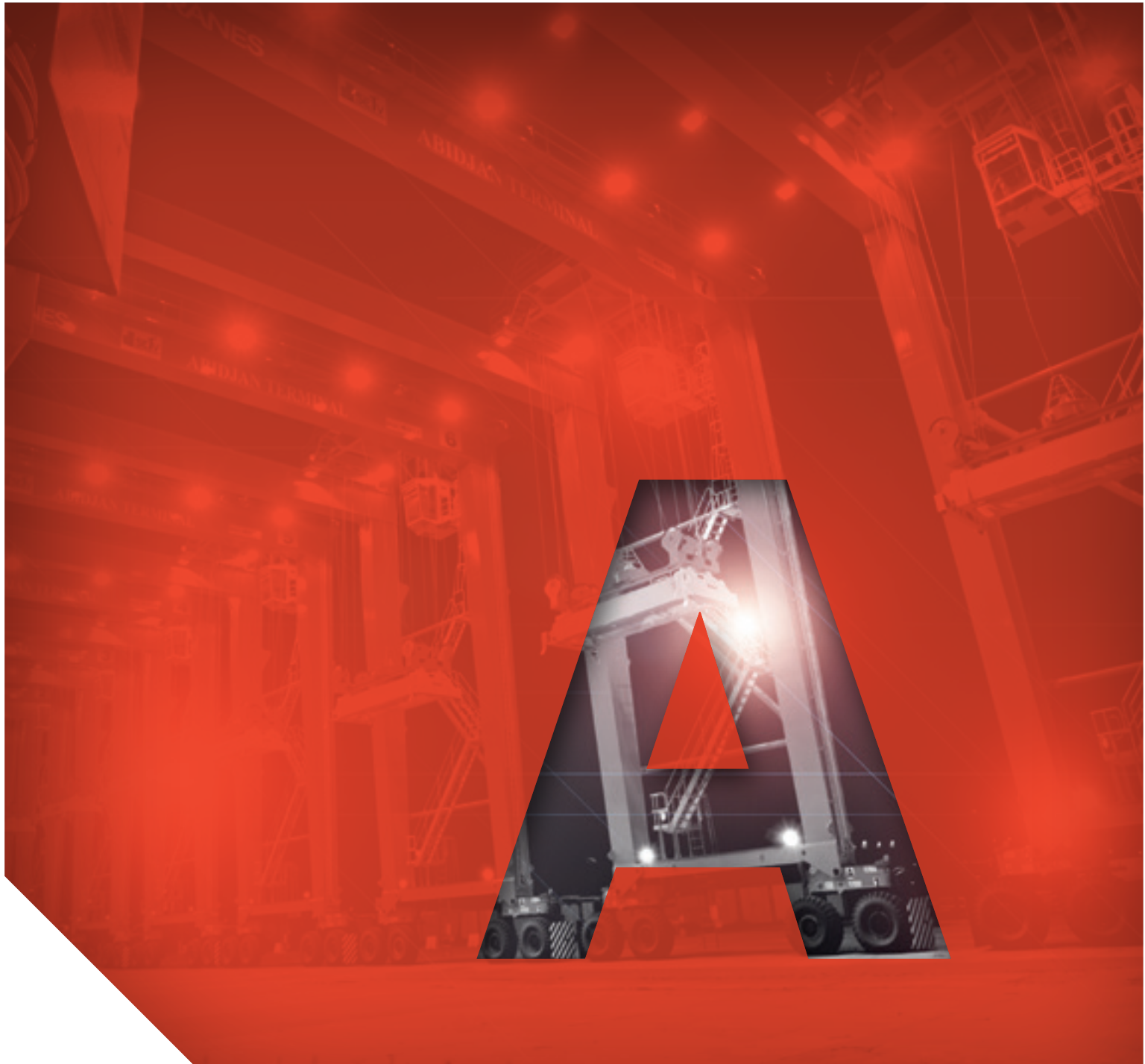


INDUSTRIAL CRANES
NUCLEAR CRANES
PORT CRANES
HEAVY-DUTY LIFT TRUCKS
SERVICE
MACHINE TOOL SERVICE

AUTOMATED RTG

KONECRANES[®]
Lifting Businesses™

The Yard **REVOLUTION** **AUTOMATED RTG**



AUTOMATED RTGs: A HUGE NEW



Automated container handling is well-established in Automated RMG (ARMG) container yards around the world. The benefits of automating a container terminal operation are well-known: increased safety, greater productivity and better predictability. It's time to bring these important benefits to your RTG-based container terminal operation. Now you can factor automation into your business planning: the future of your RTG container terminal just got brighter.

