

# A new perspective.

The Kalmar RTG range.



# Securing the future of your business.

Kalmar's extensive range of RTGs is proven on the field and known for its quality and reliability.

## **Efficient and reliable.**

Kalmar offers a full range of reliable and energy-efficient RTGs. Each with industry-leading performance levels and state of the art features. Kalmar RTGs are built on the experience and knowledge we have accumulated over the last 30 years working with terminal operators around the world.

## **A flexible range.**

Each of our RTGs can be designed to meet your business requirements. We can build your RTG to any height and width you specify, with an extensive choice of highly energy-efficient power sources and cabins. Kalmar RTGs are available up to 10+1 wide, giving you a high stacking density and efficient land utilisation.

## The Kalmar RTG range.

Kalmar offers a full range of industry-leading, reliable RTGs with a choice of highly efficient power sources.

### **Kalmar Zero Emission RTG.**

This RTG, with its fully electric regenerative power unit, has zero emissions at source and is extremely quiet. The all-electric design eliminates the need for hydraulic oil, which greatly reduces its environmental impact.

### **Kalmar Hybrid RTG.**

The Kalmar Hybrid RTG combines a smaller diesel engine with a regenerative energy storage system. This collects the energy produced by the RTG while operating, and stores it for later use, making it a highly fuel efficient combination.

### **Kalmar SmartPower RTG.**

With its intelligent power management system, the Kalmar SmartPower RTG ensures that the most efficient engine RPMs are always used. Featuring a compact diesel engine that doesn't compromise on performance, the SmartPower RTG enables you to reduce your fuel consumption and emissions at the same time.

### **Kalmar Classic RTG.**

The Kalmar Classic RTG features a highly efficient diesel power train. You can upgrade this power train and add a Variable Speed Generator, which allows the engine to run at the most economical speed, saving you fuel and money.

All new Kalmar RTGs enable you to take advantage of automating some or all of your processes; from remote control to fully automated moves.

Kalmar RTGs key customer terminals globally.







# Efficient, productive and smart.

The Kalmar RTG range is highly intelligent and productive, and is equipped with many state of the art features.



#### **Enduring quality.**

All our RTGs are built with the experience and knowledge we have accumulated over years of working with RTG terminals around the world. By applying this engineering expertise and knowledge, our current RTGs are lighter than other RTGs in the market, without compromising the structural integrity or build quality of the crane.

#### **Easy to manage.**

With our upgraded crane management system, you will benefit from larger screens in the cabin and EE-House for greater visibility and an easier to manage user interface that has been standardised across all Kalmar RTG cranes. Our new management system is ready to be integrated with SmartPort applications, should you want to automate all or some of your processes in the future.

#### **Precision handling.**

Kalmar SmartView uses a combination of four cameras mounted on the trolley combined with an in-cabin display, which allows your crane operator to move containers without having to look down. SmartView provides extra visibility during lifts and placement for your operator making container movements more efficient and safer.

#### **Clever technology.**

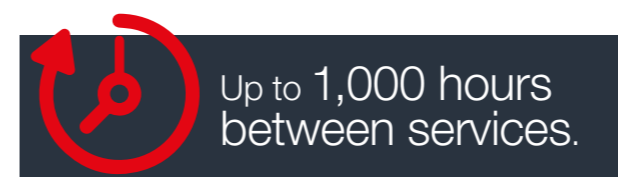
Kalmar RTGs are fitted with an automatic auxiliary load system that manages the air-conditioning, heating and lighting of the crane. It automatically adjusts auxiliary system settings depending on the operating conditions. This system also features an intelligent motor control unit for the RTG's main movements, considerably reducing energy consumption.

#### **Easier to maintain.**

All Kalmar RTGs have electric trolleys, wheel turning and spreaders, with no hydraulics. The cranes have also been designed with easy access to key servicing points. Together, this means more uptime and less frequent maintenance downtime. In fact, we recommend servicing intervals of 1,000 hours, by far the longest in the industry.

