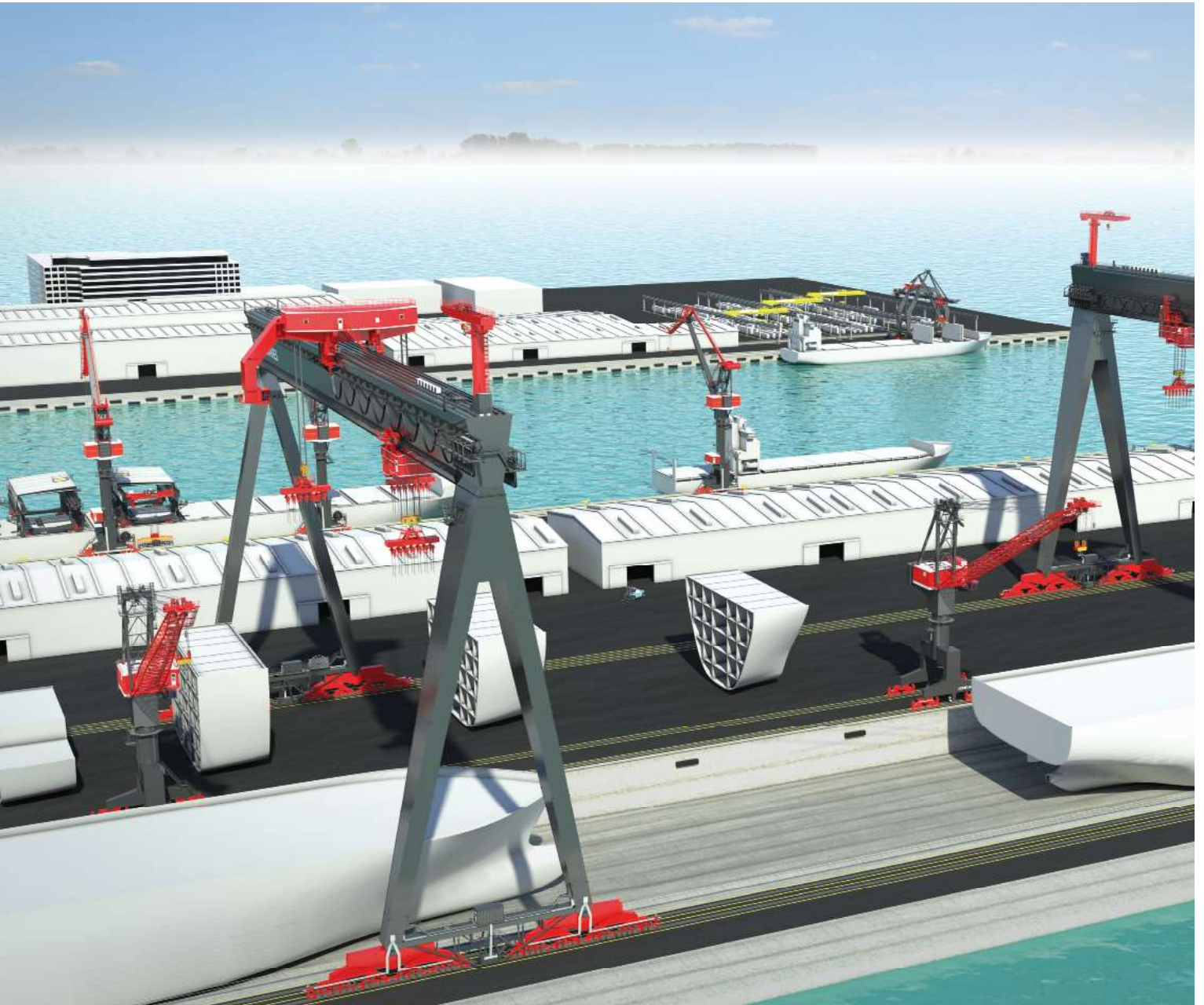


Typical technical specifications

Offering for shipyards





Offering for shipyards

As mass-transport vehicles for trade and industry, ships are an essential part of the global economy. They move goods to customers around the world and keep businesses running. Your clients want vessels they can rely on. And when you put the pieces of ships together, you need tools you can rely on. Konecranes makes these tools. For over 50 years, Konecranes has been a major global player in the design, delivery, and maintenance of shipyard lifting equipment. Around the world, from the largest to the smallest and everything in between, shipyards of all sizes are our customers. We are here to help build the safety and productivity of your operations both now and in the future. This has been our mission for the last 50 years, and it will be our mission for the next 50 years and beyond.

Goliath Gantry Crane

The biggest ship block you have to lift defines the Goliath lifting capacity you need. You must make a basic decision: do you want one large Goliath, or do you want the flexibility of having two smaller Goliaths on your dry dock? The safety of two Goliaths in tandem use is an important factor to consider.