Join the yard revolution with Konecranes Automated RTGs (ARTGs). You can use your existing yard infrastructure, including the yard surface.

OPTION



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ARTG SYSTEM OVERVIEW

WE HAVE THE TECHNOLOGY

Automated RTG operation is within your reach.

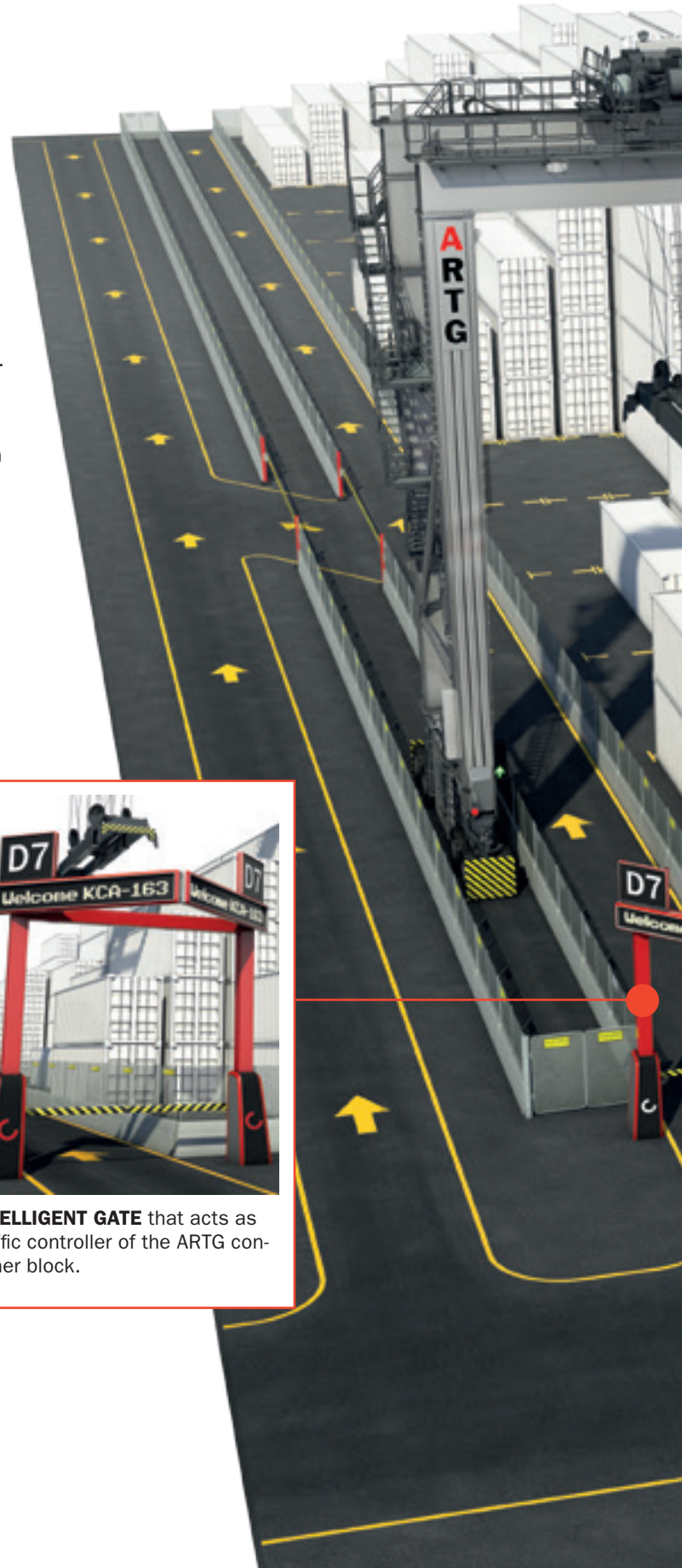
If you already have Konecranes RTGs with Active Load Control, we offer an upgrade package that contains everything needed to move to Automated RTG operation. You don't have to make heavy investments in infrastructure. You can use your current yard, starting with one or more container stacks. If you're planning a new RTG container terminal, this is a great opportunity to build an Automated RTG operating model with us.