## When reliability counts.

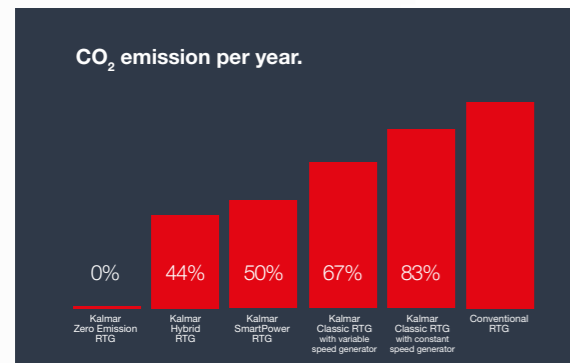
You can expect higher than industry average uptime with Kalmar RTGs. Based on our statistics, most customers exceed agreed MTBF targets, with some customers reporting continuous uptime of over four times the standard industry benchmark.





# Reduce your fuel consumption and emissions by up to 100%.

Kalmar RTGs are cleaner and greener. The all-electric Kalmar Zero Emission RTG has zero emissions at source and the Kalmar Hybrid RTG can reduce fuel consumption by over 50% compared to most other RTGs. Even our Kalmar Classic RTG with diesel power source and a constant speed generator, can have up to 17% smaller fuel consumption over most of the traditional diesel RTGs.



Here are a few other ways Kalmar can help improve the sustainability of your operations.

#### Cleaner engines.

Kalmar Classic RTG, with variable speed generator, runs at lower RPMs while idling. As a result you can use up to 33% less fuel and produce even less emissions than conventional diesel engines.

#### Lightweight spreaders.

The Bromma all-electric spreader needs less energy to operate, therefore saving fuel and reducing emissions. The spreaders are about 2,000 kg lighter than conventional spreaders and can be even lighter if a head-block is not required.

#### Less moving parts.

By replacing traditional hydraulic systems with an all-electric trolley and hoisting system, coupled with a direct gantry drive without high maintenance chains and lubrication points, you will be able to reduce the amount of oil and lubricants used. This reduces the environmental footprint of the crane further.

#### Quieter than ever before.

Our re-engineered power unit enclosure, variable speed generators and Hybrid power units enable significant reductions in operating noise levels, while our all-electric RTGs benefit from virtually no engine noise at all.

#### All-electric.

The Kalmar Zero Emission RTG uses electricity supplied through either a cable reel or bus bar system, giving you a crane that produces no emissions at source.

Keeping your employees and equipment safe has always been one of our key priorities. This is why we have paid extra attention to the safety of our RTGs.

#### Safer to operate.

Kalmar RTGs have two different anti-sway options to choose from. The Kalmar Max Stable system, uses eight rigid lines with 16 rope falls to provide great stability while the alternative Auxiliary Rope System uses four inclined ropes, both in trolley and gantry direction to prevent and dampen sway.

The light-weight electrically powered trolley supports micro-moves with great precision. In addition, the SmartProfile anti-collision as well as the chassis lift prevention systems enhance safety levels further.

#### Fail-Safe PLC.

Every Kalmar RTG is fitted with Fail-Safe PLC, which identifies and analyses the most important safety issues associated with RTG operations. Based on this analysis, the system implements a set of safety protocols and safeguards that comply with category safety requirements according to the EN 954-1 standard built into your crane. This feature enables you to minimise operational risks to employees and equipment. It is essential for all levels of automation and can be password protected for extra security.