Tandem use

The Konecranes design allows the cranes to be driven very close to each other when working in tandem. Our master-and-slave concept gives full control over both cranes to a single operator, from one control station. The slave crane follows every move made by the master crane, precisely and without delay, eliminating the safety hazards associated with traditional two-operator driving.



Lifting capacity	Flyweight	Welterweight	Heavyweight
Nominal capacity	250 – 700 tons	700 – 1200 tons	1200 – 2200 tons
Upper trolley total	55 – 100%	55 – 100%	55 – 100%
Upper trolley load unbalance	50 – 100%	50 – 100%	50 – 100%
Lower trolley	60 – 100%	60 – 100%	60 – 100%
Auxiliary hoist	20 – 50 tons	20 – 50 tons	20 – 50 tons
Service hoist	6 – 10 tons	6 – 10 tons	6 – 10 tons

Product concept and features			
Recommended girder concept	<100 m single girder and >100 m double girder		
Load rotation	Option	Standard	Standard
Speed change reducers	Option	Option	Standard
Elevator	Standard	Standard	Standard
Cabin	Leg-mounted as standard, trolley-mounted as option		

Main dimensions			
Span	60 – 230 m	50 – 230 m	50 – 230 m
Lifting height (maximum)	Up to 90 m	Up to 120 m	Up to 120 m
Lifting height (nominal)	Up to 82 m	Up to 112 m	Up to 112 m
Hook traverse of upper trolley	2 m	2 – 8 m	2 – 8 m
Buffer to buffer	Appr. 30 m	Appr. 46 m	Appr. 58 m

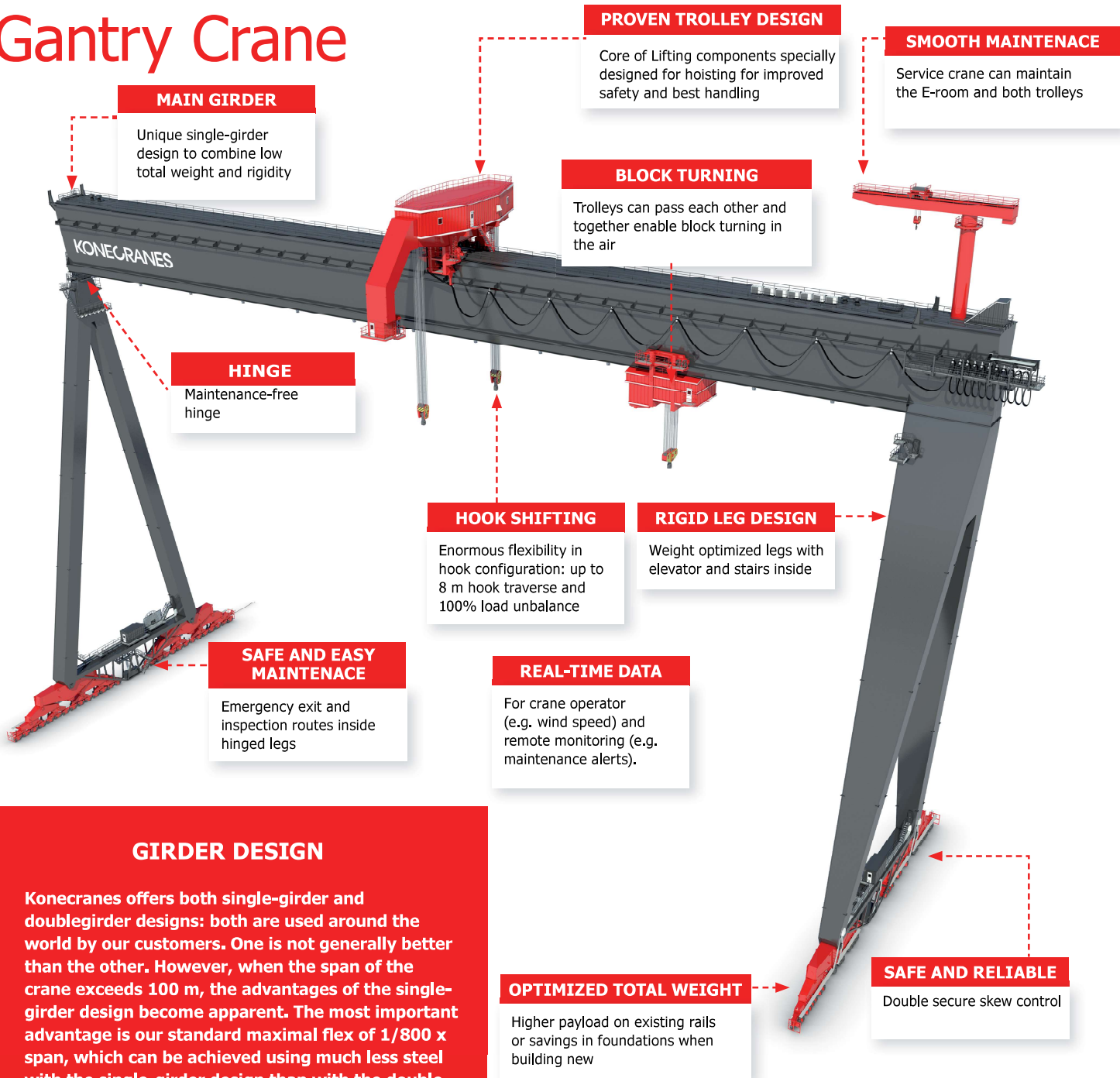
Typical speeds			
Gantry travel	30 m/min	30 m/min	30 m/min
Upper trolley traversing	30 m/min		
Upper trolley hoisting /no load	10 – 20 m/min	10 – 20 m/min	10 – 20 m/min
Upper trolley hoisting /with load	6 – 12 m/min	3 – 8 m/min	3 – 6 m/min
Lower trolley traversing /with load	30 m/min	30 m/min	30 m/min
Lower trolley hoisting /no load	10 – 20 m/min	10 – 20 m/min	10 – 20 m/min
Lower trolley hoisting /with load	6 – 12 m/min	3 – 8 m/min	3 – 6 m/min
Auxiliary hoist speed	10 – 40 m/min	10 – 40 m/min	10 – 40 m/min
Service hoist	5 – 25 m/min	5 – 25 m/min	5 – 25 m/min