THE ARTG SYSTEM COMPRISES:

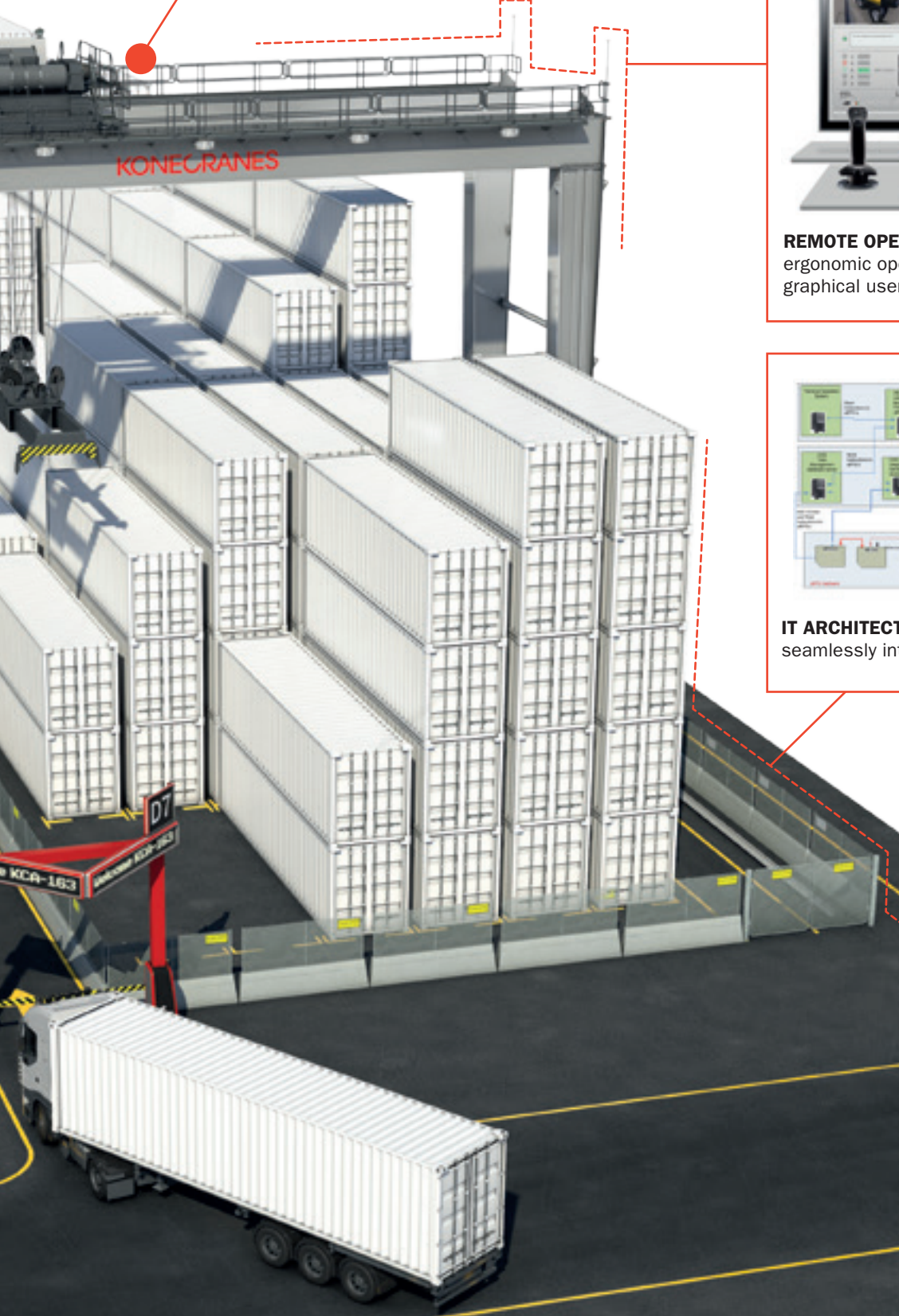
- Konecranes 16-wheel RTG with Active Load Control and Autosteering
- RTG power option: one of cable reel, busbar, diesel fuel saver
- Process study of yard set-up
- Automation hardware
 - Remote Operating Station (ROS)
 - Truck guidance system (lights)
 - Intelligent gate
 - Yard infrastructure as needed
- Automation software
 - Operating system for ROS
 - IT architecture with TOS interface



INTELLIGENT GATE that acts as traffic controller of the ARTG container block.