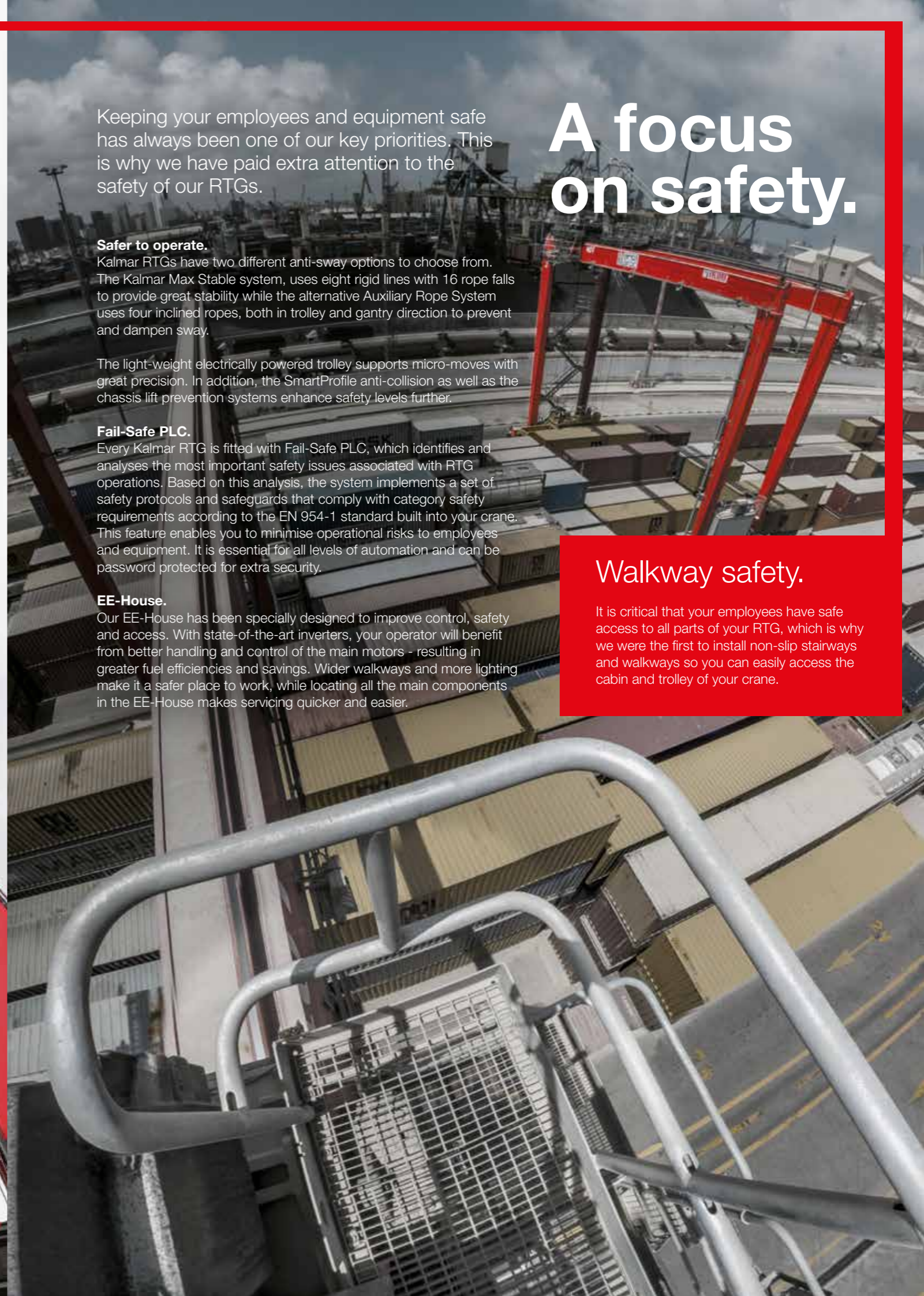
#### EE-House.

Our EE-House has been specially designed to improve control, safety and access. With state-of-the-art inverters, your operator will benefit from better handling and control of the main motors - resulting in greater fuel efficiencies and savings. Wider walkways and more lighting make it a safer place to work, while locating all the main components in the EE-House makes servicing quicker and easier.

# A focus on safety.

## Walkway safety.

It is critical that your employees have safe access to all parts of your RTG, which is why we were the first to install non-slip stairways and walkways so you can easily access the cabin and trolley of your crane.





# Smart solutions that make a difference.

## Take advantage of Kalmar SmartPort.

Kalmar SmartPort allows you to automate specific processes within your operations to drive even greater efficiencies. SmartPort spans the entire range of automation solutions for terminal operations. Here are a few of the modules that you may want to consider.

In the yard, Kalmar SmartStack with Container Position Indication (CPI) ensures that through real time automated inventory reporting and management, you will not have to waste time searching for your containers.

Kalmar SmartProfile uses advanced laser technology to detect collision risks in the stack and automatically stops the trolley when a risk is detected, improving operator safety.

Kalmar SmartMap provide a complete overview of operations and movements in the terminal. This can be viewed in real time or you can review past data.

