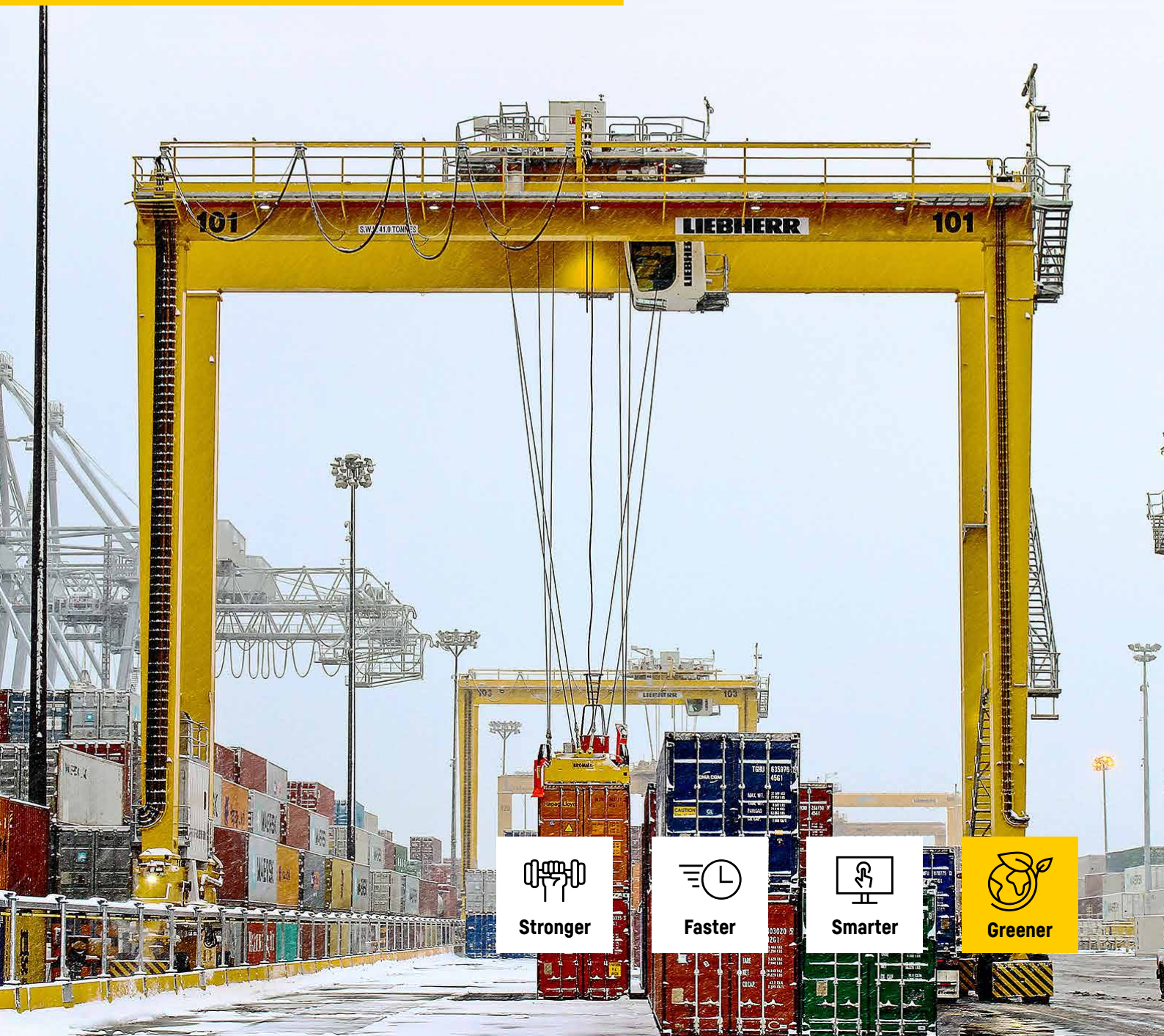


RTG green energy retrofit

Liebherr Transform

LIEBHERR

Liebherr Container Cranes Ltd.



