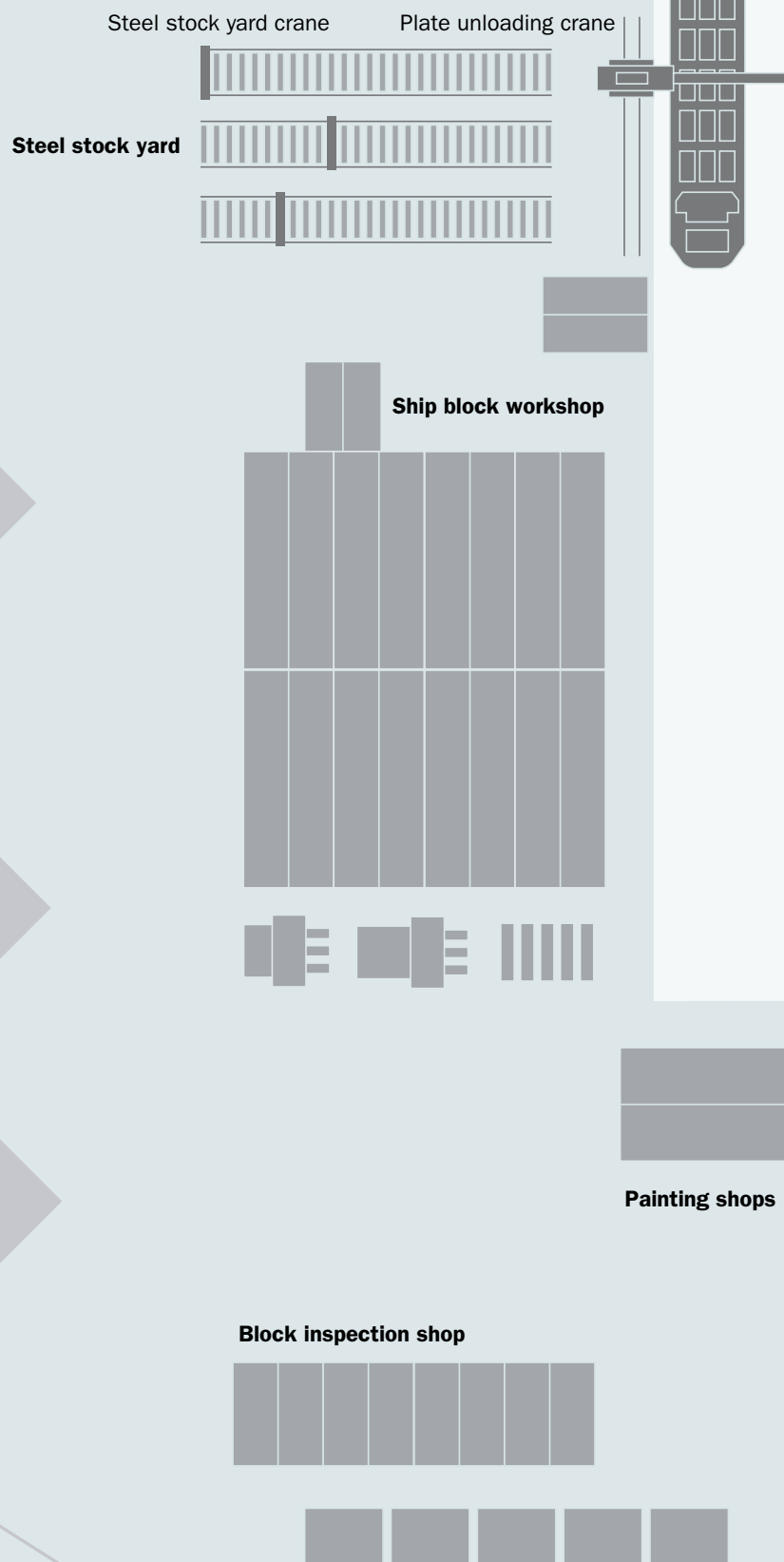
### **KONECRANES OFFERING FOR SHIPYARDS**

