RTG 3D collision avoidance

Liebherr Transform

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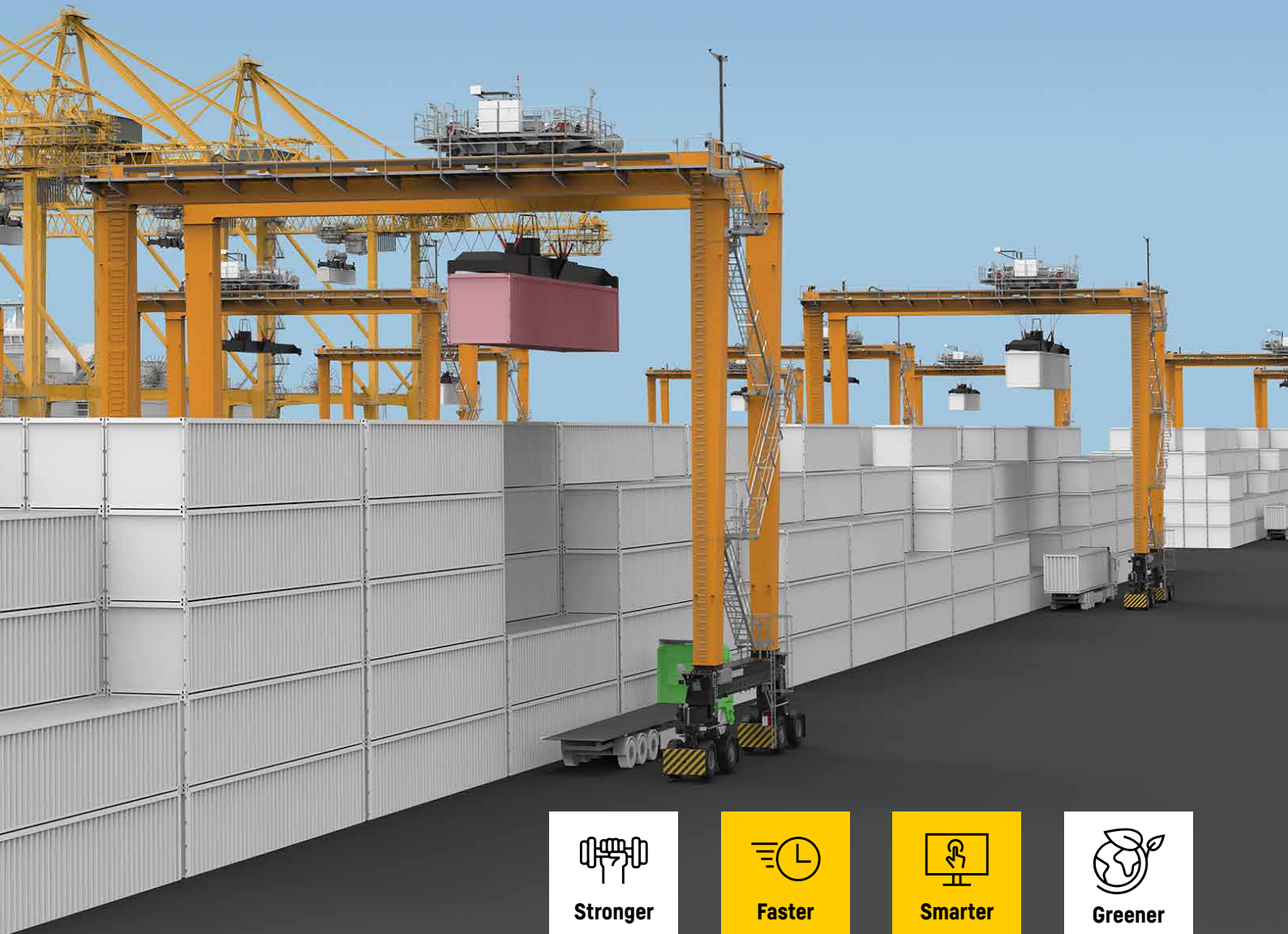
Stronger

Faster

Smarter

Greener

# 3D scanning for increased safety and productivity

Turn your older Liebherr RTG into a future ready, high spec machine by retrofitting a high-resolution 3D collision avoidance system.

High performance laser scanners mounted on a swivelling platform, scan the stack, container handling equipment and operational area. They provide highly accurate measurements for obstacle detection/collision avoidance, positioning and target location.