KONECRANES ARTG is based on the Konecranes 16-wheel RTG, equipped with Active Load Control and Autosteering.



REMOTE OPERATOR STATION (ROS) with ergonomic operating layout and advanced graphical user interface.



IT ARCHITECTURE that can be seamlessly interfaced with your TOS.



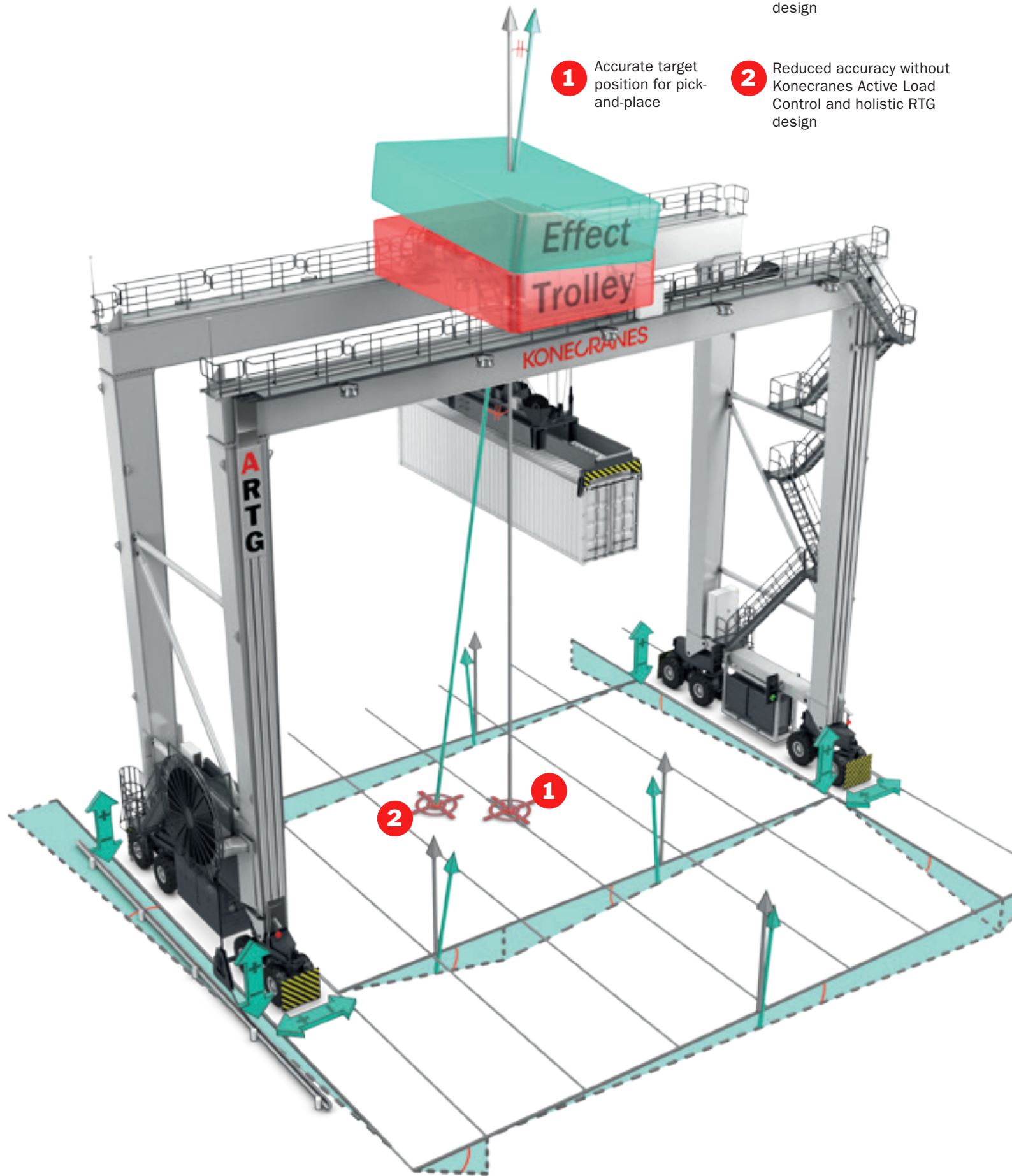
THE AUTOMATION CONTROL SYSTEM CABINET includes all the hardware and software needed to operate the Konecranes ARTG System.