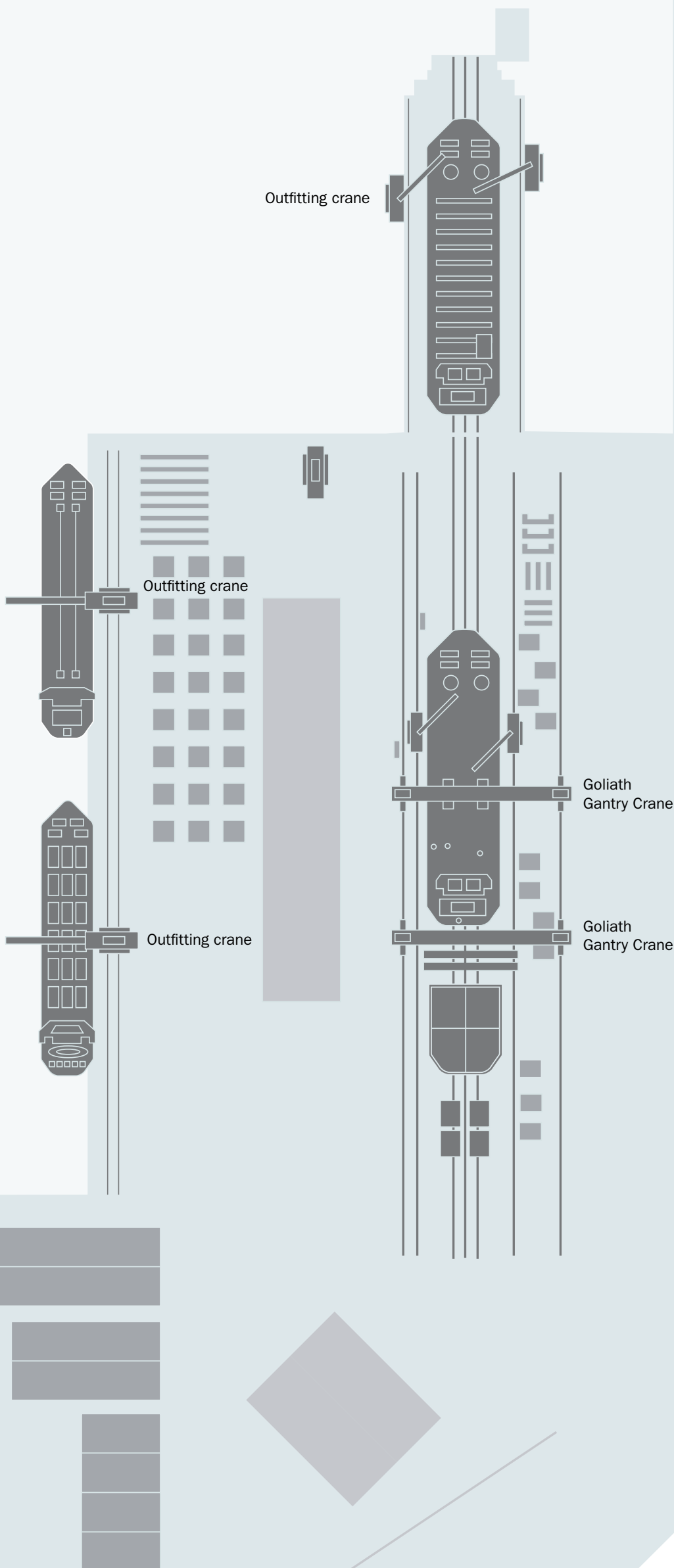
We offer a deep understanding of how lifting technology can help a shipyard achieve high production efficiency, quality and safety over the long term. Our lifting solutions for shipyards represent the lifting industry's lowest total cost of ownership in this demanding environment.

**...IS AT YOUR  
DISPOSAL**

9m  
8  
6  
4  
2  
8m  
8  
6  
4  
2  
7m  
8  
6

# WHAT ARE YOUR LIFTING NEEDS?





# LIFTING YOUR BOTTOM LINE

Unload the raw materials brought by your supply ships. Send the raw materials flowing into your production process smoothly and efficiently. Balance inventory levels and expertly manage the work of your personnel. The ship takes shape according to schedule, keeping to the design specifications and quality requirements. On the appointed day with the customer delegation present, you launch a gleaming new vessel that goes to sea to do its duty with distinction – while the next one is being outfitted. Konecranes will help you lift your bottom line by providing lifting technology that makes your production process safer and more efficient.