Electrical systems			
Crane power supply	Cable reel	Cable reel	Cable reel
Trolley power feed	Festoon/Cable track	Festoon/Cable track	Festoon/Cable track
Drive and control system	Konecranes AC	Konecranes AC	Konecranes AC

Maintenance			
Crane Monitoring System	Standard	Standard	Standard
Remote diagnostics	Option	Option	Option

Standards			
Design according to EN 15011 or F.E.M. 1.001. Structural design life over 50 years.			
Steel structure - Class of utilization: Q2 – U3 : (A3)			
Machinery in general - Duty-class: L2 - T5 : (M5)			

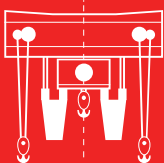
Goliath Gantry Crane



GIRDER DESIGN

Konecranes offers both single-girder and doublegirder designs: both are used around the world by our customers. One is not generally better than the other. However, when the span of the crane exceeds 100 m, the advantages of the single-girder design become apparent. The most important advantage is our standard maximal flex of $1/800 \times$ span, which can be achieved using much less steel with the single-girder design than with the double-girder design. Thanks to the rigidity of the single girder design, single-girder Goliaths allow a greater load unbalance between the upper trolley hooks.

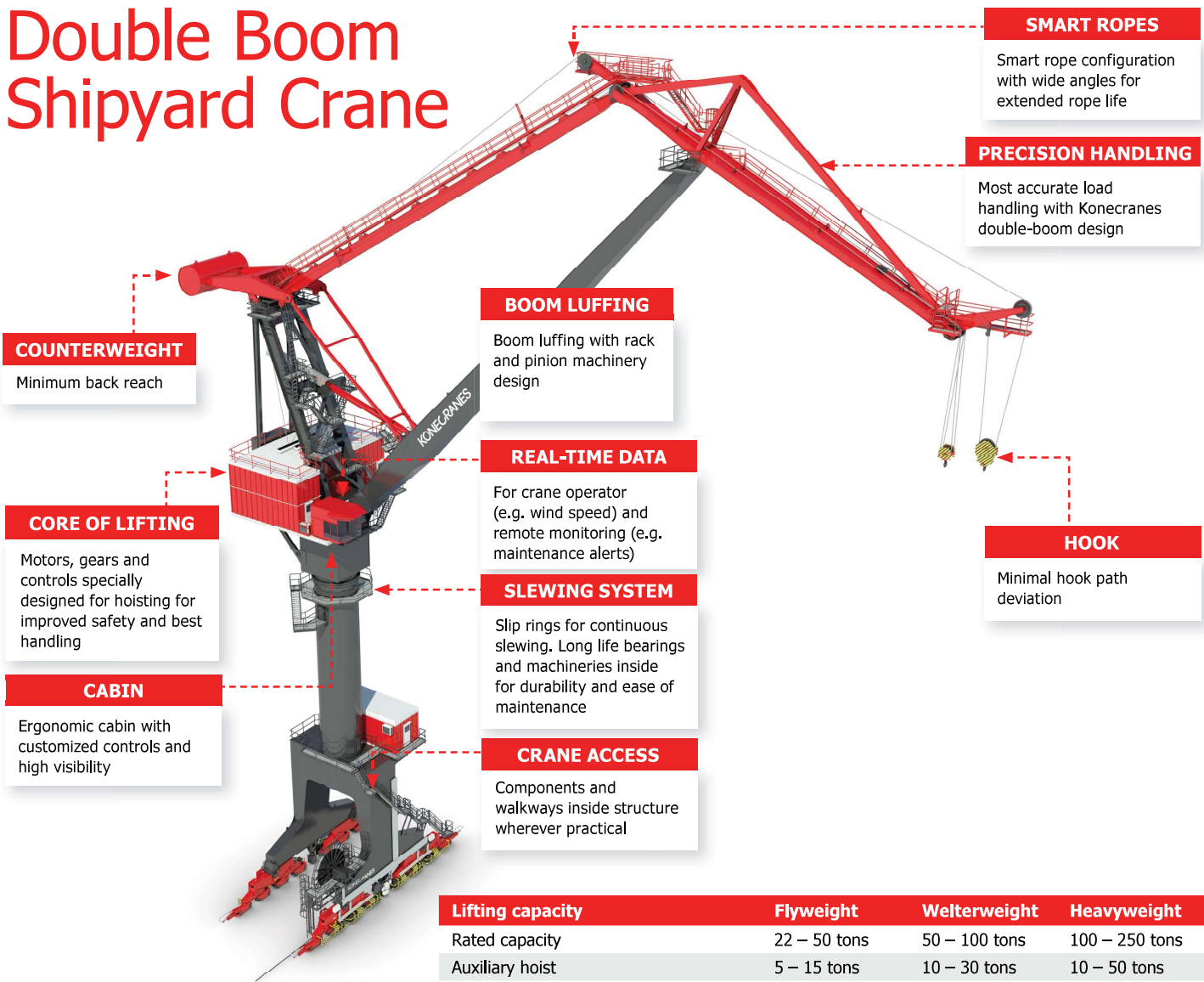
Double girder



Single girder



Double Boom Shipyard Crane



COUNTERWEIGHT
Minimum back reach

CORE OF LIFTING
Motors, gears and controls specially designed for hoisting for improved safety and best handling

CABIN
Ergonomic cabin with customized controls and high visibility

BOOM LUFFING
Boom luffing with rack and pinion machinery design

REAL-TIME DATA
For crane operator (e.g. wind speed) and remote monitoring (e.g. maintenance alerts)

SLEWING SYSTEM
Slip rings for continuous slewing. Long life bearings and machineries inside for durability and ease of maintenance

CRANE ACCESS
Components and walkways inside structure wherever practical

SMART ROPES
Smart rope configuration with wide angles for extended rope life

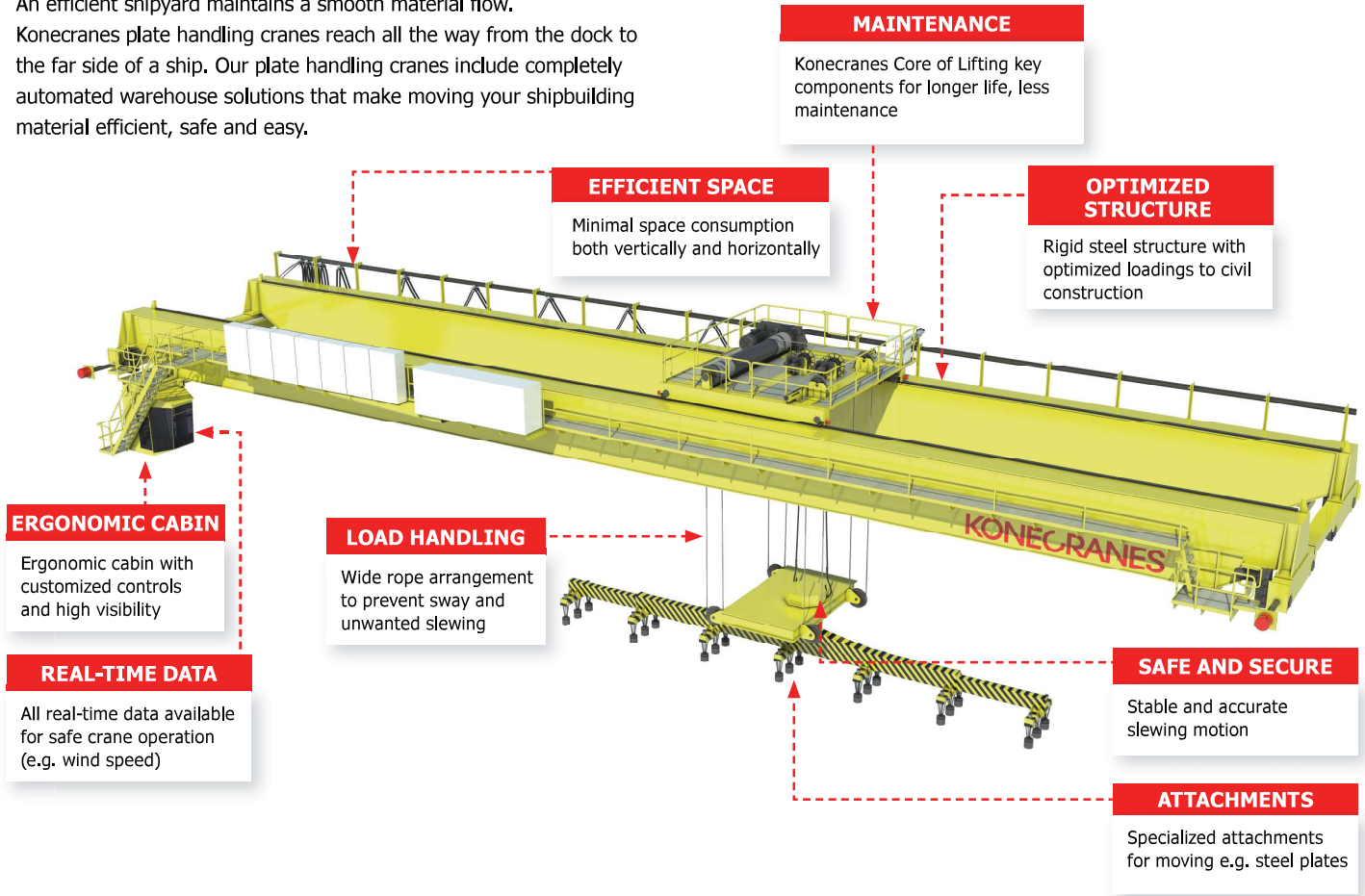
PRECISION HANDLING
Most accurate load handling with Konecranes double-boom design