Your fleet of RTGs can also be monitored remotely with Kalmar Insight, which allows you to assess the current working patterns of your cranes, then make changes to maximise availability and continuously optimise equipment efficiency.

## Kalmar Insight.

Kalmar Insights is a cloud based analytical tool that aggregates your operational business data from your equipment fleet, Terminal Operating System and Maintenance Management System into an accessible and understandable format. This information is displayed in an intuitive user interface that provides a holistic view of your entire operations, at all times.

Kalmar Insight helps you make sense of your big data so you can review and analyse your operations, allowing terminal management to identify and plan operational actions that will have a real impact on the business.

## Benefit from SmartRail.

SmartRail is an automatic gantry steering system that guides your RTG along virtual tracks for real-time positioning and highly accurate steering. SmartRail helps increase crane productivity and prepare for future automation.

# A platform ready for the future.

Our complete range of RTGs can be factory equipped or retrofitted for automation readiness. Once the Kalmar TLS and your TOS are fully integrated, you can choose your own starting point for your automation journey. Kalmar RTG cranes support different levels of automation:

Read more at:  
[www.kalmarglobal.com/autortg](http://www.kalmarglobal.com/autortg)

### Remote control.

Operator controls all of the moves of the AutoRTG from the yard control centre.

### Supervised automatic moves.

Operator supervises automated hoist, trolley and gantry moves on stack and controls operation in truck lane.

### Automatic pick and place on stack.

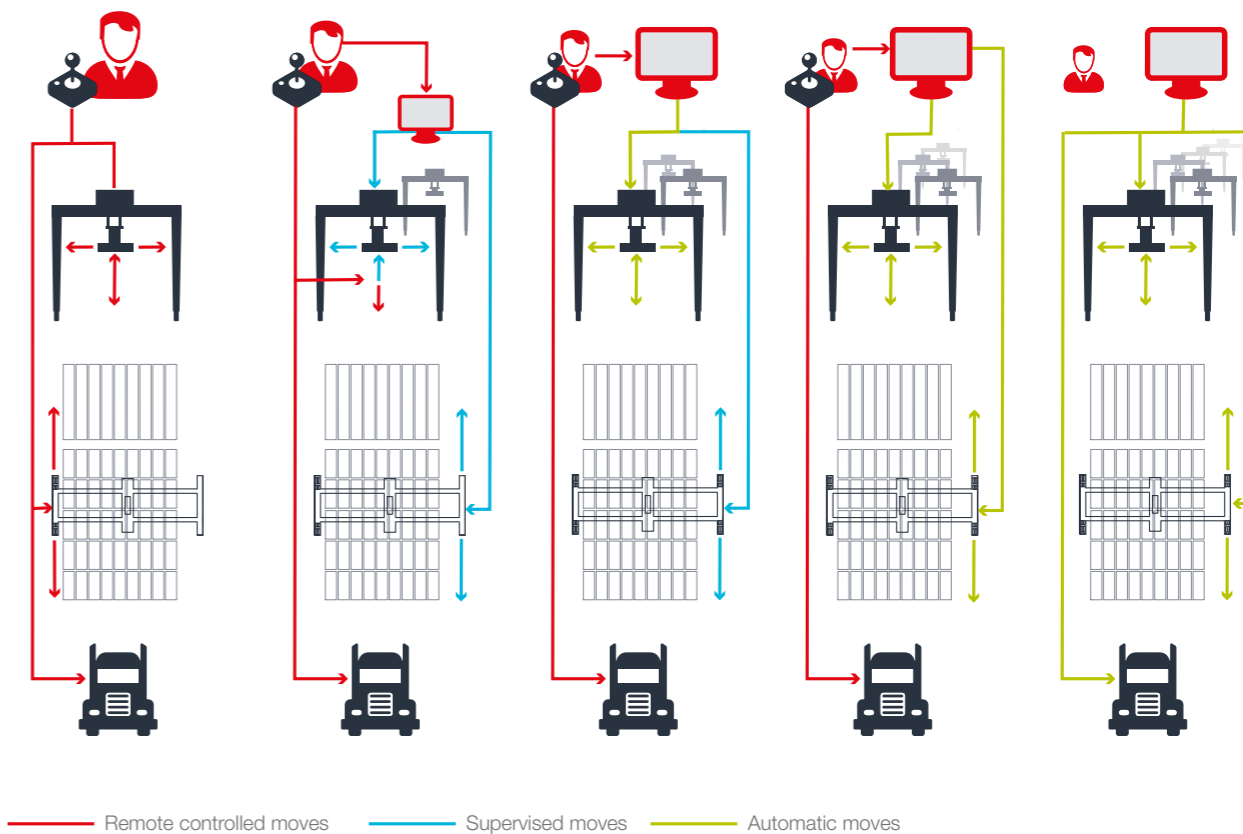
Hoist and trolley are executed automatically on stack, and gantry is supervised. Operator controls operation in truck lane.