↑
Vertical
reference line

↑
Effect without Konecranes
Active Load Control
technology and holistic RTG
design

1 Accurate target
position for pick-
and-place

2 Reduced accuracy without
Konecranes Active Load
Control and holistic RTG
design



IT'S ABOUT TOLERANCE...

Time will tell, but the Konecranes RTG is probably the only RTG in the world that can be automated successfully for full-scale commercial terminal operation.

Konecranes 16-wheel RTGs have the built-in tolerance to handle a rough yard surface in automated operation. This ability is the result of the holistic design of the Konecranes RTG, which brings together an intelligent steel structure that can flex like no other, and our Active Load Control system that eliminates container sway.

...OF LOCAL VARIATION

The Konecranes ARTG is built to handle the technical challenges of container positioning and measurement in automated operation.

TOLERATING VARIATION IN THE RUNWAY SURFACE

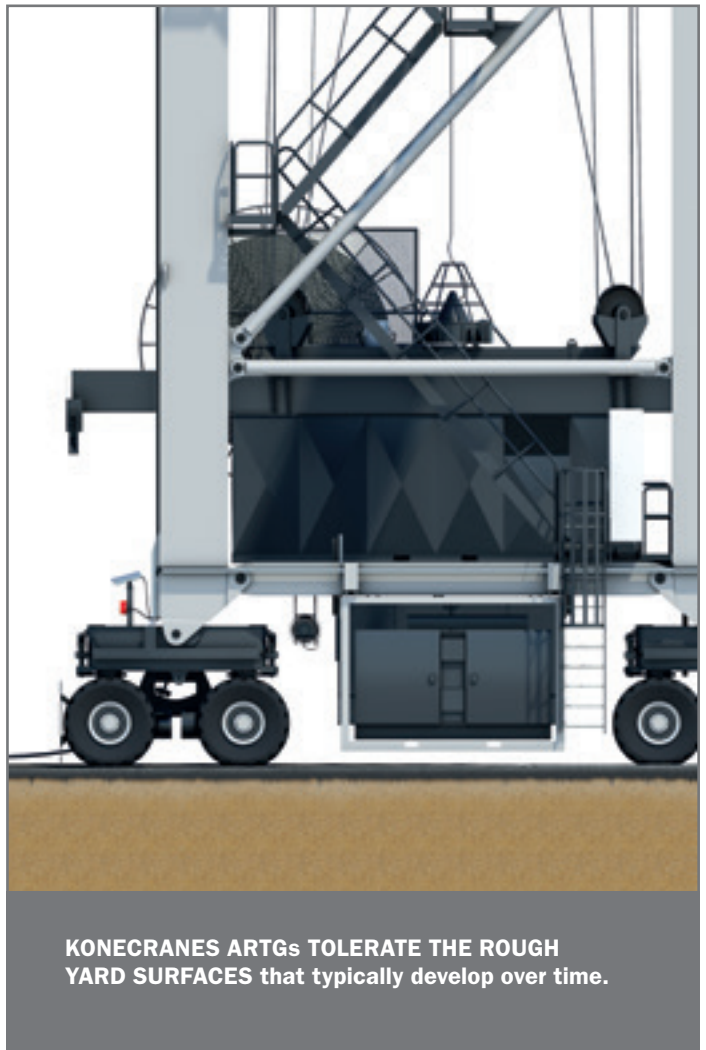
- Slope variation
- Differences in height
- Bumps and obstacles

TOLERATING VARIATION IN THE STACKING AREA

- Container bays can be at different angles to the crane
- Each container ground slot can have variations in stacking angle and height