HOOK
Minimal hook path deviation

	Lifting capacity	Flyweight	Welterweight	Heavyweight
Rated capacity		22 – 50 tons	50 – 100 tons	100 – 250 tons
Auxiliary hoist		5 – 15 tons	10 – 30 tons	10 – 50 tons
Service hoist		2 – 6 tons	2 – 6 tons	2 – 6 tons
Main dimensions				
Span		Down to 6 m	Down to 8 m	Down to 10 m
Lifting height above rail		Up to 70 m	Up to 120 m	Up to 120 m
Lifting height below rail		Up to 30 m	Up to 30 m	Up to 30 m
Outreach		Up to 70 m	Up to 70 m	Up to 70 m
Speeds				
Gantry travel speed		30 – 50 m/min	30 – 45 m/min	30 – 40 m/min
Luffing speed		15 – 30 m/min	15 – 25 m/min	15 – 20 m/min
Slewing speed		1,00 r/min	0,75 r/min	0,50 r/min
Hoisting speed with nominal load		10 – 30 m/min	7,5 – 20 m/min	5 – 15 m/min
Hoisting speed with no load		25 – 50 m/min	20 – 35 m/min	20 – 30 m/min
Auxiliary hoist speed with nominal load		45 – 70 m/min	40 – 60 m/min	35 – 55 m/min
Auxiliary hoist speed with no load		60 – 90 m/min	55 – 85 m/min	50 – 80 m/min
Electrical systems				
Crane power supply		Cable reel	Cable reel	Cable reel
Drive and control system		Konecranes AC	Konecranes AC	Konecranes AC
Maintenance				
Crane Monitoring System		Standard	Standard	Standard
Remote diagnostics		Option	Option	Option