Stronger



Faster



Smarter



Greener

Turn on to sustainable power

As a society, we have woken up to the fact that we have to pay more attention to our planet. The drive for sustainability has built up a head of steam and is moving on at a relentless pace. The world is going green. Your existing diesel RTG might not seem like a green machine, but with a green energy retrofit from Liebherr you can convert your existing fleet into green fleet with enhanced environmental credentials. Our electric options offer reduced noise, reduced energy consumption, reduced maintenance costs and zero local emissions. An active front end allows you to reduce your energy consumption even further by generating electricity under braking and lowering. A win for everyone.

Maybe you are not set up for electric power. Not to worry, our Liduro energy storage system allows for reduced emissions along with reduced energy and maintenance costs. This hybrid power solution gathers energy from braking and lowering and stores it locally. This energy can be used to reduce reliance on diesel power and will deliver significant savings for the environment and your pocket.

The retrofitting of green energy solutions is often grant aided, so the costs can be much less than you think.



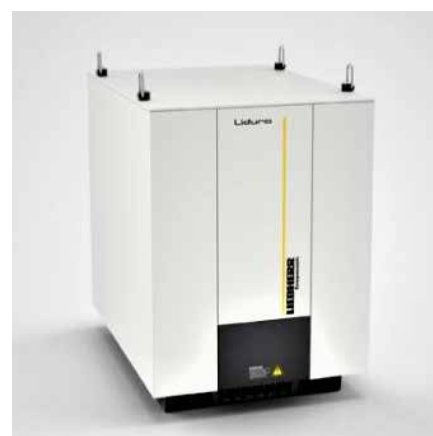
Electric or hybrid – it's your choice



Cable reeling drum



Busbar solution



Liduro energy storage system

Retrofitting green energy solutions to your RTG has never been easier. All Liebherr RTGs can be converted no matter if they are variable or dual speed. Our drive in busbar solution is suited to operation where flexibility is required. With a small level of investment, the busbar solution requires minimal maintenance or care when installed. A cable reeling drum solution can be installed without any or very little civil works, whilst a hybrid solution will reduce emissions operational costs without any on-site civil or electrical works.

Cable reeling drum

Our cable reeling drum solution is simple to retrofit with minimal civil works required. The cable can run in an embedded cable channel or on the yard surface. A CRD can operate with supplied HT power from 1 – 11 kV and can either be end or centre fed with up to ± 800 m in one direction. With parallel cables, a number of RTGs can operate from the same base station. A fibre core to the power cable looks after communication and lag free operation. With modern plug-in connections, it is simply a matter of unplugging and using the diesel engine to travel between stacks.

- **Hard or plugged connection**
- **± 800 m centre**
- **1-11kV**
- **fibre support**
- **zero local emissions**
- **active front end**
- **noise reduction**
- **reduction in maintenance costs**
- **reliability**

Busbar

Depending on customer preference, a busbar solution may be preferred choice. Theoretically any length of stack can be catered for with a power supply every 300m. With profiDAT data transfer, blazing fast data speeds are assured for lag free communications and automation operation. A drive in connection makes it simply a matter of driving onto the stack to begin operation.

- **Drive in manual or automatic connection**
- **up to 3 RTGs per bus bar**
- **variable length stacks**
- **up to 350 kW**
- **135 m/min max**
- **input voltage 380 – 690 VAC 50/60Hz**

Hybrid

The Liduro energy storage system is designed around a modular capacitor. With an energy content of 1.5 MJ and power output of 100 kW/15 seconds, theoretically any number of capacitors can be installed to delivery Installed in parallel to an electric solution, the hybrid will balance your power requirements through peak power delivery and management. This can be useful when you have multiple RTGs operating on one busbar for example. Its capacitor based design is optimized for the rapid cyclical charging and discharging that typifies modern container stack handling.

- **Liduro energy storage system**
- **option for small genset**
- **no suitable electric power**
- **reduced pressure on engine**
- **Idling function to reduce diesel consumption/ emissions further**
- **55 % reduction in power when idling**

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.

