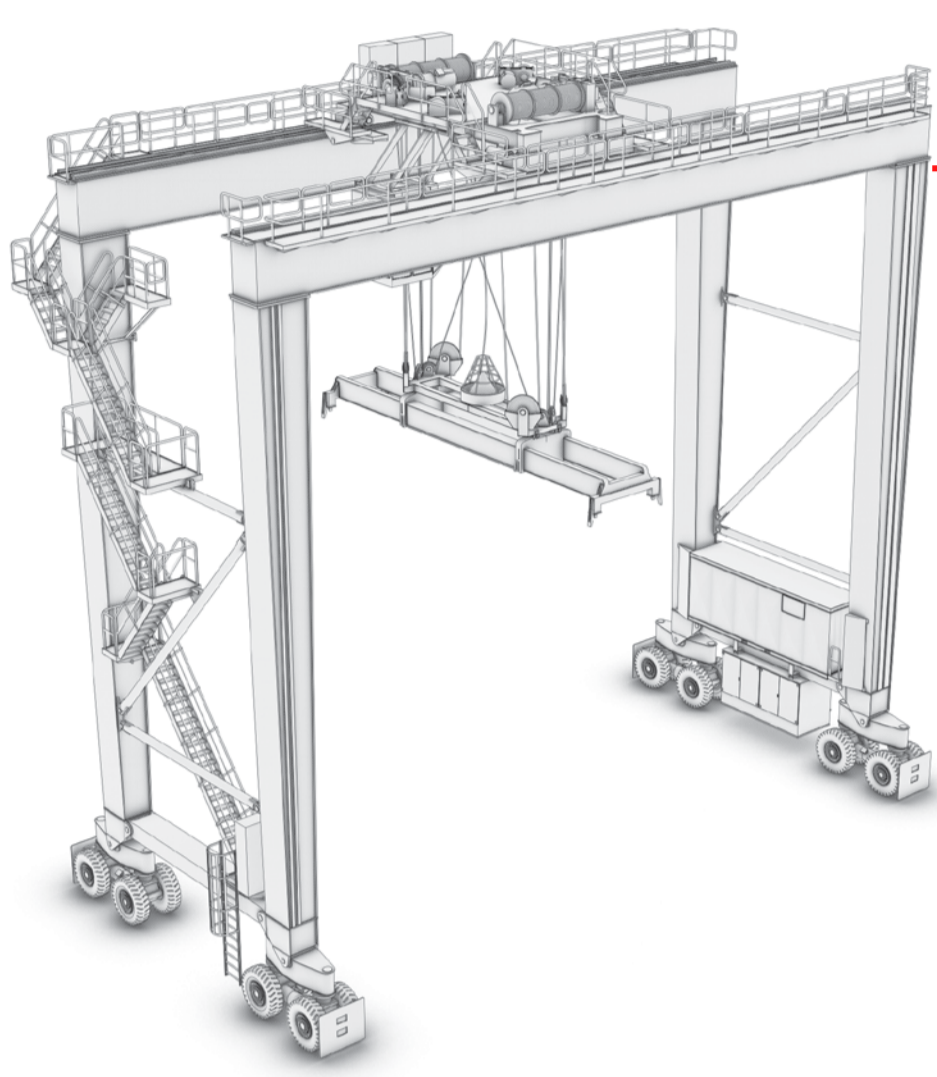


ECOLIFTING RETROFITS

Busbar

A conductor rail is installed to the steel structure along a container stacking area, providing consistent electric power that is cleaner and cheaper than diesel.