Plate Handling Crane

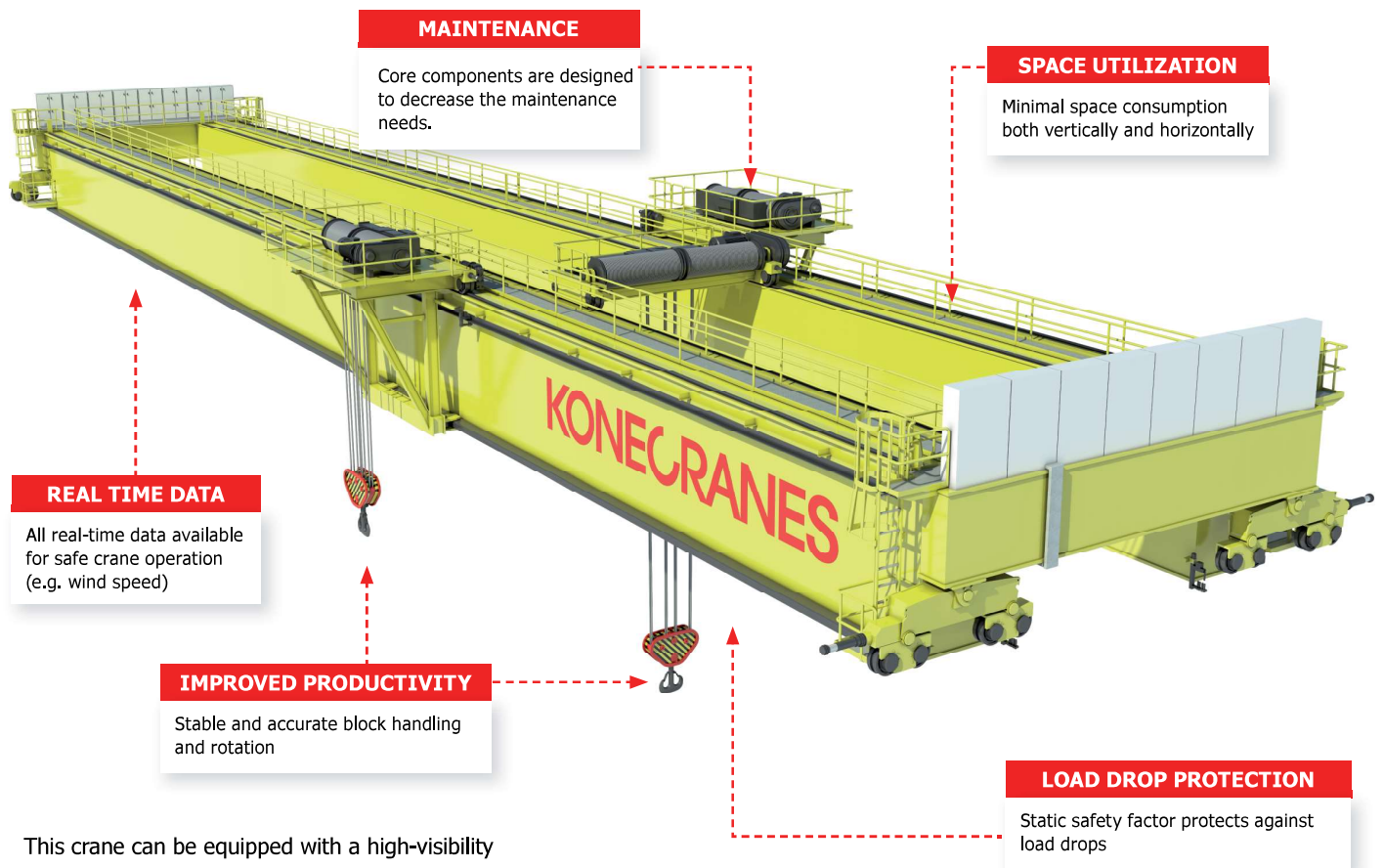
An efficient shipyard maintains a smooth material flow. Konecranes plate handling cranes reach all the way from the dock to the far side of a ship. Our plate handling cranes include completely automated warehouse solutions that make moving your shipbuilding material efficient, safe and easy.



Lifting capacity	CXT100-CXT600	SM17-SM18	LV10-LV30
Maximum capacity	1 – 16 tons	25 – 80 tons	10 – 30 tons (under magnet)
Auxiliary hoist			CXT
Main dimensions			
Span	Up to 40 m	Up to 45 m	Up to 50 m
Lifting height	Up to 20 m	Up to 20 m	Up to 15 m
Buffer to buffer	Down to 4 m	Down to 6 m	Down to 8 m
Speeds			
Bridge travel speed	30 – 50 m/min	30 – 50 m/min	40 – 100 m/min
Trolley traversing speed	15 – 25 m/min	20 – 40 m/min	20 – 50 m/min
Slewing speed			0,50 r/min
Hoisting speed with nominal load	4 – 10 m/min	4 – 10 m/min	5 – 12 m/min
Electrical systems			
Bridge power supply	Conductor	Conductor	Conductor
Trolley power supply	Festoon	Festoon	Festoon
Drive and control system	Konecranes AC	Konecranes AC	Konecranes AC
Control	Radio	Radio	Radio/Cabin
Maintenance			
Crane diagnostics	Standard	Standard	Standard
Remote diagnostics	Option	Option	Option