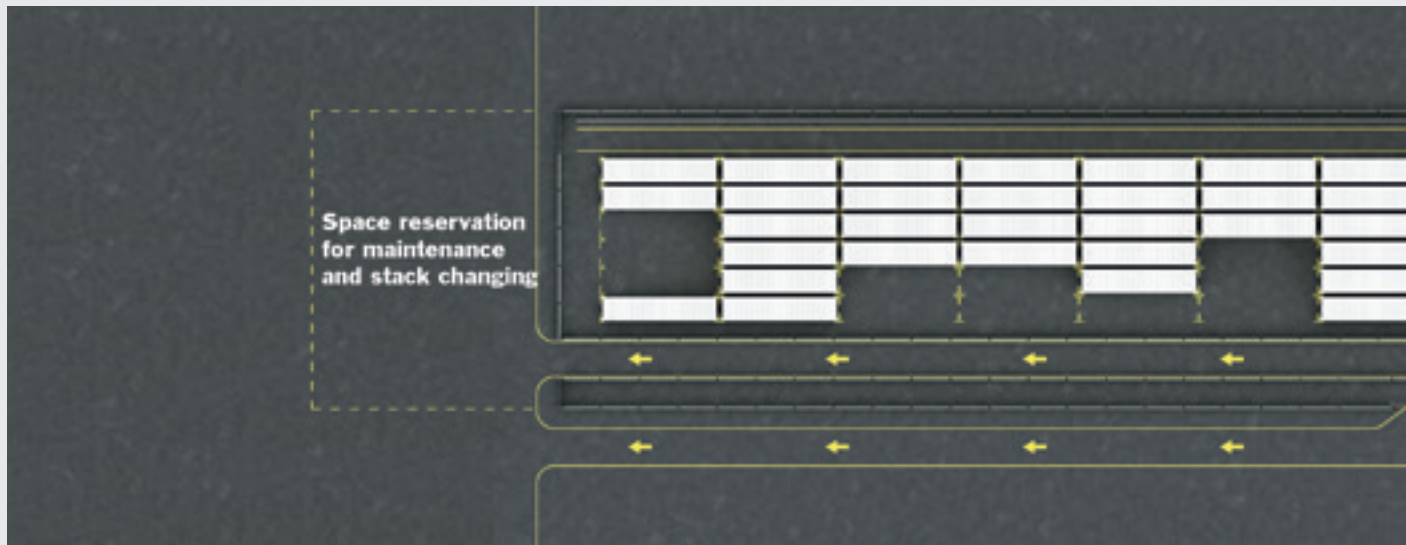
TOLERATING THE RUBBER TIRES

Variations in tire condition and inflation



KONECRANES ARTGs TOLERATE THE ROUGH YARD SURFACES that typically develop over time.

ARTG SYSTEM FUNCTIONALITY

HERE IS THE PROCESS

THE BASIC ARTG CONTAINER BLOCK LAYOUT. ARTG block operations are side-fed. ARTG gantry movement is limited as much as possible. The truck drives to meet the ARTG for loading/unloading operations.