## Outdoor lifting

We meet your outdoor lifting needs with the industry's strongest product range for this special environment: a plate unloading and handling crane, steel stock yard cranes, the landmark Goliath Gantry Crane for ship block assembly, single and double-boom cranes for outfitting, and floating dock cranes.

## Indoor lifting

We meet your indoor lifting needs with industrial cranes proven in use worldwide across a wide range of demanding industrial applications. We offer engineered cranes for plate welding and ship block handling that we engineer according to your ship block manufacturing process. We also offer an excellent range of workshop and warehouse cranes for workstation duty.

## General-purpose lifting

We meet your need for general-purpose, "run-around" lifting with Lift Trucks that can be fitted with attachments for specific shipyard tasks.

## Modernization

Konecranes offers lifting equipment modernization services that cover all possible makes – equipment made by our competitors included. If you are planning a modernization, ask us to undertake a performance inventory of your lifting equipment.

## Services

We support all our shipyard lifting equipment with the lifting industry's most global service organization and highly skilled service engineers.

Single-girder construction  
is illustrated here

# GOLIATH: A LANDMARK OF SIZE AND LIFTING PERFORMANCE

The Goliath Gantry Crane is a landmark of size and lifting performance in every shipyard in which it serves. Beginning in 1972, we have delivered over 50 of these gigantic cranes to shipyards the world over.

Designed specifically for the heaviest and trickiest part of the ship-building process in lifting terms, ship block final assembly, Goliath's performance is the industry benchmark in this difficult application. Our understanding of how to design, engineer, build and erect a crane of this size on-site is without equal.

## Single or double-girder

We offer Goliath in single-girder construction for spans of over 100 meters, and in double-girder construction for spans of under 100 meters. We have delivered a Goliath with a lifting capacity of 1,650 tons and a span of 165 meters.

## Safety is paramount

Safety is always a paramount concern and wind is the strongest of many factors to take into account. Goliath is designed according to the FEM standard with special consideration given to typical local wind conditions.

## We have delivered Goliath:

- > With a lifting capacity of 1,650+ tons
- > With a lifting height of 100+ m
- > With a rail span of 207+ m



Double girder construction  
300 t / 70 m, U.A.E.