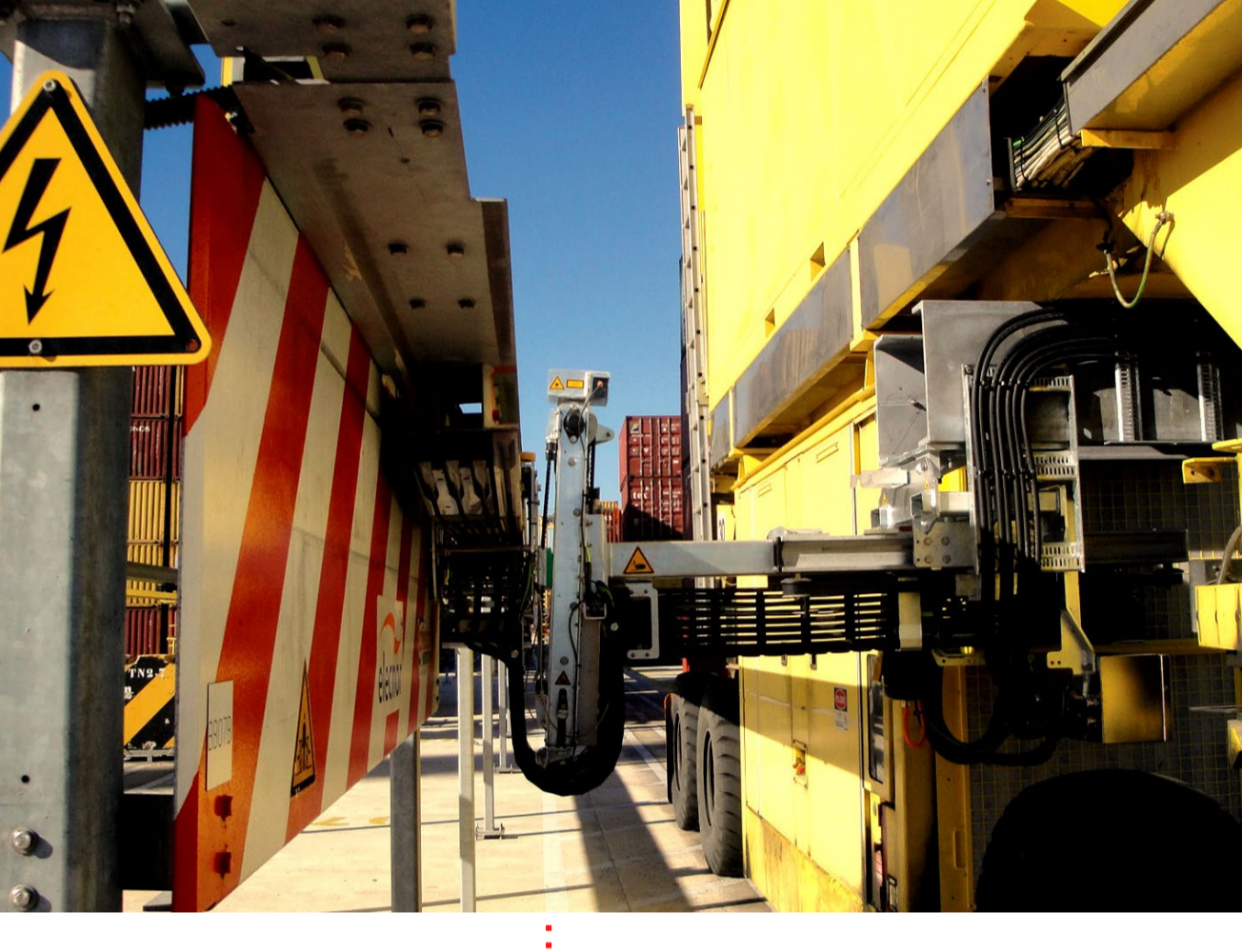
EQUIPMENT

This technology can be applied to all Konecranes RTGs as well as **any other crane brand**.

RTGs should be PLC controlled with PROFINET bus link.

**AB**  
Any Brand

**RTG**  
Rubber-Tyred Gantry



BENEFITS

- Eliminates diesel fuel consumption completely
- Eliminates time spent refuelling
- Typically 25-30% of total downtime is related to diesel engine maintenance, electrification saves those costs
- Optional: Drive In/Drive Out procedure can be automated with Konecranes proprietary "one button" feature
- Full diesel-genset remains available as back-up and auxiliary.

