

MORE BOXES PER OPERATOR

The path to port automation



The path to port automation... more boxes per operator

1. Manual Operation

Start with your existing manual equipment at the quayside, on the apron or in the container yard.

We know you probably have different brands of equipment – we can do retrofits on non-Konecranes equipment too.

2. Smart features

Add Smart Features to improve your performance and safety.

For new equipment or as retrofits to existing equipment, ensuring that your operator experience is harmonized.

3. Supervised operation

Give your operators the power of automation to assist with repetitive tasks. For example, automated RTG stacking and housekeeping in the yard. The on-board operator stays in control in the cabin, learning how the system works.

From here, the transition to automation is easier. Operator can smoothly be relocated to a remote operating centre, decoupled from the crane.

4. Automated operation

If you move to automated operation, adding automation technology and system elements in the yard, it's a relatively simple transition that can be done in manageable phases, step-by-step at the pace you and your business need.

Remote operation

At any stage, you can apply remote operation. The crane and operator are decoupled, which improves safety and productivity by eliminating operator's idling time. Smart Features are recommended to make the remotely operated machines more effective.



The path to port automation... some are already on it

QUAYSIDE

Ship-to-shore cranes

The Konecranes Ship-to-Shore cranes at **Kuala Tanjung** container terminal in Indonesia are equipped with our "Shipgate" feature. It detects the container IDs when ship loading and unloading, while connected to the TOS. It's the quayside equivalent to container ID detection at the terminal gate for road trucks. It can be retrofitted.



The Konecranes Ship-to-Shore cranes working in the **Port of Houston**, USA, are equipped with our Stack Collision Prevention feature, making container handling at this critical place safer.

Our tandem lift feature in action with two Konecranes Gottwald Mobile Harbor Cranes at **Rendsburg Port**, Germany. The cranes have different maximum load handling capabilities, but they unite their strength as a team, each giving 100% of their lifting capacity. One operator handles everything very simply via radio remote control.

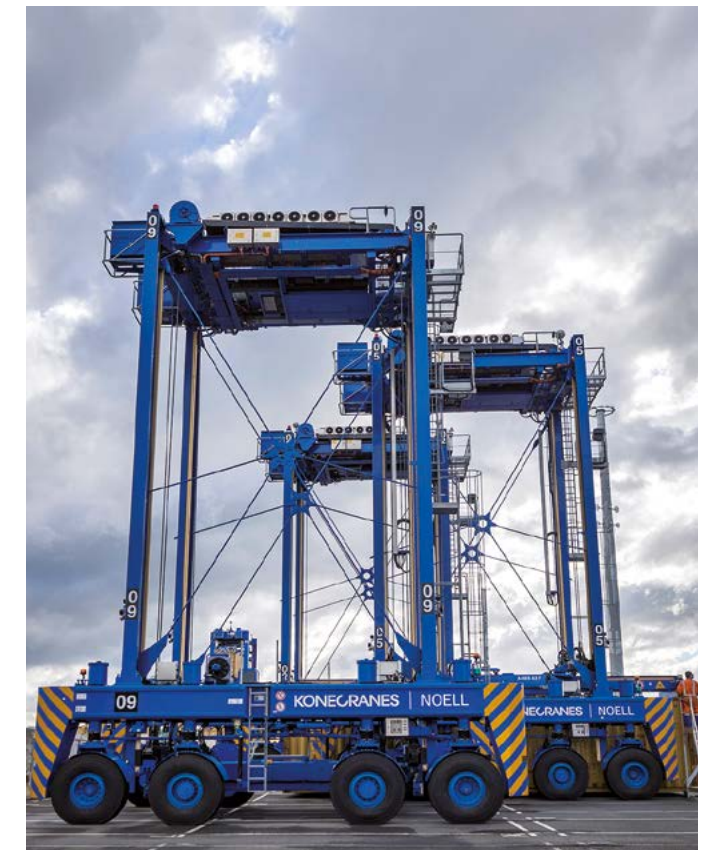


HORIZONTAL TRANSPORT

Straddle carriers



The 50 manually operated Konecranes Noell Straddle Carriers working in **Freeport, Bahamas**, are equipped with the Auto-TOS Reporting feature. This enables the port to keep a very accurate container inventory.



The Ports of Auckland in New Zealand operate a fleet of straddle carriers. We are upgrading 21 of them to automated operation, and we are delivering 27 new A-Strads.