Block Handling Crane

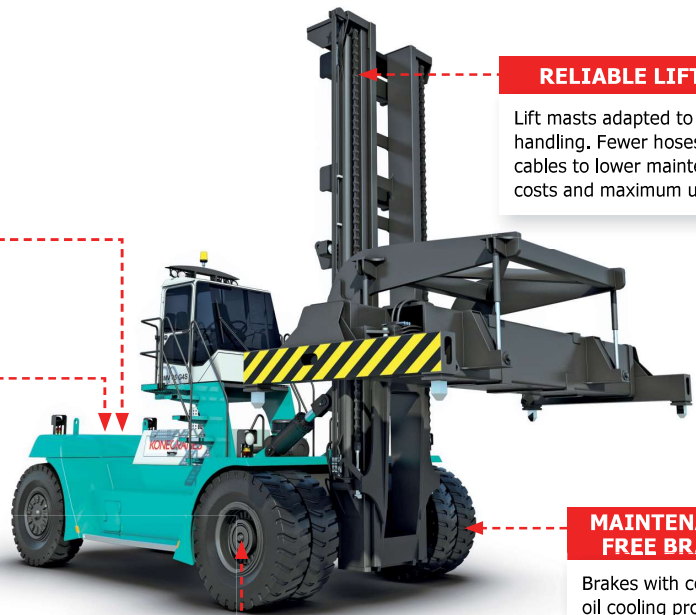
One of the most important factors in the productivity of your shipyard is the size and completeness of the ship blocks. Our cranes are customized to suit your process with various special features.



This crane can be equipped with a high-visibility cabin or radio remote control.

Lifting capacity	CXT100-CXT600	SMT 17-SMT20	LV50-LV350
Maximum capacity	1 – 16 tons	16 – 250 tons	50 – 350 tons
Auxiliary hoist		CXT	CXT
Main dimensions			
Span	Up to 110 m	Up to 60 m	Up to 80 m
Lifting height	Up to 20 m	Up to 30 m	Up to 40 m
Speeds			
Bridge travel speed	30 – 50 m/min	30 – 60 m/min	30 – 50 m/min
Trolley traversing speed	15 – 25 m/min	20 – 40 m/min	15 – 30 m/min
Hoisting speed with nominal load	4 – 10 m/min	3 – 10 m/min	3 – 10 m/min
Electrical systems			
Bridge power supply	Conductor	Conductor	Conductor
Trolley power supply	Festoon	Festoon	Festoon
Drive and control system	Konecranes AC	Konecranes AC	Konecranes AC
Control	Radio	Radio	Radio/Cabin
Maintenance			
Crane diagnostics	Standard	Standard	Standard
Remote diagnostics	Option	Option	Option

Lift Trucks



RELIABLE LIFTING

Lift masts adapted to container handling. Fewer hoses and cables to lower maintenance costs and maximum uptime.

HYDRAULIC LONG-LIFE FILTER

Extended service interval reduces maintenance costs

HEAVY-DUTY BOX-TYPE CHASSIS

The strongest on the market. The foundation of long-lasting high performance.

MAINTENANCE-FREE BRAKES

Brakes with continuous oil cooling provide full braking power in every situation.

EXCELLENT STABILITY

Wide drive axle and long wheel base for excellent stability.



THE RIGHT TRUCK FOR YOUR OPERATION

Select the right lifting mast from our wide range.

SMART LOAD-SENSING HYDRAULICS

Load-sensing hydraulics maximize fuel efficiency and reduce emissions.

QUICK-CHANGE FORK SYSTEM

Choose the right equipment from different forks, coil rams, and other lifting attachments.

ELECTRONIC MACHINE CONTROL

CanBus technology increases engine and transmission reliability as well as hydraulics and levers.

Forklift 10 - 65 tons

Technical data	Small	Medium	Large
Lifting capacity	10 – 18 tons	18 – 33 tons	37 – 65 tons
Lifting height	3 – 12 m	3 – 15 m	4 – 15 m
Engine	EU stage 3a - IV - V / US EPA Tier 3 - 4f - 5 (4/6-cylinder, turbo-charged, CanBus)		
Hydraulics	Load sensing, low energy, low fuel consumption		
Lift equipment	Forks, container spreaders, coil rams, paper clamps etc.		

Empty container handlers 8-11 Tons, 3-8 high

Technical data	Small	Medium	Large
Lifting capacity	8 tons	9 tons	10-11 tons
Stacking height	3 – 6 containers	5 – 8 containers	4 – 8 containers double stacking
Engine	EU stage 3a - IV - V / US EPA Tier 3 - 4 Final - 5 (4/6-cylinder, turbo-charged, CanBus)		
Hydraulics	Load sensing, low energy, low fuel consumption		
Spreaders	Sidelift 20-40 ft (45-53 ft in 40 ft castings), single or double lift		
Functions	Sideshift ± 400/± 600 mm, MPS pile slope 0 – 225 mm		

Laden container handlers 26-52 Tons, 3-6 high

Technical data	Medium	Large
Lifting capacity	26 – 37 tons	45 – 52 tons
Stacking height	3 – 5 containers	3 – 6 containers
Engine	EU stage 3a - IV - V / US EPA Tier 3 - 4f - 5 (6-cylinder, turbo-charged, CanBus)	
Hydraulics	Load sensing, low energy, low fuel consumption	
Spreaders	Toplift 20-40 ft (45-53 ft in 40 ft castings), single lift only	
Functions	Sideshift ± 200 mm, MPS pile slope ± 4.8 deg, slew ± 6.0 deg, reach 0 – 240 mm	