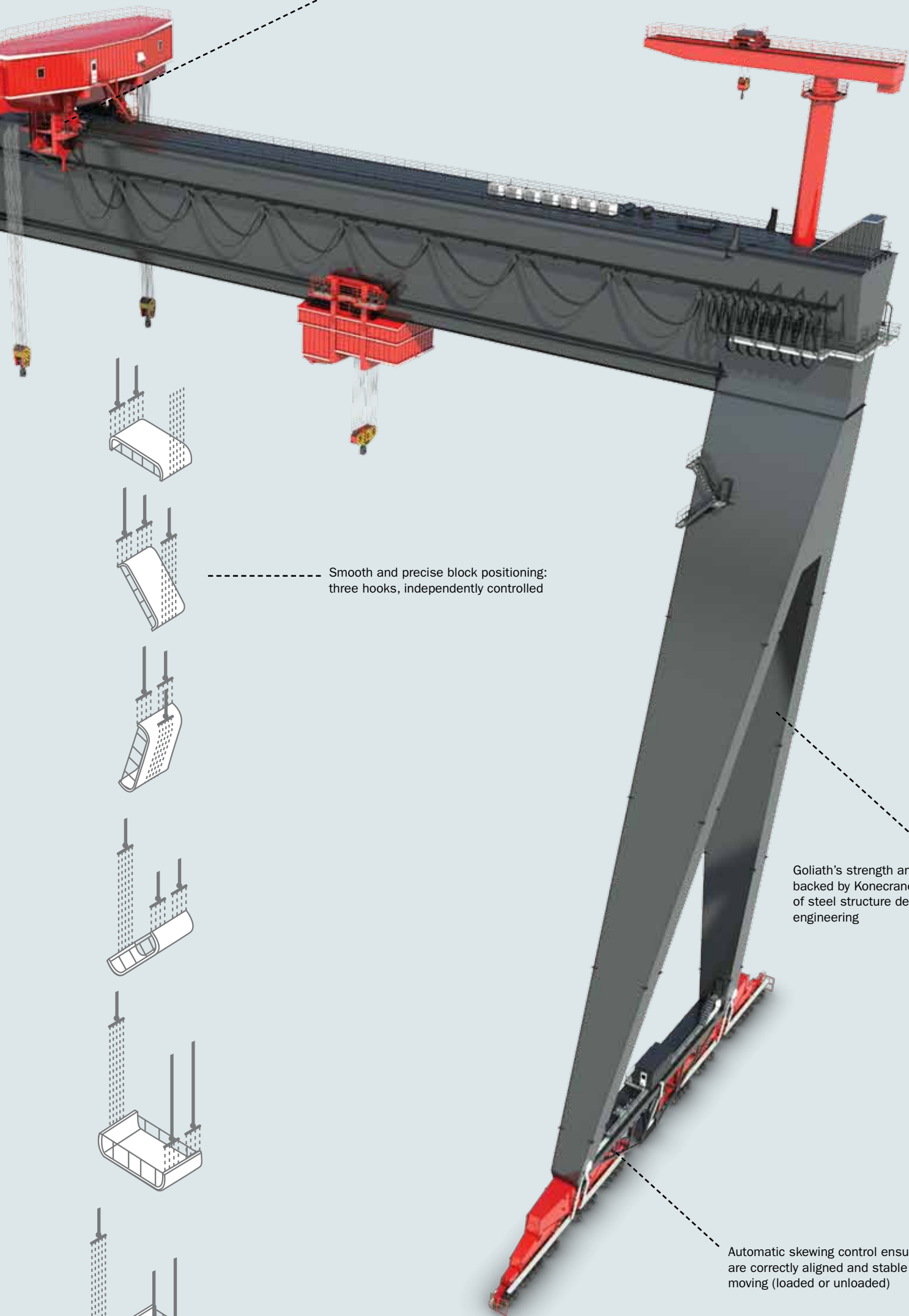
Single girder construction  
600 t / 175 m



Single girder construction  
900 t / 140 m



Operator cabin: many comforts available.  
Operator has all the real-time data needed to operate Goliath safely (e.g wind speed), in direct communication with the ship block fitters below.



Smooth and precise block positioning:  
three hooks, independently controlled

Goliath's strength and stability are backed by Konecranes' vast experience of steel structure design and engineering

Automatic skewing control ensures that the bogies are correctly aligned and stable when Goliath is moving (loaded or unloaded)

# OUTDOOR LIFTING

# OUTDOOR LIFTING

## CRANES FOR OUTFITTING

### SINGLE-BOOM LEVEL LUFFING CRANES, RAIL-RUNNING

- > Lifting capacity up to 300 tons
- > Outreach up to 80 m
- > Lifting height up to 70 m
- > Rail span 5...18 m
- > Low load path deviation

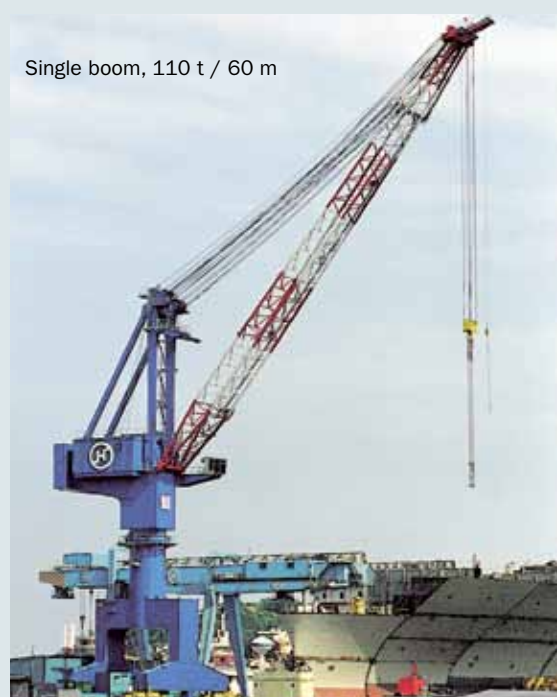
Our single-boom shipyard cranes are the workhorse cranes of ship outfitting. They are the right choice for general outfitting where very precise load handling accuracy is not required.