CONTAINER YARDS
RTGs, RMGs

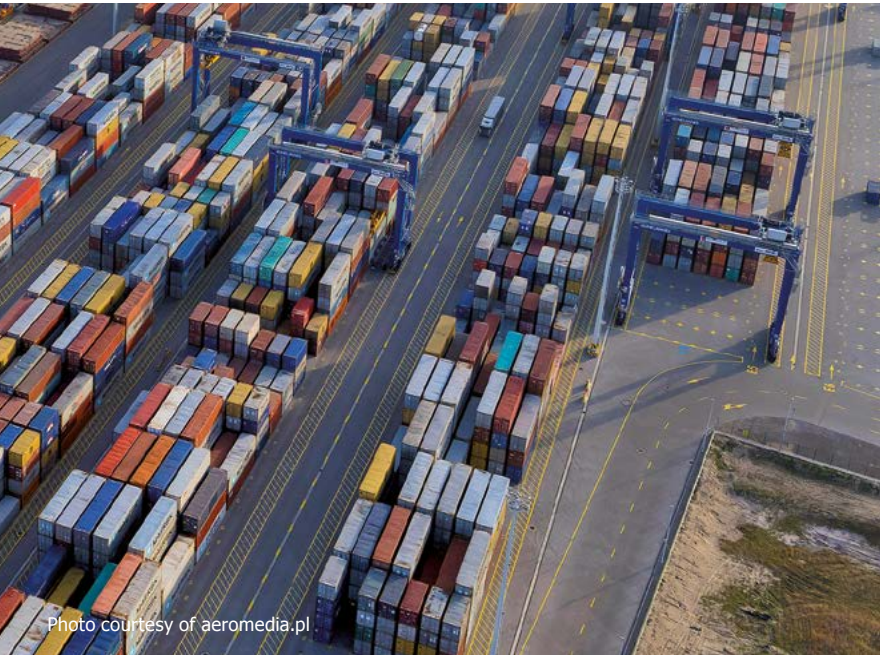
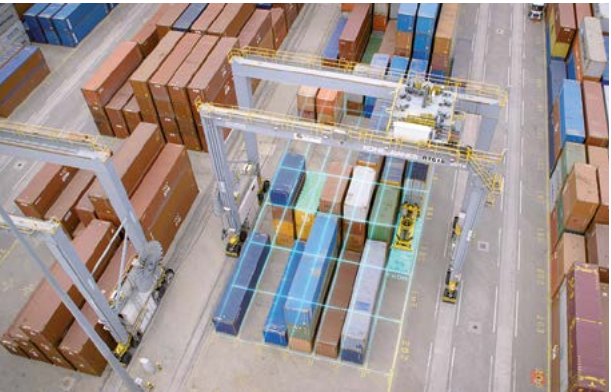


Photo courtesy of aeromedia.pl

The Konecranes RTGs working at **DCT Gdansk** in Poland are equipped with a range of Smart Features. These include Auto-steering, Auto-TOS Reporting, Auto-positioning, Auto-path Optimizing, Stack Collision Prevention, Auto-truck Guiding and Truck Lift Prevention.



DP World in Yarimca, Turkey, decided to step onto the path to automation by converting one container stack, with two manned Konecranes RTGs, to remote operation. The stack is working successfully after extensive testing leading to proof of concept.

The RTGs are equipped with a range of Smart Features including Auto-truck Guiding, Auto-steering, and others.



Terminal Peti Kemas Semarang (TPKS) in Semarang, Central Java, Indonesia, is the second-largest container terminal in the Pelindo III Group. It operates a large Automated RTG system from Konecranes. The system is built on a next-generation automation platform, including fully automated stacking in the yard, Remote Operating Stations (ROSSs) for truck handling and the related container yard infrastructure. The system went live in 2016. Major efficiency and safety benefits have been realized.



Global Container Terminals (GCT) expanded their RTG-based container terminal in Bayonne, New Jersey USA with a complete Automated RMG system from Konecranes. They now successfully combine manned RTG operation and automated RMG operation.



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 2018, Group sales totaled EUR 3.16 billion. The Group has 16,100 employees at 600 locations in 50 countries. Konecranes shares are listed on the Nasdaq Helsinki (symbol: KCR).

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For detailed info on the Konecranes path
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bit.ly/port-automation