All Forklifts and container handlers

Engine approvals	EU stage 3a - IV - V / US EPA Tier 3 - 4f - 5		
Engine types	4/6-cylinder, turbo-charged, intercooler, electronic controls, CanBus		
Transmission	Fully automatic, electronic-hydraulic shift, reverse protection, CanBus		
Hydraulics	Load-sensing, power-on-demand, low-energy, low fuel consumption		
Optional controls	Remote service function (via GSM), error code data log, ECO-driving, multi-driver login, mini-steering, electronic weight scale, Fleet Management System (FMS)		
Crane diagnostics	Standard	Standard	Standard
Remote diagnostics	Option	Option	Option

Better service means a better crane

Good service is essential to keep a crane running efficiently, and will greatly extend its life.

With our professional evaluation, preventive maintenance and consultation services, we can tailor a service package designed specially for the needs of your shipyard.

Whether you require performance-based maintenance or complete materials outsourcing, Konecranes has the experience and resources to help you reach your business objectives.



INSPECTION SERVICES

Your crane is analyzed right down to component level, and recommendations are provided on how to improve safety, reliability, and cost optimization. Regular inspections will help you meet statutory requirements and reduce the risk of breakdowns.

CRANE MODERNIZATIONS

Extending the lifetime of a crane is sometimes smarter than investing in a completely new one. The performance, safety, and reliability of your old crane can be significantly increased through modernization. You can get a complete mechanical and electrical upgrade, along with testing and commissioning.

MAINTENANCE

An active preventive maintenance program is fully customized for your particular equipment, applications and duty cycle. Konecranes offers preventive and predictive programs for all types of cranes. With regular maintenance, your equipment will last much longer, giving you a lower total cost of ownership.

ADVANCED DIAGNOSTICS

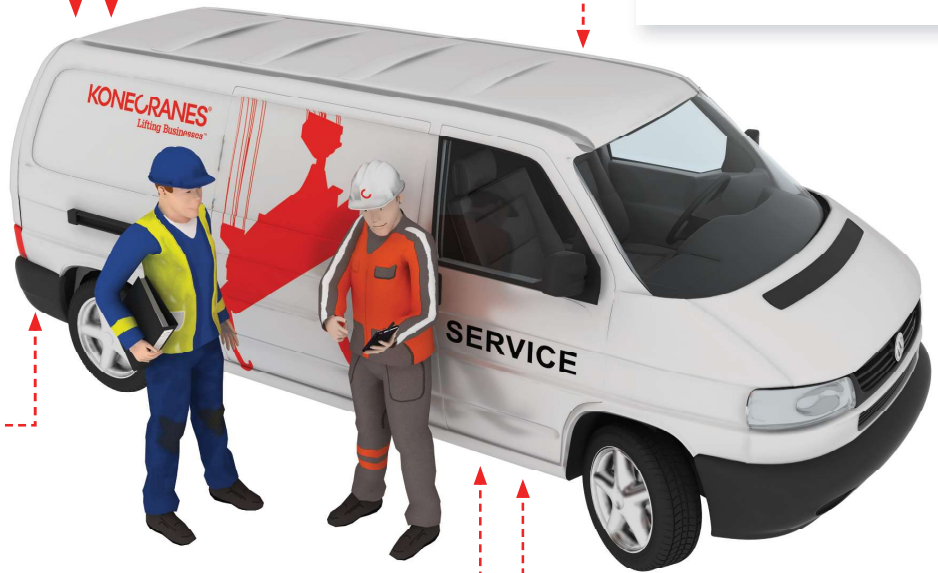
Inspection and maintenance can include an extensive range of advanced diagnostic services. In particular, we recommend our Crane Reliability Survey, an engineering assessment of the current condition and future maintenance needs of your cranes. The Runway Survey, provides accurate information on the alignment of your crane rail and recommendations for corrective action. Magnetic Rope Inspection assesses the condition of a wire rope, including the core and inner wire strands and can help you optimize wire rope change intervals.

SPARE PARTS FOR ALL MAKES AND MODELS

As a global supplier of spare parts for shipyard lifting equipment, Konecranes can support you with an extensive distribution network, part identification, order handling, high availability, and fast delivery. If required, we can also promptly design and manufacture a customized spare part just for you.

AND MORE

Konecranes provides many other services such as crane relocations and rail grinding, both typical for shipyards. If you need something for your crane, even if it's not listed here, please ask.



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 of all makes. In 2019, Group sales totaled EUR 3.33 billion. Including MHE-Demag, the Group has around 18,000 employees in 50 countries. Konecranes shares are listed on the Nasdaq Helsinki (symbol: KCR).



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