We provide single-boom cranes for small ship repair, large ship repair and large-scale repair and building work.

Single boom, 10 t / 50 m



150 t / 50 m



Single boom, 110 t / 60 m

Single boom, 15 t / 40 m







Double boom, 15 t / 40 m



Double boom, 50 t / 66 m



Floating dock cranes



### DOUBLE-BOOM LEVEL LUFFING AND SLEWING CRANES, RAIL-RUNNING

- > Lifting capacity up to 250 tons
- > Outreach up to 70 m
- > Lifting height up to 70 m
- > Rail span 8...18 m
- > Very low load path deviation

Our double-boom shipyard cranes are the right choice for outfitting where very precise load handling accuracy is required.

### FLOATING DOCK CRANES

- > Lifting capacity up to 50 tons
- > Outreach up to 40 m
- > Rail span 3...6 m

We install our single-boom and double-boom cranes on floating docks for outfitting in accordance with your floating dock design, lifting capacity and performance requirements.

# INDOOR LIFTING

## CRANES FOR SHIP BLOCK MANUFACTURING

Konecranes provides a complete range of lifting solutions for your indoor manufacturing operations, covering the following areas:

- > Steel hauling, stocking, pre-treatment, cutting
- > Ship block workshop: plate welding, panel handling, ship block lifting
- > Workstation lifting
- > Warehousing (steel and other materials)



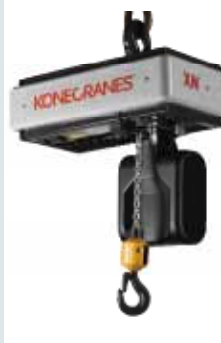
### ELECTRIC CHAIN HOISTS

XN Hook suspended hoist

XN Hook suspended hoist with manual push trolley

KM2 manual hoist

XN Handix



### Steel hauling, stocking, pre-treatment, cutting

Our Electric Overhead Travelling (EOT), Gantry, Semi-Gantry and Wall Console cranes, equipped with plate magnets, are ideal for steel plate hauling, stocking, pre-treatment and cutting activities (indoor/outdoor duty). They can be of single or double-girder construction equipped with CXT Wire Rope Hoists, SMT winches or tailor-made hoisting units depending on the work that needs to be done.

### Ship block lifting

We provide specially engineered solutions for the heavy work of ship block lifting and turning, in keeping with the design of your production line and your space requirements.

### Workstation lifting, ship block workshop

We provide flexible and efficient lifting solutions for workstation lifting in the ship block workshop. Our XM steel light crane system is built with modular components and easily modified to suit your production process. Single-girder and double-girder cranes are available with manual and motorized (optional) trolley movements. The XA aluminum light crane system is a modular, lightweight option also available as a monorail. Wall Console and Jib cranes are also very suitable.

**Workstation lifting (cont'd)**

Our wall and pillar jib cranes are built around either standard I-beams or special enclosed profiles. Lifting up to 2,000 kg, they can be equipped with chain hoists and a wide range of manual lifting equipment.