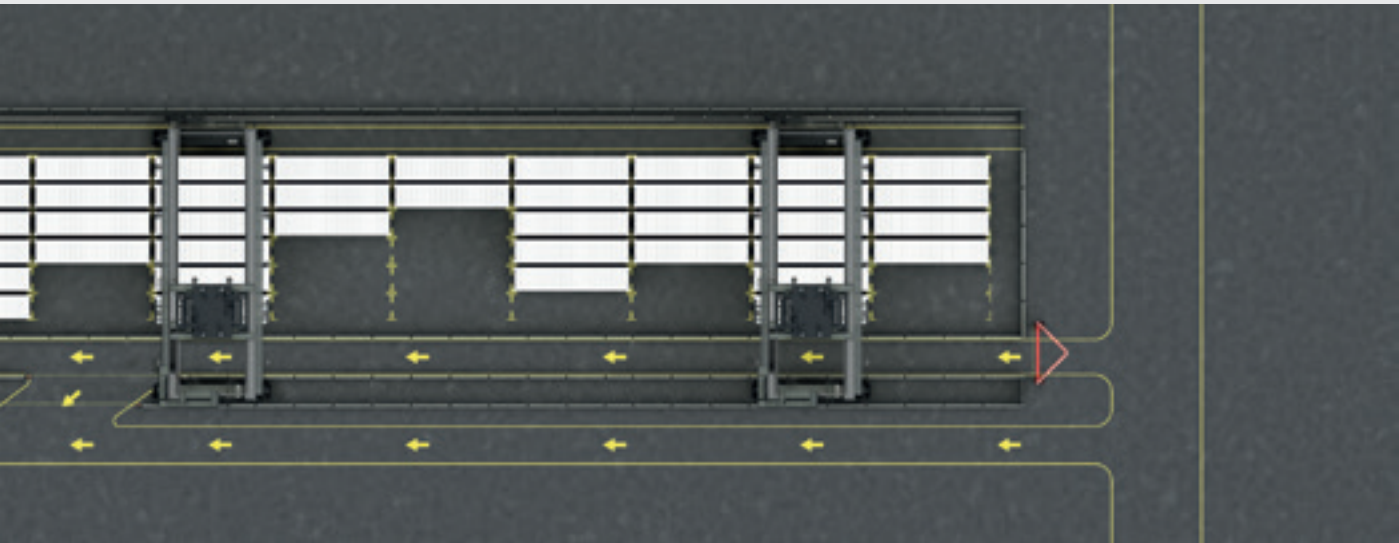


The design of truck traffic, safety fencing and gates can be terminal-specific based on a modular solution.



Stacking inside the container stack is fully automated.

Konecranes ARTG technology is field-proven in a number of important Automated RMG (ARMG) reference terminals. Our ARTG technology and operating methodology are similar to those employed in these ARMG terminals.



Truck loading and unloading is done by the remote operator in the Remote Operating Station (ROS). One remote operator can handle up to 6 ARTGs.

JOIN THE YARD REVOLUTION



GANTRY TRAVELING

- Dual antenna DGPS Autosteering
- Twin base station with automatic switch-over for redundancy