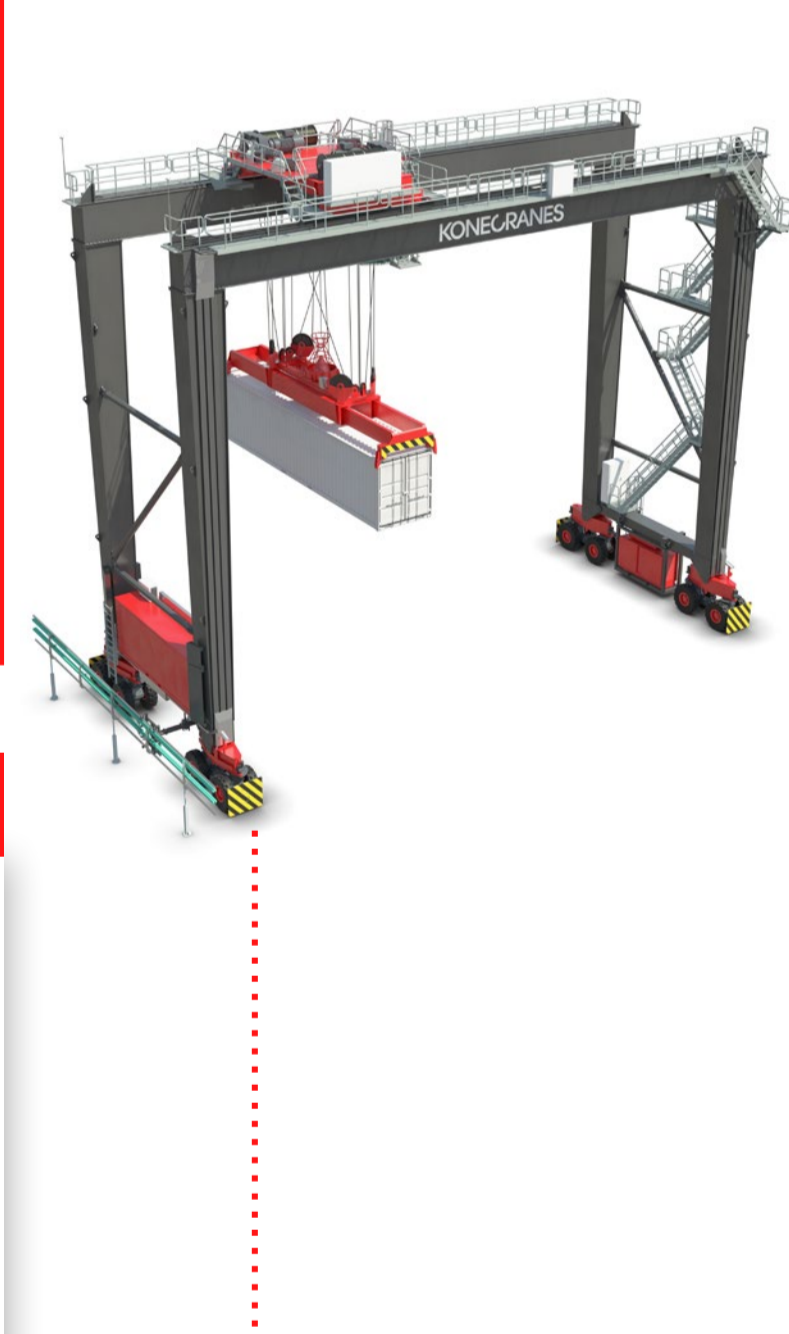
FUEL SAVINGS

**ASSUMED PARAMETERS**  
 average load: 30t cycle: 12 boxes/h operational hours: 3600/year  
 fuel cost: 95ct/l electrical energy cost: 11ct/kWh

	Diesel Engine Power with fixed speed mode	Busbar Power without Network Braking	Busbar Power incl. Network Braking
<b>needed energy /h</b>	14,8 l/h	59.0 kWh	27.5 kWh
<b>fuel cost /h</b>	13.50 €/h	6,50 €/h	3,00 €/h
<b>running cost /year</b>	47.790,-EUR	23.376,-EUR	10.749,-EUR
<b>cost difference to diesel /year</b>		-24.415,-EUR	-37.042,-EUR
<b>up to ...% saving /year</b>		50%	75%

HOW IT WORKS

- The new electrical power supply source is fed by conductor rail system, consistently in-touch with the RTG
- The existing diesel genset remains on the RTG for container stack changes
- A special telescopic arm connects the RTG with the conductor rail and mains power
- Coupling and uncoupling sequences are activated by PLC control.



WHAT YOU NEED TO KNOW

- Auto-Steering smart feature is mandatory to operate RTG on virtual track alongside busbar rail
- Customer is required to provide supplying conductor rail voltage in same level as RTG's nominal board voltage
- Standard values are 400V up to max 690V. If there a need to run different types of RTGs on one common conductor rail, the RTGs need to match frequency and voltage of grid power
- Customer is responsible for:
  - all site related civil works, infrastructure works and site related equipment, such as yard busbar system, pillar boxes, transformers, breakers, etc.


SELECTED REFERENCES



Year	Customer/Location	Quantity
2020/21	Gulfainer / Wilmington	9
2019	LCT / Lomé	11
2017/19	MSC / Valencia	9
2015/16	POE / Frt. Lauderdale	4



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. The Group has more than 16,000 employees at 600 locations in 50 countries. Konecranes shares are listed on the Nasdaq Helsinki (symbol: KCR).

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