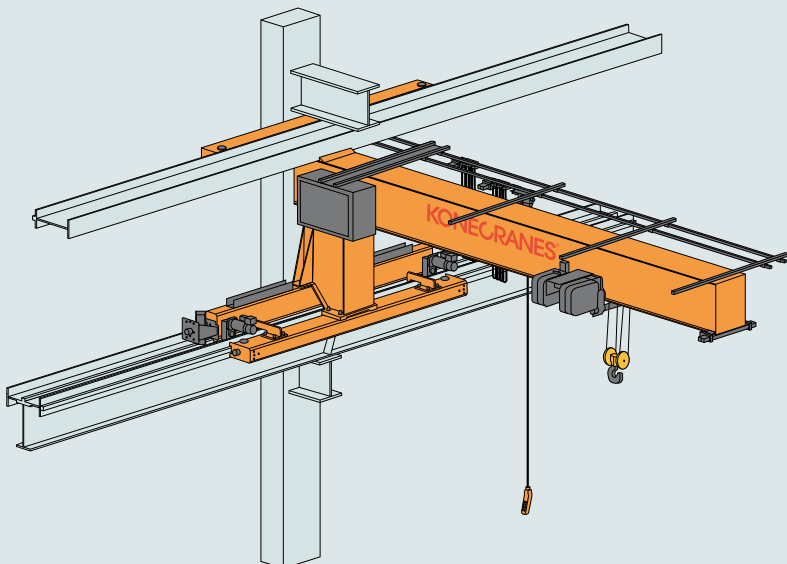


**Warehousing**

You will find the right solution from among our Electric Overhead Travelling cranes (CXT, LV and SMARTON) and Wall Console cranes to meet your steel warehousing lifting needs. Typically, the Electric Overhead Travelling cranes will do the heavy lifting, running over the Wall Console cranes which do the lighter workstation lifting.

**WALL INSTALLATION WITH WALL CONSOLE CRANE**

- > Lifts up to 5 tons
- > Outreach up to 10 meters
- > Lifting height up to 20 meters



**Ship block workshop**

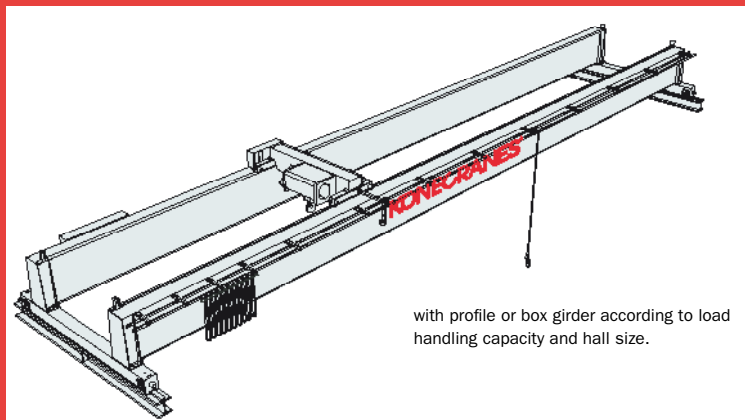
We can provide an ideal crane solution tailored for your particular ship block manufacturing process, covering the plate welding process, panel handling and ship block lifting.

It starts with the choice of overhead construction, single-girder or double-girder, with top-running or under-running cranes. The cranes can be Electric Overhead Travelling, Gantry, Semi-Gantry, Wall Console, or Jib types for handling steel materials. The overall solution will depend upon your hall size and dimensions, and lifting capacity and performance requirements. Give us your requirements: we will provide the right solution.

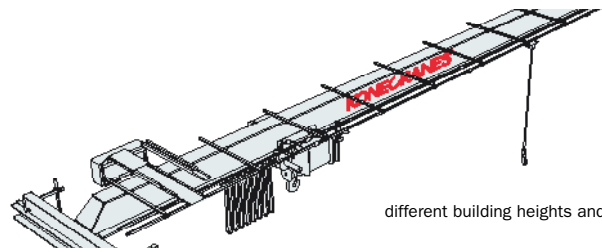
**A range of smart features can be built into the cranes:**

- > Sway control: prevents load swaying
- > End positioning: positions loads on a pre-defined spot
- > Adjustable working limits: defines the crane's working area
- > Synchro: two or more hoists lifting a load with synchronized hook movements
- > Shock load control: removes the moment shock caused by rapid load change
- > Skew control: prevents bridge skewing and minimizes horizontal effects on the building
- > Extended speed range: lifts the hook faster when there is no load
- > Remote diagnostics: preventive maintenance diagnostics