### Automatic gantry.

Hoist, trolley and gantry are executed automatically on stack. Operator controls operation in truck lane.

### Fully automated.

Fully automated solution with automated truck handling and automatic horizontal transport. An operator is now only needed for exception handling.





# More support.

Our job doesn't stop once we deliver your new RTGs. We can also offer a range of support services that help keep your new equipment running at its optimal best. With a global network of over 1,500 service and support professionals in 120 countries, we will always have someone nearby to give you the support you need.

## Kalmar Care.

### **Making sure your business never stops.**

We can offer you four different types of service and maintenance contracts, for any brand of equipment. Each is designed to help you improve your operational efficiency, drive productivity and secure financial predictability. Each contract type includes a range of standardised service modules to meet your business needs. You just need to choose which one is right for you and your day-to-day operations. Here is an overview of the four different levels:

### **The four flexible types of service contracts.**

#### **Kalmar Support Care**

We support your maintenance processes on demand.

- Availability of competent people with the right tools and parts
- Addition of skills to existing maintenance organisation.

#### **Kalmar Essential Care**

We perform your agreed maintenance tasks proactively.

- Availability of competent people with the right tools and parts
- Higher degree of financial predictability
- Reduced operational risk to terminal
- Improved availability of machines.

#### **Kalmar Complete Care**

We meet your complete maintenance requirements.

- Improved predictive maintenance
- Low operational risk to terminal
- Reduced equipment downtime
- Reduced total cost of operation
- Increased operational predictability.

#### **Kalmar Optimal Care**

We optimise your business performance.

- Guaranteed availability
- Reduced tied-in capital
- Improved business performance
- Increased peace of mind.

## Kalmar Genuine Parts.

### **When the right part matters.**

When something needs to be replaced, you need a spare part that meets your exact needs – urgently. Kalmar offers a rapid delivery service for over 50,000 premium-quality genuine parts to anywhere in the world, with installation support if needed.

You may also want to consider outsourcing all or part of your parts management and inventory control. Kalmar Parts Care can make sure that critical spare parts are always on hand, so your equipment downtime is kept to a minimum. Each Kalmar Parts Care plan is based on your individual needs, so talk to us today and see how we can improve your parts availability, while reducing your inventory costs.

## Upgrade or retrofit.

When you start thinking about the future, you will be thinking about automation. Every new Kalmar RTG can either be factory equipped or retrofitted to meet your changing needs should you start your automation journey; older Kalmar models or cranes from other manufacturers will need to be assessed individually.

Kalmar can also help with electrifying your entire RTG fleet, which is often considered the first step towards an automated terminal. Talk to us about how you might be able to get more out of your current fleet through upgrading or retrofitting your RTGs.



Always someone nearby, with 1,500 staff in 120 countries.



# KALMAR

Making your every move count

This document is provided for informational purposes only. The information contained in this document represents the current view of Cargotec on the issues discussed as of the date of publication and should not be interpreted as an offer or commitment on the part of Cargotec. The information presented here is "AS IS" and Cargotec does not guarantee the accuracy of any information presented and assumes no liability arising from your use of the information. CARGOTEC MAKES NO WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, IN THIS DOCUMENT. Kalmar is a registered trademark of Cargotec. All other trademarks are property of their respective owners. © 2017 Cargotec. All rights reserved.

[www.kalmarglobal.com](http://www.kalmarglobal.com)