The raw data from the scanners is processed on a dedicated IPC to create a 3D image of the scanned areas, providing 3D profiles of the operational area including the container stack and the interchange area.
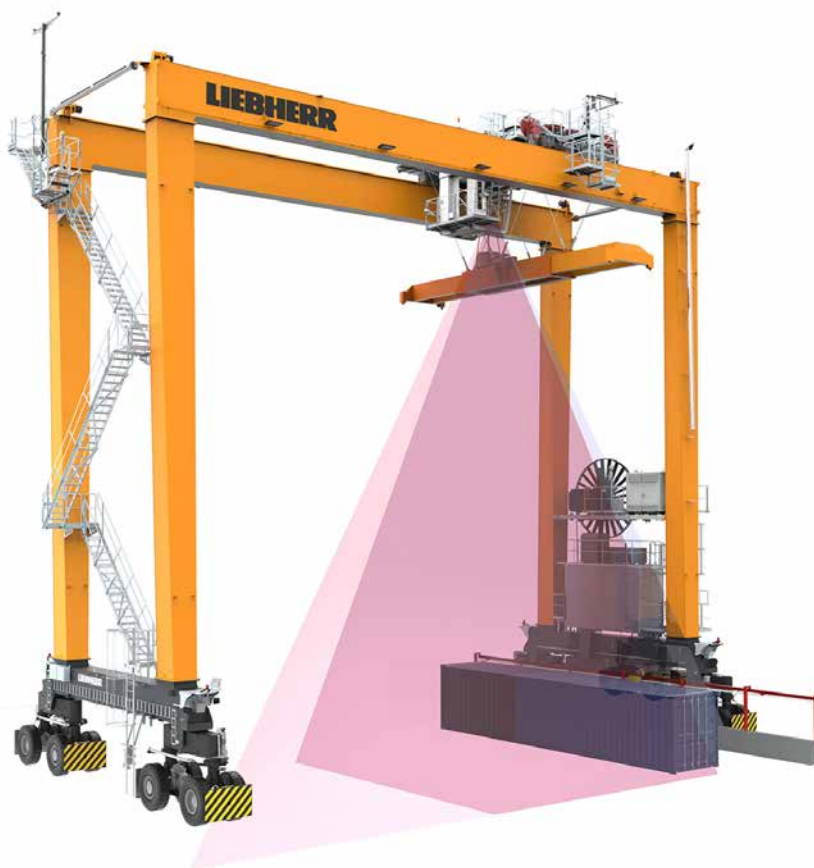
Obstacle generation and monitoring system

3D profiles are analysed by a proprietary obstacle generation and monitoring software system that interprets the profiles and the specific operational conditions of the yard to generate virtual obstacles. These obstacles are processed by the PLC, where they are used to control, path plan and position the crane.

Spreader/load collision detection

During crane movements and with every pick and place the system scans the surrounding area. Using this data, a dynamic surveillance cube is created around the spreader and any onboard container, if present. The system checks whether any detected objects overlap with the surveillance cube, and if so, the crane will warn the driver, slow down or stop to avoid a possible collision. Collision detection is continuously active during crane movement.

Target measurement

In general, the detection of a container slot for each pick and place has to be performed. Typically, the crane autodrive system will have positioned the spreader/container at the target position. The PLC will ask the subsystem to scan the area. The PLC will use the returned data to determine if the next move is a pick or place. Once this is known, the crane PLC will perform the move.

Path optimisation

Path optimisation, calculates the shortest and safest path between the start position and the target position by utilising a virtual container map and using the intelligent stack to navigate this path (to avoid collision with any object). ECS routing will take into account the relative position of all cranes to avoid a scenario of having two cranes on the same path.

Liebherr Transform
Unleash the full potential

Liebherr Transform is the upgrade and modification service from Liebherr Container Cranes Ltd.

Ports and terminals are under increased pressure to reduce costs and boost performance through increased productivity, faster turnarounds and reduction in equipment downtime. This can sometimes result in increased capital expenditure for new equipment.

As a Liebherr Container Cranes customer, you already own the best container handling equipment on the planet. Why not unleash its full potential by upgrading it?

Liebherr Transform uses the best available technologies to make your crane stronger, faster, smarter, greener and ultimately … better.