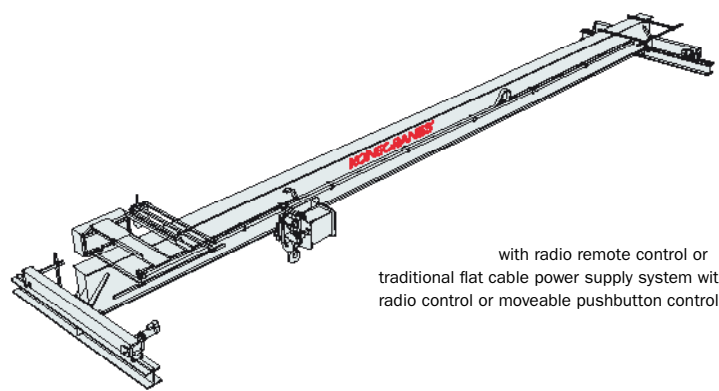
**Fitted with XN Chain Hoist or CXT Wire Rope Hoist**



with profile or box girder according to load handling capacity and hall size.



for different building heights and constructions.



with radio remote control or traditional flat cable power supply system with a radio control or moveable pushbutton control.

**Plate magnet crane**



The cranes can be fitted with a plate magnet for lifting and turning steel plates in accordance with your production runway layout:

1. Plates parallel to crane girder
2. Plates parallel to runway
3. Plates rotating between 1 + 2

# TAILOR-MADE MARINE CRANES

## Munckloader gantry cranes

Konecranes Munckloader gantry cranes travel along ship-deck rails. They are used to load and unload containers, unit cargo and bulk material. Vessels are typically equipped with two Munckloader cranes that work independently, providing an unloading capacity of about 2,000 tons/h each.



## 500-ton gantry cranes for cargo carriers

These are used to load and unload heavy cargo. Cargo carriers are equipped with two gantry cranes which travel along rails on the ship deck. The cranes can work independently or together. Maximum load at twin hoist of the two cranes is 1,000 tons. They have a 33-ton auxiliary hoist which can handle outboard loads and onboard cargo.



## 500-ton gantry crane for LASH-type barge carriers

This crane loads and unloads LASH-type barge carriers travelling along rails on the ship deck. It has an automatic loading device which hoists up or launches the barges aft the ship. The crane transfers the barges into or out of the ship's cargo space. The crane handles barges up to 18,745 m in length, 9.5 m in width, with a maximum load of 500 t. It has sea stowage equipment and hydraulically operated guide beams, which keep the barge stable when the crane is moving.



## 2,700-ton barge handling system for Seabee-type barge carriers

This is a lifting platform with a surface area of about 1,000 m<sup>2</sup> which can lift two fully-loaded barges to the appropriate deck level. Hoisting machinery (2 x 4 units) raises and lowers the lifting platform. Two trolleys travel along rails on the barges and bring them into the ship.



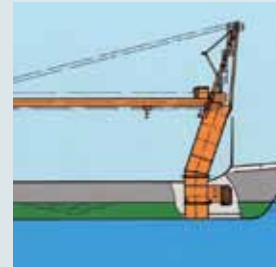
## 120-ton crane for barge carriers

This is an electro-hydraulic single-boom crane, designed for ships equipped with cargo hatches that carry heavy cargo. The crane moves along 120 m long rails on the deck. It lifts loads of up to 120 tons between the rails and 60 tons outboard.



## 100-ton crane for crane vessels

This crane is for handling drilling rigs and modules. Its counterweight is below-deck, and it has a special fork boom for moving and operating drilling rigs on small crane vessels. This boom is equipped with two 50-ton and two 10-ton hooks. For handling small loads and hoisting slings, a 5-ton trolley travels on the boom side.



## 250-ton crane for pipe-laying barges

Designed and tailor-made for pipe-laying vessels. Has a 250-ton trolley which travels along the entire length of the boom side. The 250-ton hook lifts and mounts heavy blocks and modules, and handles the stinger in open water. The fast 30-ton hook handles small loads, e.g. bundles of pipes. The crane also has two tugger winches.



## 600/1200/1600-ton revolving cranes for crane vessels

The 600-ton revolving crane is mounted on catamaran-hulled vessels for offshore work. The 1,200-ton revolving crane is mounted on the sterns of self-propelled crane vessels. It has two 600-ton main hooks which can be operated separately, a 300-ton auxiliary hook, tugger winches and a trolley with a 30-ton hook. The 1,600-ton revolving crane is mounted on the sterns of self-propelled crane vessels. It has two 800-ton main hooks which can be operated separately, a 400-ton auxiliary hook, and a trolley with a 30-ton hook which can travel along the length of the box girder crane boom.