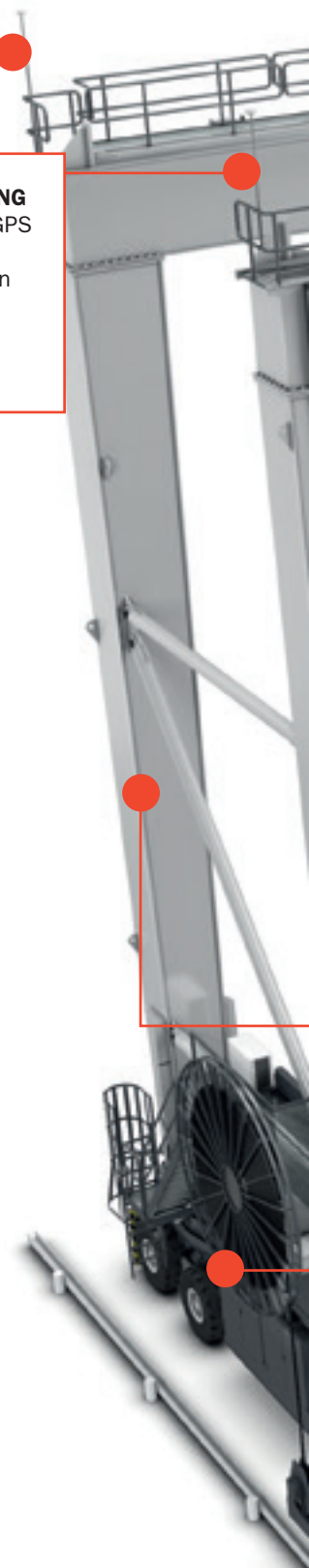
ARTG PERFORMANCE

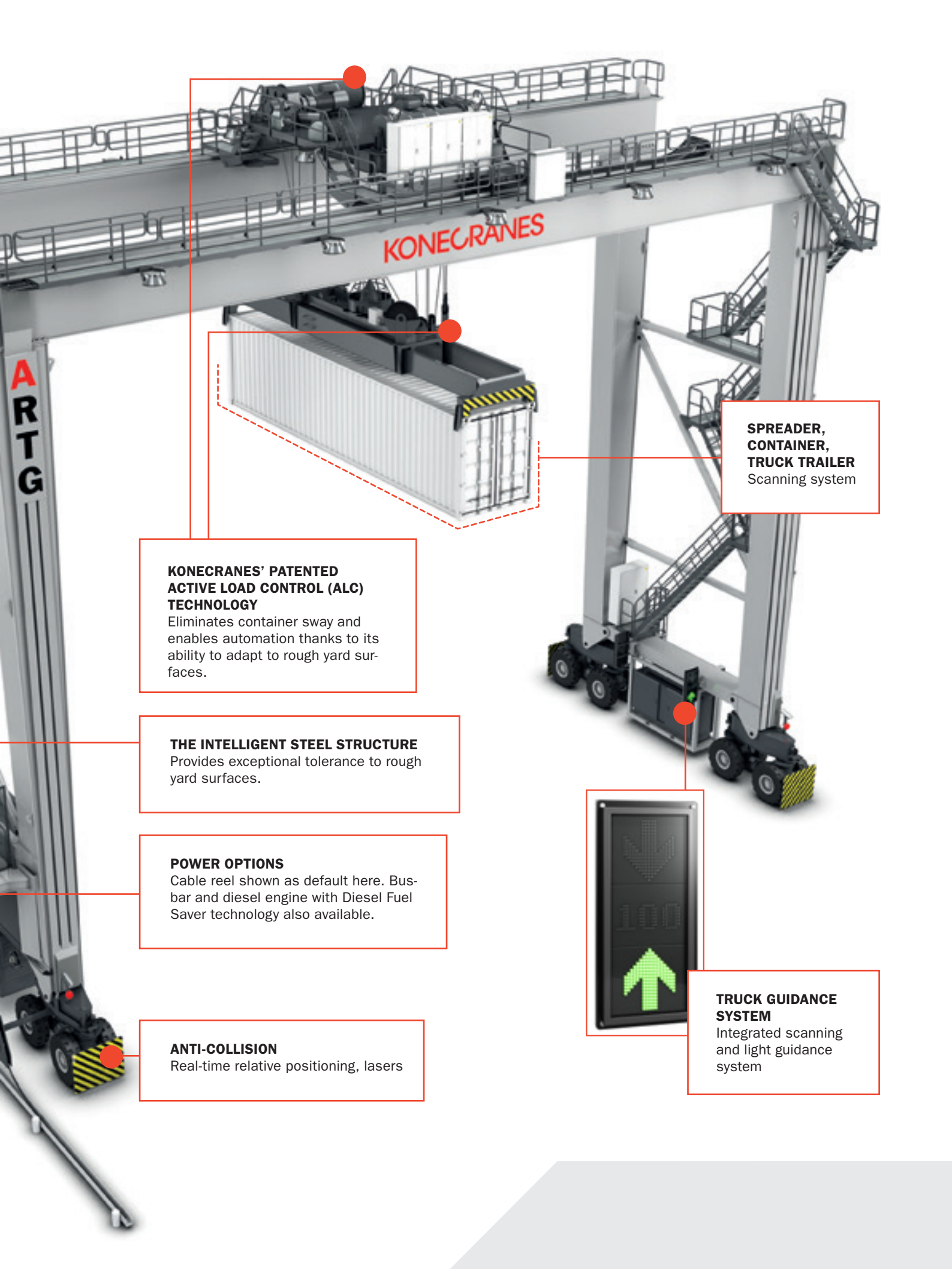
Dimensions with max. 1 over 5 and max. 7 + truck lane, mm

Max. lifting height 1 over 5 / Max. span 7 + truck lane	18100/29500
Crane width over bogie guards/wheel spacing in bogie	12060/2100

Max. speeds, m/min.

Hoist with 50-ton load/empty spreader	31/62
Trolley traversing standard/optional	70/76
Gantry travel with empty spreader/50-ton load	135/90





KONECRANES

ARTG

SPREADER, CONTAINER, TRUCK TRAILER
Scanning system

KONECRANES' PATENTED ACTIVE LOAD CONTROL (ALC) TECHNOLOGY

Eliminates container sway and enables automation thanks to its ability to adapt to rough yard surfaces.

THE INTELLIGENT STEEL STRUCTURE

Provides exceptional tolerance to rough yard surfaces.

POWER OPTIONS

Cable reel shown as default here. Bus-bar and diesel engine with Diesel Fuel Saver technology also available.

ANTI-COLLISION

Real-time relative positioning, lasers

TRUCK GUIDANCE SYSTEM

Integrated scanning and light guidance system





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PORT
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HEAVY-DUTY
LIFT TRUCKS




SERVICE



MACHINE
TOOL
SERVICE



Konecranes is a world-leading group of Lifting Businesses™ offering lifting equipment and services that improve productivity in a wide variety of industries. The company is listed on NASDAQ OMX Helsinki Ltd (symbol: KCR1V). With over 12,000 employees at more than 600 locations in almost 50 countries we have the resources, technology and determination to deliver on the promise of Lifting Businesses™.

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