Crane vessel equipped with 1,200 revolving crane

# GENERAL-PURPOSE LIFTING

## From 10 to 60 tons lifting capacity

Large selection of lift masts: makes it possible to optimize the truck for your operation. Choose between Duplex (with/without free lift) and Triplex (with free lift).

Special load-sensing hydraulics adapt the lifting power to the weight of the materials. Truck provides maximum power only when needed, saving fuel and reducing emissions and noise.

Quick-change system for different forks, coil rams or attachments. Offers unique flexibility and efficiency. For all material handling including steel, wood, paper and containers.

Electronically controlled monitoring of the engine, transmission and spreader with CanBus technology giving increased reliability.

## FORK LIFT TRUCKS

Konecranes provides a powerful family of Fork Lift Trucks for general-purpose, indoor/outdoor lifting at shipyards.

Our Fork Lift Trucks are built to get the job done as efficiently and cost-effectively as possible. We develop them constantly to attain the highest scores for quality, productivity and cost-efficiency. A rigid, box-section chassis and a load-sensing hydraulic system are the platform for a selection of optional equipment that you can match to your needs. Fast lifting and lowering speeds, direct and accurate maneuvering and excellent accessibility for servicing are common to the line.

In order to work efficiently and safely over long shifts the operator must have a good working environment.

These Fork Lift Trucks have what is probably the best cab on the market in terms of visibility, ergonomic design and comfort. Large windows give excellent visibility in all directions.

All controls are positioned within comfortable reach of the operator.

Fork Lift Trucks 10 – 60 tons			
Technical data	Small FLTs	Medium FLTs	Large FLTs
Lifting capacity	10 – 18 tons	18 – 25 tons	28 – 60 tons
Lifting height	3 – 12 m	3 – 15 m	4 – 15 m
Lifting speeds	0.30 – 0.60 m/s	0.25 – 0.40 m/s	0.15 – 0.40 m/s
Drive speeds	30 - 30 km/h	27 - 29 km/h	22 – 24 km/h
Engine	EU stage 2 or 3a / US EPA Tier 2 or 3 (6-cylinder, turbo-charged, CanBus)		
Hydraulics	Load-sensing, low-energy, low fuel consumption		
Lifting equipment	Forks, container spreaders, coil rams, paper clamps etc.		

# OUR PEOPLE MAKE THE DIFFERENCE, EVERY DAY

Our people are the face of our business. We strive to make every encounter with a Konecranes employee a positive one. With operations in almost 50 countries, we have the people power and resources to help you run your shipyard as efficiently as possible.

Over 300,000 items of lifting equipment are under Konecranes maintenance contract – many are in use at shipyards worldwide. Every day, Konecranes service personnel work closely with their shipyard customers to provide the industry's Highest Lifecycle Value.

When you purchase Konecranes lifting equipment, we support it with standard services and services tailored for your operating and business environment:

- > Spart part delivery
- > Repairs
- > Expert inspections
- > Training
- > Modernization
- > Crane Reliability Service

We will also take care of the lifting equipment supplied by our competitors. For example, if you are wondering about whether you should keep using or scrap certain older items of lifting equipment, our Crane Reliability Service can provide an expert performance report that will prove indispensable in making the right decision.

We believe strongly in the value of preventive maintenance in achieving Highest Lifecycle Value. But whatever your service coverage decision, we will do our utmost to keep your lifting equipment in peak operating condition throughout its working life.



# SERVICE IS OUR DNA





INDUSTRIAL  
CRANES



NUCLEAR  
CRANES



PORT  
CRANES



SHIPYARD  
CRANES



HEAVY-DUTY  
LIFT TRUCKS




SERVICE



MACHINE  
TOOL  
SERVICE



Konecranes is a world-leading group of Lifting Businesses™, serving a broad range of customers, including manufacturing and process industries, shipyards, ports and terminals. Konecranes provides productivity-enhancing lifting solutions as well as services for lifting equipment and machine tools of all makes. In 2009, Group sales totaled EUR 1,671 million. The Group has 9,800 employees at 545 locations in 43 countries. Konecranes is listed on the NASDAQ OMX Helsinki Ltd (symbol: KCR1V).

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